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## Editorial Advantage of Breastfeeding for Mother and Child

Mohsin Masud Jan

Editor

Breast milk is the optimal food for newborns as it contains essential amino acids and long chain polyunsaturated fatty acids to help neurological development in the newborn child. It also contains immuno-globulins and lymphocytes to promote immunity and hence is very beneficial to a child's health.

The baby will enjoy a similar immunity to pathogens to which the mother has built up a resistance.

Immuno-globulins (Ig) A, and B, and T lymphocytes are beneficial to the newborn, whose own immune system is still very weak and immature. In the case of preterm infants there is a reduction in the risk of the babies developing necrotizing enter colitis.

The long term benefits of breast milk are also worth considering. Breast milk has been demonstrated to help reduce the risk likelihood of:

- Middle ear infection
- Eczema
- Gastrointestinal infection/gastroenteritis
- Diabetes (both type 1 and type 2)
- Risk of childhood leukaemias
- Obesity

Mothers also can benefit from breastfeeding their babies. It has been demonstrated that for women who choose to breastfeed, there have been observed reductions in Breast Cancer, Ovarian Cancer, Osteoporosis and Uterine contraction.

More than just health benefits for mother and child, breastfeeding has emotional benefits as well.

To give babies the healthiest start in life, the WHO recommends mothers to aim for six months of exclusive breastfeeding and continued breastfeeding onwards while other foods are being introduced in the baby's diet.

To that end, breast pumps have been designed to help mothers continue breastfeeding their babies when circumstances prevent the child from feeding directly from the mother.

Breast cancer is the most common cancer in women all around the world and one out of nine women suffers from this type of cancer. In Pakistan, 43.7 percent of all breast cancer patients die every year. However, early detection and improved treatments are the only way which can reduce the number of deaths by 90 percent and this can be achieved by creating widespread awareness about breast cancer.

Every year 40,000 women die in Pakistan due to breast cancer and Pakistan has the highest rate of breast cancer patients in whole of Asia. One in every nine women in Pakistan is at very high risk of becoming a victim of breast cancer in her lifespan. However, this is the only cancer if diagnosed early, the survival rate increases to more than 90 percent.

Mothers worrying about producing insufficient milk supply is the number one concern mothers have to stop breastfeeding. Insufficient milk supply is mostly a perceived problem, because from a physiological perspective, a decrease in supply should not be expected with regular and effective breastfeeding.

Symptoms of this include mothers not feeling any physiological engorgement; the baby is crying a lot or that the baby shows insufficient weight gain.

The solution to this problem lies in correcting the breast feeding technique, changing the frequency of the feeds and boosting the milk supply by expressing breasts using a breast pump.

On the other hand, mothers also have concerns of producing too much milk, more than their babies can take. Symptoms of this issue include; milk spurting out in forceful sprays in the beginning, and then slowing down; babies gulp and choke when mum has a forceful letdown and will often swallow air and mothers suffering from full, engorged breasts, plugged ducts, and mastitis.

There are many ways to relieve this problem. For example, offer only one breast at each feeding and let the baby feed as long as he wants to on that side. Mothers can also express just enough milk to relieve the discomfort. Usually within a week, a significant decrease in supply occurs adjusting to meet the baby's demands. And if the baby is ill or premature he can be fed on expressed milk until he is able to feed directly from the breast. Breast pumps are recommended to express excess milk and help maintain lactation.

Expressing milk can encourage and build up the milk supply, in addition to regular breastfeeding. The expressed milk can be stored in the fridge or freezer for later use. A whole feed can occasionally be given by someone else other than the mother, once breastfeeding is established. This is an absolute convenience for busy modern mothers.

With the right tools in hand, even in a busy modern society, mothers and their babies can still fully enjoy the many benefits of breastfeeding.

# Frequency of Colorectal Injuries in Patients with Abdominal Trauma at Liaquat University Hospital Jamshoro/Hyderabad

Abdul Razzak Shaikh, Bhupat Rai and Shahnawaz Abro

## ABSTRACT

**Objectives:** The objective of this study is; to find out the frequencies of colorectal injuries in the patients with abdominal trauma.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the General Surgery Department, Liaquat Medical Hospital Hyderabad from 23 December 2014 to 22 November 2015.

**Materials and Methods:** All the patients with abdominal trauma, both genders with age 18 to 78 years were included in the study after taking an informed written consent from the patients and their attendant. Details of history, clinical examination in particular whole abdominal examination, ultrasonography and all require able lab investigations were carried out. Possible cause of abdominal trauma was found. Frequency of colorectal injuries was noted. Rectal injuries were evaluated with digital examination, proctoscopy/sigmoidoscopy, and/or CT scan. All the data was entered on predesigned Proforma attached with.

**Results:** Total 139 patients were selected and mean age was 39.4±7.2 years. Majority of the patients were males i.e. 110/(79.71%). According to mode of injury majority of the cases were found with Road traffic accident 95/(66.85%). According to colorectal injuries majority of the cases were found with Ascending colon 35/(43.75%) and Transverse colon 24/(30.00%), following by Descending colon, Sigmoid colon and Rectum were found with percentage of 22/(27.50%), 19/(16.66%) and 07/(8.75%) respectively.

**Conclusion:** We concluded that 58% colorectal injuries due to abdominal trauma. Young males are more involved in the abdominal trauma and road traffic accident was the main cause.

**Key Words:** Colorectal Injuries, Patients, Abdominal Trauma

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## INTRODUCTION

Abdominal trauma among all age groups, leading cause of morbidity & mortality. To identify the complicated intra-abdominal pathologies is very challenging. Intestinal injuries can occur due to a various reasons. Among all those types of blunt trauma the injuries by automobiles are the most common reason.<sup>1</sup> Unfortunately it is very tough to decide exact prevalence of traumatic injuries of the colon and rectum. The different literature is showing prospective trials and retrospective case series showing results of cohort of colorectal injured patients. In general, wartime series have a higher prevalence of the colon injuries at 5-10%,<sup>3,4</sup> with recent review showing more than 3,400 cases at the time of Operation Iraqi Freedom

finding occurrence of rectal and colon injuries in the 5.1%.<sup>5</sup> Mostly in the civilian had found the lower ratio, between 1-3%. Rates of blunt trauma is low, according to a study containing 2,632 hollow viscus injuries cases, where injuries of the colon and rectum were found in only 0.3%.<sup>6</sup> Similarly, Carrillo and colleagues showed low prevalence of 0.5% following blunt trauma,<sup>7</sup> while in another review containing 1,367 blunt trauma cases had 0.1% colon injuries.<sup>8</sup> Ultrasound is the highly assessment of the diagnosis of abdominal trauma, especially for the intra-abdominal fluid detection with percentage from 63% - 99%.<sup>9,10</sup> In the recent 100 years, great improvement was found in the management of traumatic colon and rectal injury. Colonic injuries management is very important ground of trauma medicine that needs further studies.<sup>11</sup> Primary repair might be carried out in 39% cases.<sup>12</sup> Since no such study has ever been conducted at LUMHS, that discusses the colorectal injuries in patients with abdominal trauma, therefore this study is designed to evaluate the incidence of colorectal injuries in patients with abdominal trauma.

## MATERIALS AND METHODS

This was cross sectional stud. Study was done in department of general surgery; Liaquat University

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hospital, with one year duration from 23 December 2014 to 22 November 2015. All the cases with abdominal trauma, age between 18 to 78 years either gender were included. All the patients under 18 years of the age and without abdominal traumas were not included. Informed written consent from the patients and their attendant was done. Details of history, clinical examination in particular whole abdominal examination, ultrasonography and all require able lab investigations were carried out. Possible cause of abdominal trauma was found. Frequencies of colorectal injuries were noted including injuries of solid organs (spleen, kidneys, liver, and pancreas), stomach, ureters, small intestine, and urinary bladder. Rectal injuries were evaluated with digital examination, proctoscopy/sigmoidoscopy, and/or CT scan. All the data was entered on predesigned Performa attached with.

**Statistical Analysis:** Data analysis done by SPSS version 17.0. The frequencies and percentages were calculated for categorical variables like gender, mode of injury and injuries of colon and rectum and other abdominal organs. Mean was calculated for numerical variable with age. P-value < 0.05 was considered as significant

**RESULTS**

In this study mean age was 39.4+7.2 years. Majority of the patients i.e. 110/(79.71%) were males as compare to females i.e.28/(20.86%).According to mode of injury majority of the cases were found with Road traffic accident 95/(66.85%) and Heavy object fall on abdomen 30/(21.73%), following by Gunshot was found with percentage of 13/(9.42%). Table 1. In this study colorectal injuries were found 58% due to abdominal trauma.

According to colorectal injuries majority of the cases were found with Ascending colon 35/(43.75%) and Transverse colon 24/(30.00%), following by Descending colon, Sigmoid colon and Rectum were found with percentage of 22/(27.50%), 19/(16.66%) and 07/(8.75%) respectively. Table 2.

Colon injuries were significantly more associated with road traffic accidents (RTA) P Value = 0.001, and rectal injuries were significantly associated with gunshot injuries P Value = 0.001. Table 3

**Table:1. Patients distribution according to age, gender and mode of injury N=139**

Characteristics	Frequency (%)
Age (Mean+SD)	39.4+7.2 years
Gender	
Male	110/(79.71%)
Female	29/(20.86%)
Mode of injury	
Road traffic accident	95/(68.85%)
Heavy object fall on abdomen	30/(21.73%)
Gunshot	14/(10.07%)

**Table No. 2: Distribution of the cases according to colorectal injuries N=80**

Colorectal Injuries	Frequency /%
Ascending colon	35/(43.75%)
Transverse colon	26/(32.50%)
Descending colon	22/(27.50%)
Sigmoid colon	19/(16.66%)
Rectum	05/(6.25%)

**Table No. 3: Colorectal injuries according to mode of injuries N=80**

	Frequency			p-value
	RTA	Objective fall	Gunshot	
Ascending colon	29	05	01	0.001
Transverse colon	24	02	01	
Descending colon	17	04	01	
Sigmoid colon	11	06	02	
Rectum	07	00	04	

**DISCUSSION**

Incidence of abdominal trauma is found to be highest in the 21-40 year age group.<sup>13</sup>Themost common reason was road traffic accident, occupational risks and interpersonal violence or assault. Results of this study are showing similar findings that young population is very susceptible to injuries including abdominal trauma. In our study mean age was 39.4+7.2 years, and male gender was most common 110/(79.71%) in the comparison of female 28/(20.29%). Laghari ZH et al<sup>14</sup> reported that out of these 50 patients, 4 (8%) patients were females and 46 (92%) male. Afridi SS et al<sup>15</sup> reported that out of 261 cases, 70.88% were males while 29.12% were females and age was ranged from 15 to 58 years with mean of 29.74+8.59 years. Study was conducted by Musau et al<sup>16</sup> at Kenyatta National Hospital whose results shows that male to female ratio was 12.3:1. Majority of male involvement is due to occupational risk and other socio-economical activities which men are doing and putting them at risk of injuries. In this series majority of the cases were found with Road traffic accident 95/(66.85%) and Heavy object fall on abdomen 30/(21.73%), following by Gunshot was found with percentage of 13/(9.42%). Common cause of blunt abdominal trauma<sup>17</sup> is road traffic accidents. In this study, the common estreason was Road traffic accident (62.8%); next major reason was found to befalling from a height and the third was interpersonal violence. Results of other studies have found that the most important reason of blunt abdominal trauma was road traffic accidents, interpersonal violence, and falls.<sup>18</sup> The most important reason of penetrating abdominal trauma was found to be stabbing (47.4%). Gunshot wounds were the most important (77.65%) reported cause in studies conducted by other.<sup>19,20</sup> According to colorectal injuries majority of the cases were found with Ascending colon 35/(43.75%) and Transverse colon 24/(30.00%), following by

Descending colon, Sigmoid colon and Rectum were found with percentage of 22/(27.50%), 19/(16.66%) and 07/(8.75%) respectively. Aziz A, et al,<sup>21</sup> reported that most common site of colonic injury was Cecum, accounting for 56% of total injuries to colon, followed by ascending colon, 13%, and right transverse colon 11% (n=9) colon.

In this study according to additional organ injuries majority of the cases were found with Small intestine 33/(23.91%), Liver 26/(18.84%) and Stomach 10/(07.24%), following by Kidney, Diaphragm, Urinary Bladder, Pancreas and Gallbladder were found with percentage of 31/(22.46%), 07/(05.07%), 11/(07.97%), 05/(03.62%), and 01/(00.72%) respectively. Aziz A, et al,<sup>21</sup> demonstrated that most common organ injury was hepatic injury, involved in 15 cases 30% out of the 50 patients and 2<sup>nd</sup> most common injury was the splenic injury 26% cases. Hussain et al.<sup>22</sup> suggested 22.7% liver injuries, as well as Hoyt et al,<sup>23</sup> showed 25%. Aziz A et al<sup>21</sup> stated road traffic accident was the commonest mode of injury in 58% patients, falling history was in 20% cases, 16% patients injured due to violence while 3 (6%) patients had trauma because of industrial accident.

## CONCLUSION

We concluded that 58% colorectal injuries due to abdominal trauma. Young males are more involved in the abdominal trauma and road traffic accident was the main cause. Abdominal trauma is highly associated with colorectal injuries. Rectal injuries were mostly associated with gunshot injuries.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Effectiveness of Abdominal Abscesses Drainage by Percutaneous Guided Ultrasound

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Munazza Zafar<sup>4</sup>

## ABSTRACT

**Objectives:** To assess the effectiveness of treatment of abdominal abscesses drainage by percutaneous guided ultrasound

**Study Design:** Randomized controlled trial.

**Place and Duration of Study:** This study was conducted at the Department of Diagnostic Radiology, Bahawal Victoria Hospital, Bahawalpur for 6 months from October 2015 to March, 2016.

**Materials and Methods:** In our study, 80 patients were included from the in-door General Surgery wards of Bahawal Victoria Hospital, Bahawalpur. Regardless of gender, age of the patients ranges between 20-45 years having localized abdominal abscess > 4 cm in size not responding to antimicrobial treatment. All patients with generalized collection, bleeding diathesis and with co-morbidities were excluded from the study. They were divided in two age groups from 20-30 ages and 31-45 age. In group-A, percutaneous drainage was done and in group-B surgical exploration was done. Procedures was done by consultant surgeon and Radiologist. After procedure patients were assessed for effectiveness according to operational definition. Results were analyzed by using SPSS version 11.

**Results:** The study shows that in 20-30 ages, there were 18 patients in Group-A, 45% and 21 patients in Group-B 52.5%. In 31-45 years of age, there were 22 patients were in Group-A 55% and 19 patients in Group-B 47.5%, mean and SD was calculated as 32.54±2.63 and 29.24±2.34 years respectively, In group-A, 14 were male 35% and 23 females 65%. In group-B, there were 17 male 42.5% and 23 females 57.5%. Comparison of efficacy of ultrasound guided percutaneous drainage in treatment of abdominal abscesses shows 33 patients, 82.5% in Group-A and 20 patients, 50% in Group-B were treated effectively,  $p$  value = 0.002.

**Conclusion:** We concluded that Percutaneous ultrasound guided drainage of the abdominal abscesses is a better treatment strategy than surgery (exploratory laparotomy) and drainage of the pus. It is cost effective and reduce burden on hospital due to minimal stay in wards and expenditures.

**Key Words:** Abdominal Abscesses, ultrasound guided percutaneous drainage, exploratory laparotomy, effectiveness.

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## INTRODUCTION

Abdominal abscess continues to be an important and serious problem in surgical practice. In more than 80% of cases, abdominal abscesses are derived from an intra-abdominal organ and in the most cases they develop

after operative procedures.<sup>1</sup> regarding anatomy, these can be divided into intra-peritoneal and visceral abscesses and those located in the anterior retro-peritoneal space.

Intra-abdominal abscesses are life-threatening conditions requiring quick recognition, early diagnosis and prompt treatment. Imaging methods are especially important in diagnosis of abscesses.<sup>2,3</sup> Abscesses might be recognized on plain radiographs occasionally. But ultrasonography and C.T scans are the stable modalities for diagnosis and localization of intra-abdominal abscesses.<sup>4,5</sup>

Appropriate antimicrobial therapy, percutaneous ultrasound drainage and open surgical approaches are the mainstay of treatment of abdominal abscesses. Antimicrobial therapy can improve the patients who have abscesses of 4cm or less size; however patients with an abscesses diameter more than 6.5 cm have likelihood of failing conservative treatment with

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antimicrobial and require intervention (either percutaneous drainage or surgical intervention).<sup>6,7</sup> In some recent studies,<sup>8,9,10</sup> the complication rate in surgically drained patients (SD) was 64% whereas those who were treated by percutaneous drainage (PD) had complication rate of 27%. The mean general well being as measured by verbal scoring system in PD was  $3 \pm 1.1$  while in SD group, it was  $2 \pm 1.2$ .<sup>11</sup> In the PD group the mean heart rate was  $100 \pm 1$ , in SD group  $101 \pm 1.5$ . The mean size of abscess drained in SD group was  $8.2 \pm 1.1$  cm, in PD  $7.7 \pm 1.3$  whereas total leukocytes count in PD was  $6700 \pm 500$ ; in SD was  $7500 \pm 900$ .<sup>12</sup>

The aim of conducting this study is to evaluate effectiveness associated with ultrasound guided percutaneous drainage versus conventional open surgical. The basic rationale is that the technique which shows more effectiveness in subsequent patients in future.

## MATERIALS AND METHODS

Study was Randomized controlled trial. It was carried out in Department of Diagnostic Radiology, Bahawal Victoria Hospital, Bahawalpur. Study duration was 6 months. The calculated sample size with 80% power of study, 5% level of significance, the magnitude of complications with percutaneous drainage / aspiration as 27% and with surgical exploration as 64% assuming efficacy in PD as 73% and in surgical drained technique as 46%. The sample size required was 80 patients i.e. 40 in each group. Group A: 40 patients received percutaneous drainage of intra-abdominal abscess. Group B: 40 patients received surgical exploration of intra-abdominal abscess. Sampling technique was non-probability consecutive: Purposive Sampling Technique. Patients with age 20-45 years, regardless of gender having localized abdominal abscess size > 4 cm in either dimension, not responding to antimicrobials were included in the study. While all Patients with generalized collections (presence of free fluid in the abdominal cavity on USG), patients with bleeding diathesis (raised serum PT, APTT level) and patients who have co-morbidities, which might act as confounding variables, like Diabetes Mellitus, Malignancy, Chronic liver disease, malnutrition, and cold abscess etc were excluded.

Eighty patients, fulfilling the inclusion criteria were included from the indoor patient, Department of General surgery wards of Bahawal Victoria Hospital, Bahawalpur after approval from the hospital ethics committee. An informed consent was taken. Demographics of the patients were noted. Randomization of the patients in two groups was done by lottery method. The patients in group-A received percutaneous drainage, and patients in group-B received surgical exploration. The procedures were done by a consultant Surgeon and Radiologist having at least five years post fellowship experience. After the

procedure, the patients were assessed for the efficacy (as per operational definition). The data was collected on the proforma attached. Firstly, whole data was entered to SPSS version 11. The quantitative data like age was described as mean and standard deviation. The qualitative data like sex and efficacy was labeled as frequency distribution table. The two groups were compared for the statistical difference. Chi-square test was applied. P value < 0.05 was taken as significant. Stratification for age and gender was done to control the effect modifier.

## RESULTS

A total of 80 cases (40 in each group) fulfilling the inclusion/exclusion criteria were enrolled to assess the efficacy of ultrasound guided percutaneous drainage in treatment of abdominal abscesses.

Age distribution of the patients was recorded and presented, in 20-30 years range 18 patients, 45% were in Group-A and 21 patients 52.5% were in Group-B, In 31-45 years range 22 patients 55% in Group-A and 19 patients, 47.5% in Group-B years of age, mean and standard deviation was calculated as  $32.54 \pm 2.63$  and  $29.24 \pm 2.34$  years respectively. (Table No. 1)

The study results show that 14, 35% patients in Group-A and 17, 42.5% patients in Group-B were male and 26, 65% in Group-A and 23, 57.5% patients in Group-B were females. (Table No. 2)

Comparison of effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses was done which showed 33, 82.5% patients in Group-A and 20, 50% patients in Group-B were treated effectively while the rest of 7, 17.5% patients in Group-A and 20, 50% patients in Group-B were not treated effectively (as per operational definition). P value=0.002. (Table No. 3)

**Table No. 1: Age distribution of the patients (No=80)**

Age(in years)	Group-A (No=40)		Group-B (No=40)	
	No. of patients	%	No. of patients	%
20-30	18	45	21	52.5
31-45	22	55	19	47.5
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>
<b>Mean +S.D</b>	<b>32.54+2.63</b>		<b>29.24+2.34</b>	

**Table No. 2: Gender distribution of the patients (No=80)**

Gender	Group-A (No=40)		Group-B (No=40)	
	No. of patients	%	No. of patients	%
Male	14	35	17	42.5
Female	26	65	23	57.5
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Table No. 3: Comparison of effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses (No=80)**

Efficacy	Group-A (No=40)		Group-B (No=40)	
	No. of patients	%	No. of patients	%
Yes	33	82.5	20	50
No	7	17.5	20	50
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

P value=0.002

**Table No. 4: Stratification for effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses with regards to age**

Age(in years)	Group-A (No=33)		Group-B (No=20)	
	No. of patients	%	No. of patients	%
20-30	19	57.58	14	70
31-45	14	42.42	6	30
<b>Total</b>	<b>33</b>	<b>100</b>	<b>20</b>	<b>100</b>

**Table No. 5: Effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses with regards to gender**

Gender	Group-A (No=33)		Group-B (No=20)	
	No. of patients	%	No. of patients	%
Male	10	30.30	8	40
Female	23	69.70	12	60
<b>Total</b>	<b>33</b>	<b>100</b>	<b>20</b>	<b>100</b>

The effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses with regards to age which shows that out of 33 cases in Group-A, 19 patients 57.5% were between 20-30 years and 14, 42.4% patients were between 31-45 years of age, while in Group-B out of 20 cases 14 patients 70% were between 20-30 years and 6 patients 30% were between 31-45 years. (Table No. 4)

The effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses with regards to gender which shows that out of 33 cases in Group-A, 10 patients, 30.3% were male and 23 patients, 69.7% were females, while in Group-B out of 20 cases 8 patients, 40% were male and 12 patients, 60% were female. (Table No. 5)

## DISCUSSION

In acute abdomen, surgical intervention are infrequently complicated by intra-abdominal and pelvic abscesses and fluid collections.<sup>13,14</sup> Post surgical intra-abdominal abscesses are most common.<sup>15,16</sup> Treatment of these abscesses and collections, traditionally required clinical

diagnosis and surgical intervention, and this has been revolutionized by high-resolution radiologic techniques such as Ultrasonography and CT Scanning.<sup>15,17</sup>

These studies permit precise anatomic localization of the abscesses and fluid collections and non-surgical drainage using percutaneous techniques.<sup>15</sup>

The aim behind conducting this study was to evaluate the effectiveness associated with ultrasound guided percutaneous drainage versus conventional open surgery.

The study reveals 18 patients, 45% in Group-A and 21 patients, 52.5% in Group-B were between 20-30 years of age. In 31-40 years ages, 22 patients, 55% in Group-A and 19 patients, 47.5% in Group-B were assessed. The mean and SD was calculated as 32.54±2.63 and 29.24±2.34 years respectively, 14 patients 35% in Group-A and 17 patients 42.5% in Group-B were male. 26 patients 65% in Group-A and 23 patients 57.5% in Group-B were females. Comparison of effectiveness of ultrasound guided percutaneous drainage in treatment of abdominal abscesses shows 33 patients 82.5% in Group-A and 20 patients 50% in Group-B were treated effectively, p value=0.002.

Saleem M and co-workers determined ultrasound guided percutaneous drainage of abdominal abscesses and recorded 96.2% of the cases treated successfully.<sup>18</sup>

Olaket al<sup>19</sup> series having closely matched patients also substantiated this. Although both surgical drainage and percutaneous drainage have lower success rate in complex abscesses, percutaneous drainage has less morbidity and mortality in this cases.<sup>19</sup>

The available data including ours confirm the superiority of percutaneous drainage in simple abscesses., Olaket al recommend surgical intervention in them at the outset.<sup>19</sup> Other workers, however, consider percutaneous drainage worth trying as even if it fails to prevent surgical intervention, it can be a useful temporary measure.<sup>20</sup> Further in moribund patients, percutaneous drainage is the only option available.

We did not include in our current study, complication of the percutaneous drainage, due to limitation of our study, but the literature review illustrates that major complications reported are bowel and vascular injury<sup>21</sup> and recurrent and secondary abscesses. Bowel injury may go unrecognized at the time of procedure to appear later as entero-cutaneous fistula. It often closes spontaneously.<sup>20</sup>

Vascular injury can lead to visceral hematoma or bleeding in the peritoneum. Serious bowel, vascular injury can be avoided by proper technique and careful planning. Prior diagnostic needle aspiration is an additional safeguard.<sup>22</sup>

Recurrent abscess formation, quite rare after surgical drainage, is relatively uncommon after percutaneous drainage; up to 5% in reported series.<sup>22</sup> These are treatable by repeating percutaneous drainage.

However, considering the above facts the hypothesis of the study that "Percutaneous guided drainage of the abdominal abscesses is a better treatment strategy than surgery (exploratory laparotomy and drainage of the pus)" is justified and the technique may be used in our population.

## CONCLUSION

We concluded that percutaneous ultrasound-guided drainage of the abdominal abscesses is effective and better treatment strategy than surgery (exploratory laparotomy) and drainage of the pus. It can easily be done in Radiology Department, It is cost effective, reduces burden on the hospital and patient with reduction in patient stay in hospital and expenditures.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Analyzing Short Term Effects of Intravitreal versus Intracameral Bevacizumab on Neovascular Glaucoma

Ali Afzal Bodla and Muhammad Afzal Bodla

## ABSTRACT

**Objective:** A single centre prospective trial to study the short term efficacy of Intracameral versus intravitreal Bevacizumab 2.5mg in 0.1ml for the treatment of neovascular glaucoma in terms of iris neovessel regression and control of intraocular pressure.

**Study Design:** Comparative / Interventional Study

**Place and Duration of Study:** This study was conducted at the Bodla Eye Care, Multan from March 2015 till April 2016.

**Materials and Methods:** A total of 24 patients were recruited in the study. Study end point was 28 days/one month post intervention. Primary etiology of neovascular glaucoma was proliferative diabetic retinopathy and central retinal vein occlusion. Patients were divided into group A for intravitreal and Group B for Intracameral injections. Both groups received 2.5 mg in 0.1 ml of Bevacizumab administered by single surgeon in same settings.

**Results:** There was no significant change in pre and post-operative visual acuity in both groups. There was a remarkable regression of iris neovessel in both groups. Reduction in IOP was clinically significant in both groups i.e.  $p < 0.01$  for group A and  $p < 0.05$  for group B. Intracameral group was found to have more remarkable regression of fibro vascular membranes.

**Conclusion:** Intracameral injections of bevacizumab appears to be as effective as intravitreal administration of the drug for the short term control of pathology. Intracameral injections especially in Pseudophakics carries relative fewer incidences of devastating complications as endophthalmitis. Moreover IOP spikes post Intracameral injections are fewer after performing an anterior chamber paracentesis at the same time.

**Key Words:** Intravitreal, Intracameral Bevacizumab, Neovascular Glaucoma

**Citation of article:** Bodla AA, Bodla MA. A Prospective Study Analyzing Short Term Effects of Intravitreal versus Intracameral Bevacizumab on Neovascular Glaucoma. Med Forum 2017;28(4):9-12.

## INTRODUCTION

Neovascular glaucoma is a type of secondary glaucoma which is most refractory to treatment.<sup>1,2</sup> Pathology appears to be formation of a fibro vascular membrane over the anterior surface of iris and angles, clogging trabecular meshwork.<sup>1,3</sup> Neovascularization of the iris NVI is the hallmark of the disease, hence the name rubeotic glaucoma.<sup>4</sup> Neovessel formation is a direct result of hypoxia with central retinal vein occlusion and diabetic retinopathy as the commonest cause.<sup>3,5</sup> Ischemia leads to raised level of vascular endothelial growth factor VEG-F and subsequent neovascularization.

These vessels are associated with fibrous tissue formation which leads to fibro vascular membranes in the anterior chamber.<sup>6</sup> Lee et al reported an incidence of NVI as high as 2.5% in patients presenting with proliferative diabetic retinopathy.<sup>7,17</sup>

It is expected that we are going to see soaring numbers of mentioned pathology especially in our society as diabetes has taken the form of a pandemic. Author strongly believes it is extremely important to have published local demographic data especially from rural South Punjab, so that we can better understand the severity of the disease.

Bevacizumab (Avastin) has undoubtedly become one of the commonest therapeutic agent in ophthalmology over the last decade.<sup>9</sup> It is a humanized, full length antibody to counter the effects of vascular endothelial growth factor. Several studies have been published for its use in diabetic macular oedema and wet age related macular degeneration (Rodrigo et al. 2006; Ryan et al. 2006). There have been studies for its use in neovascular glaucoma.<sup>12,13</sup> Bevacizumab is associated with remarkable regression of iris neovessel. The effect of single injection has been reported to last for as long as three months.<sup>6,13</sup> Hence it is possible to have an optimum control of intraocular pressure for the mentioned time period.

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Ungreanu et al has published a similar study looking at the effect of Bevacizumab in neovascular glaucoma.<sup>9</sup> They however had used separate doses for Intracameral and intravitreal injections. Since in our region we primarily have access to prefilled bevacizumab syringes with dose titration not possible, authors considered it very important to conduct this prospective trial using standard bevacizumab formulation i.e. 2.5mg in 0.1 ml. It is frequently observed that in the long term Bevacizumab alone is not sufficient for intraocular pressure.<sup>14</sup> Treatment needs to be complemented with pan retinal photocoagulation, cyclodiode laser and glaucoma valve surgery. Nevertheless Anti-VEGF is of critical importance in acute management of the pathology.

## MATERIALS AND METHODS

This was an Comparative / Interventional Study with patients recruited from two sites, Multan Medical and Dental College, Multan and Bodla Eye Care, Multan. Study was carried out at Bodla Eye Care due to availability of resources and ease of logistics. Both are privately owned tertiary eye care facilities. Patients were recruited over a period of one year and were assigned a study identification number starting from 1 to 24 according to their time of induction in the study. All odd number 1,3,5... were assigned to group A and all even numbers 2,4,6...to Group B. An informed consent was obtained from the patients. They were informed in details about the procedure and possible risks involved. Inclusion criteria were rubeosis iridis with raised intraocular pressure. Exclusion criteria were previous history of primary open angle glaucoma, Anti-VEGF injections, glaucoma surgery or intravitreal corticosteroids injections.

Twelve patients were assigned each to Group A and group B. In Group A 9 patients had proliferative diabetic retinopathy, two central retinal vein occlusion while one had branch retinal vein occlusion as the cause for rubeotic glaucoma. Out of twelve patients in Group B, ten had proliferative diabetic retinopathy while two had central retinal vein occlusion.

Patients had a thorough slit lamp assessment. Intraocular pressure measurements were taken using Goldman tonometer. All patients underwent detailed gonioscopic assessment to confirm the presence of fibrovascular membranes.

Group A patients had IOP ranging from 29-55mmof Hg with mean IOP of 41mm of Hg. Group B had IOP ranging from 31-58mmf Hg with mean IOP of 40 mm of Hg. Group A patients had a standard dose of Bevacizumab 2.5 mg in 0.1 ml. Injections were obtained in prefilled syringes from the same distributor. Procedure was performed by single surgeon in operation theatre under sterile conditions. Preoperatively all patients had oral acetazolamide 500 mg to reduce the risk of central retinal artery occlusion secondary to volume expansion with raised intraocular pressure.5% Povidone Iodine was used to achieve sterile periocular area. A drop of Povidone Iodine along with Alcaine (Alcon) was instilled in conjunctival sac.

Bevacizumab was injected from prefilled syringes with 30 gauge needle. Site of injection was 3.0mm in pseudophakic and 3.5mm in phakic patients. Infero temporal quadrant was used in all patients as site for injection. Patients were prescribed with topical ofloxacin eye drops to be used four times a day for five days. They were advised to continue with their intraocular pressure lowering medication for a period of two weeks post injection. Patients were seen on day 1, day 14 and day 28 post injection, i.e. study end point.

In Group B, all patients had the standard 2.5mg Bevacizumab in prefilled syringes obtained from the same source. All procedures were performed by single surgeon. Patients had oral Acetazolamide 500mg prior to the procedure. Procedure was performed in operating room under sterile conditions. Povidone iodine was used to clean periocular surface and conjunctival sac. An anterior chamber tap was performed to replace equivalent volume i.e. 0.1ml of aqueous with Bevacizumab. This is to ascertain that patient would not end up with high intraocular pressure spike. Patients were advised to continue with IOP lowering treatment that they are already on for next two weeks. They were prescribed with topical ofloxacin to be used four times a day for five days. Patients were followed up on day one, day 14 and day 28 of the procedure.

Post operatively patients had a detailed ophthalmic assessment including slit lamp examination and gonioscopy. Amount of residual rubeosis was determined and assessed with detailed iris assessment. Gonioscopy was performed to evaluate for the amount of persistent fibro vascular membranes. Intraocular pressure was measured using Goldman tonometer.

## RESULTS

Bevacizumab was found to be an effective treatment modality for the short term treatment of neovascular glaucoma. No serious side effects were noted in either group with significant reduction of intraocular pressure. Patient's ages ranged from 32 to 91 years with mean age of 59 years. Out of total participants 18 (75%0 were male while 6 (25%) were females. Primary etiology of neovascular glaucoma was found to be in 14 (58%) patients. 6 patients had central retinal vein occlusion i.e. 24% and the rest i.e. 16% had branch retinal vein occlusion as the cause for rubeotic glaucoma. Visual acuity was measured using log MAR charts Mean visual acuity changed from 1.4 preoperatively to 1.1 post operatively though change was found to be non-significant.

**Day 1 Assessment:** All operated patients were assessed on day 1 of the study. Slit lamp examination was performed to assess for any intraocular inflammation. IOP measurements were taken with Goldman tonometer. No serious side effects as endophthalmitis or vitreous haemorrhage was identified. One patient from GroupA had a corneal abrasion which subsequently healed in 48 hours.

**Week 2 Assessment:**Patients from Group A and B were analyzed at the end of week 2 i.e. 14 days post procedure. They had a slit lamp examination, IOP



measurement as well as gonioscopic assessment. In Group A patients there was significant resolution of fibro vascular membrane in all apart from one who presumably developed an anterior chamber hyphema in the week one. Patients had a mean IOP of 33 mm. Group B patients had very similar results in term of fibro vascular membrane regression and IOP reduction. Group B patients had a mean IOP of 28 mm of Hg. It was noticed that fibro vascular membrane resolution was more significant in Group B than A, though this is author's subjective assessment.

**Week 4 Assessment:** Week 4 i.e. day 28 was considered as endpoint for this study. All patients had slit lamp assessment, gonioscopic assessment as well as Goldman tonometry. There was remarkable regression of fibrovascular membranes in all patients of both groups. Mean intraocular pressure in Group A had reduced to 26mm of Hg while it was 24mm of Hg in Group B. Reduction in IOP was clinically significant in both groups i.e.  $p < 0.01$  for group A and  $p < 0.05$  for group B. Fibrovascular membranes were almost nonexistent on gonioscopic assessment with more remarkable results in Group B.

## DISCUSSION

Neovascular glaucoma always poses a challenge to clinicians in terms of effective management.<sup>15</sup> In an acute stage it is refractory to topical as well as systemic treatment with limited surgical options. Bevacizumab over a period of last few years has proven to be an efficient drug in acute management of neovascular glaucoma.<sup>1,17</sup> A single injection of bevacizumab either administered through intravitreal approach or in anterior segment provides effective control of intraocular pressure with regression of fibrovascular membranes.<sup>18</sup> One limitation is its short duration of action. Its effect tends to wear off in 20 to 90 days. However it has been observed that in many occasions a single injection of Bevacizumab is effective for the management of neovascular glaucoma during this time period. It also provides ample time and opportunity for other management e.g. panretinal photocoagulation, cyclodiode therapy e.t.c. to take their effect.

There is always a debate on ideal site of administration, dosage and complications.<sup>11,14,16</sup> Authors have tried to address these issues in this study keeping in view the resources available in an under developed country as Pakistan. The culprit in rubeotic glaucoma is vascular endothelial growth factor produced as a result of retinal ischemia but etiology lies in rubeosis formation in anterior segment. This justifies the administration of drug from both sites.

In our study we have tried to determine the preferred site for injection, optimum dosage and its effects in the short term. It was not the scope of this study to monitor long term effects or explore other surgical options, hence the endpoint of study was four weeks starting from the day of intervention. In this study we used the standard dosage of Bevacizumab 2.5 mg/0.1ml for intracameral and intravitreal administration. Authors

consider this as the most vital question to be answered as other studies have used a reduced dose of Bevacizumab.<sup>19</sup> In Pakistan majority of facilities use Bevacizumab in prefilled syringes with standard dosage, hence it is important to determine the safety and efficacy of standard Bevacizumab concentration for local population. In our study proliferative diabetic retinopathy was the causative etiology in 58% of the patient. Contrary to this

In our study there was no significant improvement in visual acuity post procedure. This is contrary to what has been reported in some studies e.g. Hayreh et al. In the west retinal vein occlusion has been the main cause for neovascular glaucoma.<sup>20,21</sup> This shows the severity of diabetes and its related complications due to lack of screening facilities that prevails in third world in general and Pakistan in particular.

In a study done by Asaad A Gahnem et al, there was a 60% improvement in BCVA followed by bevacizumab. In our study mean visual acuity improved from 1.4 LogMAR to 1.1 LogMAR. This difference however was not found to be statistically significant.<sup>17,21</sup> A possible explanation can be late presentation and chronicity of disease. Moreover mean visual acuity in our study was less than what has been noticed by Asaad A Gahnem, this again confirms the hypothesis regarding late presentation as mentioned earlier.

In another study by Khettab et al, mean visual acuity kept on improving over a period of three months post Bevacizumab. Authors do agree with this observation but obviously our study was limited to four weeks hence it is not possible to make a direct comparison.<sup>17,21</sup>

There was a remarkable regression of NVI's in all patients post bevacizumab in our study. This finding has been confirmed by several studies done in the past. Gahnem et al reported a 100% regression of NVI's on second post op day post Bevacizumab. There has been a reported recurrence of NVI's with an incidence of as high as 50%. Again it is not possible to have a direct comparison for this finding.

Chalam et al reported an interesting finding in their study of nine patients of which eight did not require glaucoma surgery following bevacizumab. Authors do agree with these findings as all of our patients had a decrease in IOP as well as regression of fibrovascular membranes at least in the follow up period.<sup>16,21</sup>

In our study Intracameral injection led to a fast and more remarkable regression of neovascular membranes. These findings are consistent with Purvi et al who also found intracameral Bevacizumab, superior to intravitreal in terms of disease control.<sup>8</sup> Moreover it carries lesser incidence of devastating complications as endophthalmitis. Anterior chamber hyphema has been reported as a possible complication of Intracameral injections. We, in our study did have a patient with anterior chamber hyphema but this is a self-limiting complication and in no way can be compared to endophthalmitis.

There has been reported occurrence of decompression retinopathy. Authors did not come across this

complication in either of their cases. This can be avoided with careful paracentesis as was meticulously performed for all of our patients in Group B.

## CONCLUSION

In conclusion, our study determines that the Intracameral Bevacizumab in the standard 2.5mg/0.1ml dose is effective and reliable for treating rubeotic glaucoma. It carries a lesser incidence of complications with enhanced regression of angle rubeosis and fibrovascular membranes. We did not encounter anterior segment toxicity in any of our patients. This study has major limitations in term of sample size and duration of follow up. Authors believe there is a need for similar study with larger sample size and longer follow up to revalidate our results.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Measurement of Stress Among Doctors in Intensive Care Unit (ICU)

Muhammad Taimoor Shah and Mohsin Masud Jan

## ABSTRACT

**Objective:** The objectives of the study were to identify stressors and to measure their magnitude of stress on doctors of ICU and to identify major stressors and major distress working in ICU.

**Study Design:** Descriptive / cross-sectional study

**Place and Duration of Study:** This study was conducted at the Department of Intensive Care Units (ICUs) of four hospitals of Lahore namely Doctors Hospital, Ittefaq Hospital Trust, Jinnah Hospital Lahore General Hospital Lahore for one month, during spring 2016.

**Materials and Methods:** It was in which 40 doctors working in intensive care units participated. The collected data through questionnaire was analyzed by using SPSS 16.0. Frequencies and percentages were calculated and data was presented in tables and diagrams. Confidentiality of the information was also ensured.

**Results:** Among 40 doctors, 47.5% were up to 30 years old and 72.5% were males. 22.5% strongly disagreed that their job has very little chances of promotion. 37.5% doctors agreed somewhat that their workload is too heavy. 35.0% agreed that they seldom receive adequate acknowledge or appreciation when their work is really good. 37.5% doctors agreed somewhat that they often receive threats from patient attendants. 37.5% strongly disagreed that their workplace environment is not pleasant. 35.0% doctors agreed somewhat that they tend to have frequent arguments with seniors, coworkers or patients/attendants. 40.0% disagreed that they often feel their job to be boring. 25.0% doctors agreed while 17.5% strongly agreed that they have sense of un-achievement when results of treatment are not good despite of hardworking on patient's treatment. 62.5% doctors had average stress.

**Conclusion:** Majority of doctors were dissatisfied with the chance of promotion and heavy workload. Threat from patients' attendants was the leading cause of stress observed among majority of the ICU doctors. Sense of un-achievement was also the important cause of stress despite of hardworking on patient's treatment.

**Key Words:** Stress, intensive care unit, doctor, workload, workplace environment

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## INTRODUCTION

Stress is a general term which refers to two distinct concepts, namely 'stressors' (environmental characteristics, or thoughts which cause an adverse reaction in the individual) and 'strain' (the individual's adverse reaction to the stressor).<sup>1</sup> Michie (2002)<sup>3</sup> described stress as the psychological and physical state that occurs when the resources of the individual are not sufficient to cope with the demands and pressure of the situation. Payne on the other hand, defined stress as a process which causes or precipitates individuals to believe that they are unable to cope with the situation facing them.<sup>4</sup> Stress is a state of challenge or threat that discontinues the normal rhythm and balance of a person's life.<sup>5</sup> Stress results when individuals feel they

cannot cope up with demands being made and with threats to their entity. The source of stress may be external or internal in the form of blood pressure, pain, and tumors, distressing events or psychological. Anything that demands on an individual requiring adjustment or adaptation can be a stressor.<sup>6</sup>

The signs of stress include sleeplessness, aches and pains and anxiety. Doctors may become irritable with their patients and coworkers, lack of energy and commitment, and become self-absorbed.<sup>7</sup> After-hours and on-call work; interferes with family life.<sup>8</sup>

Intensive care units (ICUs) are traditionally deemed as an important source of stress for patients and their families. Currently it has been noted that this environment is also stressful for the professional staff. This stress, due to work in the ICU is primarily caused by the closed ambiance with extenuating work conditions and pace, demanding routines and work, ethical issues that require brisk and difficult decisions as well as living with suffering, death, the unforeseen events and an excessive workload.<sup>9</sup>

Coomber (2002) reported that approximately one third of UK ICU doctors appeared distressed and 10% reported depressive symptoms.<sup>10</sup> Most of the attention is focused on junior doctors and their long working hours. However, there also have been studies of distress among senior hospital doctors.<sup>11</sup>

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It is adequately documented that health professionals experience higher levels of stress and stress related health problems than other occupational groups.<sup>12</sup> Among the health worker groups, the ones at a greater risk for developing chronic stress syndromes, are intensive care units staff and mental health professionals.<sup>13</sup>

Physicians are at particular risk of stress at work and continuous work stress can lead to psychological morbidity, impaired quality of life, depressive reactions and even suicides. Not all physicians are influenced by the same stressors and this process depends on their position at work (consultants had higher level of stress than junior physicians, their gender (women are more sensitive to stress than men and their specialty. The most sensitive to stress are physicians working in emergency departments and at intensive care units (ICU).<sup>14,15,16</sup>

Doctors' working condition not only affects their own health but also the care the care their patients get.<sup>17</sup> Work overload, interruptions, time and pressure, conflicting demands, problems with cooperation between various departments, poor leadership, and less social support have been identified as adverse working conditions.<sup>18</sup> Stressor at work deem to affect work satisfaction, leading to career disruption and poses a threat to doctors well being.<sup>19</sup> Stressors interferes performance in various ways, traversing from hampered communication to medication errors and increased patient mortality.<sup>20,21</sup>

There are many stressors in ICU such as; complex patient care, conflict with physicians, working nights or holidays, poor cooperation from other departments. Some of the stressors in intensive care unit are related to patient and patient-care like dealing with routines, technology and emotional needs, others are linked to health care personnel, such as working with physicians, inexperienced staff, dealing with interpersonal tensions, families of patients and some stressors are related to the environment and organization.<sup>22</sup>

To reduce stress, there is a need to make strategies to improve physicians work life. In contrast to various studies describing doctor job stressors, there is a lack of interventional efforts aimed at promoting hospital doctors working conditions.<sup>23</sup>

However, working conditions are responsive to improvements, especially by changing the work organization.<sup>24</sup> Organizational re-design for health professionals is suggested as a bright way to reduce health profession stressors and promote patient safety.<sup>25</sup>

## MATERIALS AND METHODS

It was cross-sectional descriptive study. The place of study was intensive care Units (ICUs) of four hospitals of Lahore namely Doctors Hospital, Ittefaq Hospital Trust, Jinnah Hospital Lahore General Hospital Lahore. Doctors working in intensive care units of above four hospital of Lahore were the study population. Simple random sampling was done. The duration of study was one month, during spring 2016.

The responses of doctors working were obtained through the questionnaire. The frequency & severity of ICU specific stressors were rated using likert type scales. Score can be interpreted as indicator of morbidity. Data was entered in computer software SPSS 16.0 Frequencies and percentages were calculated and data was presented in tables and graphs.

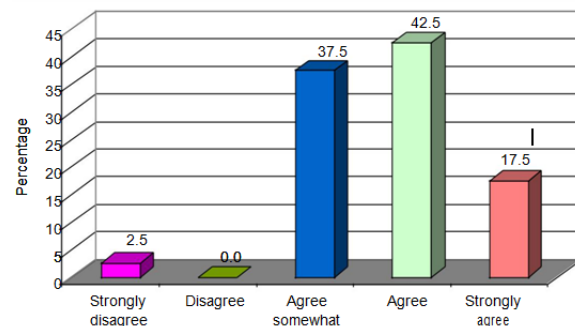
Consent and permission was taken from concerned authority to conduct the study. Verbal consent was taken from respondents. Privacy and confidentiality was maintained at all costs in accordance with principles laid down in Helsinki Declaration of Bioethics

## RESULTS

Among 40 doctors, 19 (47.5%) were upto 30 years old and 13 (32.5%) were 31-40 years old while 8 (20.0%) doctors were more than 40 years old. Among 40 doctors, 29 (72.5%) were males while 11 (27.5%) were female doctors. Among 40 doctors, 10 (25.0%) were working in Doctors Hospital, 10 (25.0%) in Ittefaq Hospital Trust, 10 (25.0%) in Jinnah Hospital Lahore and 10 (25.0%) doctors were working in Lahore General Hospital Lahore.

Among 40 doctors, 9 (22.5%) were strongly disagreed that their job has very little chances of promotion, 6 (15.0%) were disagreed, 12 (30.0%) doctors were agreed somewhat and 8 (20.0%) doctors were agreed while 5 (12.5%) doctors were strongly agreed.

It is depicted that only 1 (2.5%) doctor was strongly disagreed that their workload is too heavy, 0 (0.0%) disagreed, 15 (37.5%) doctors were agreed somewhat and 17 (42.5%) doctors were agreed and 7 (17.5%) doctors were strongly agreed that their workload is too heavy.

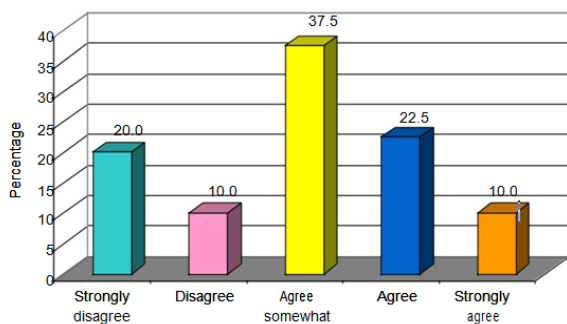


**Figure No.1: Frequency distribution of doctors according to feelings that their workload is too heavy**

Out of 40 doctors, 3 (7.5%) were strongly disagreed that they seldom receive adequate acknowledge or appreciation when their work is really good, 7 (17.5%) were disagreed, 12 (30.0%) doctors were agreed somewhat and 14 (35.0%) were agreed while 4 (10.0%) doctors were strongly agreed.

Out of 40 doctors, 8 (20.0%) were strongly disagreed that they often receive threats from patient attendants, 4 (10.0%) were disagreed, 15 (37.5%) were agreed

somewhat, 9 (22.5%) were agreed and 4 (10.0%) doctors were strongly agreed.



**Figure No.2: Frequency distribution of doctors according to threats received from patient attendants**

Among 40 doctors, 15 (37.5%) were strongly disagreed that their workplace environment is not pleasant, 7 (17.5%) were disagreed, 7 (17.5%) doctors were agreed somewhat, 7 (17.5%) were agreed and 4 (10.0%) doctors were strongly agreed.

Out of 40 doctors, 2 (5.0%) were strongly disagreed that their job often interferes with family and social obligations or personal needs, 2 (5.0%) were disagreed, 17 (42.5%) doctors were agreed somewhat, 9 (22.5%) were agreed and 10 (25.0%) doctors were strongly agreed.

Among 40 doctors, 8 (20.0%) were strongly disagreed that they tend to have frequent arguments with superiors, coworkers or patients/attendants, 7 (17.5%) were disagreed, 14 (35.0%) doctors were agreed somewhat and 8 (20.0%) were agreed while only 3 (7.5%) doctors were strongly agreed.

Out of 40 doctors, 8 (20.0%) were strongly disagreed that they often feel their job to be boring, 16 (40.0%) were disagreed, 8 (20.0%) doctors were agreed somewhat, 5 (12.5%) were agreed and 3 (7.5%) doctors were strongly agreed.

**Table No.1: Total score with frequency and percentage**

Total Score	Frequency	Percentage (%)
Very high stress	1	2.5
High stress	10	25.0
Average stress	25	62.5
Low stress	4	10.0
Total	40	100.0

Low stress = 1-25  
High stress = 51-75

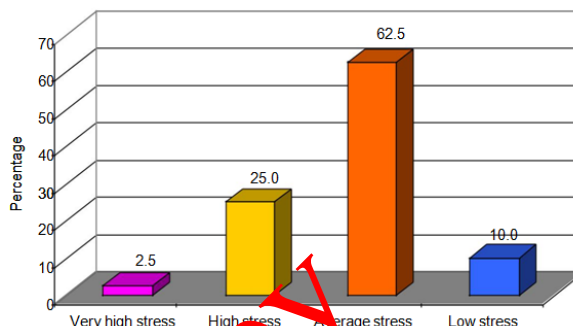
Average stress = 26-50  
Very high stress 76-100

Among 40 doctors, 5 (12.5%) were strongly disagreed that they often feel their job to be monotonous, 12 (30.0%) were disagreed, 12 (30.0%) doctors were agreed somewhat, 5 (12.5%) were agreed and 6 (15.0%) doctors were strongly agreed.

Among 40 doctors, 5 (12.5%) were strongly disagreed that they have sense of un-achievement when results of

treatment is not good despite of hardworking on patient's treatment, 6 (15.0%) were disagreed, 12 (30.0%) doctors were agreed somewhat and 10 (25.0%) were agreed while 7 (17.5%) doctors were strongly agreed.

Out of 40 doctors, 1 (2.5%) had very high stress, 10 (25.0%) doctors had high stress and majority (62.5%) had average stress while only 4 (10.0%) doctors had low stress. (Table 1.0, Fig 1.0)



**Figure No.3: Frequency distribution of doctors according to stress level**

## DISCUSSION

Stress is one of the serious issues among doctors working in health care facilities especially in intensive care units. It is injurious and emotional reactions that happen when job requirements do not harmonize with capabilities, needs and resources of doctor. Long working hours, excessive workload, financial constraints are also the factors associated with stress. Intensive care unit is not only considered major source of stress of patients and for their families but also for the doctors. Keeping in mind such issues present study was performed to measure stress among doctors of intensive care units.

A good working environment is very much essential for an employee to perform better. Excessive work load disrupts the efficiency of the employees. It was very disturbing that a mainstream (97.5%) of doctors had heavy workload which was significant cause of stress.

Doctors' profession is one of the sacred professions but sometimes they face threats from patients' attendants owing to death or other complications which are beyond their control. Study disclosed that most of the doctors had threats from patients' attendance which could affect their performance or they can quit their jobs.

Pleasant working environment is very much crucial for an individual to performance their duties efficiently. Study showed encouraging results that most of the doctors (55.0%) preferred their work environment and believed it is more comfortable. The results of my study exhibited better scenario than the study conducted by Barros and associates (2008) who reported that 73.7% ICUs doctors complained for noise and uncomfortable environment.

Good relations with super-ordinates, colleagues/ subordinates and patients/ attendants are imperative to curb the stress. Study revealed that 62.5% doctors had arguments with superior, coworkers or patients/ attendants which increased the stress level among doctors of intensive care units.

It is pertinent to mention that majority of ICU doctors had sense of un-achievement when result of treatment is not good in spite of hardworking on patient's treatment. Little stress at work place is natural phenomena but excessive stress disrupts the performance of employees as well as productivity of the organization. Study revealed that major proportion of ICU doctors had average stress (62.5%), followed by very high stress (2.5%), high stress (25.0%) and low stress (10.0%).

It was found during study that 11 out of 40 doctors had high stress. The ratio of which is about 1:4.

Health education programs should be held among doctors of intensive care units to reduce stress. Health department intervention and media significant role could be helpful to overcome the problem of stress among the doctors of ICUs.

## CONCLUSION

Stress is a leading problem among doctors due to excessive workload, job requirement, long working hours, financial problem, imbalance between personal & professional lives and patients' related problems. Present study measured stress among doctor of intensive care units and found that most of the doctors were males and more than 30 years old. Majority was dissatisfied with the chance of promotion. A major proportion was found dissatisfied due to heavy workload. A mainstream of doctors was found satisfied as their work was appreciated on good performance. Threat from patients' attendants was the leading cause of stress observed among majority of the ICU doctors. Workplace environment was found satisfactory. Interference between family and social obligation or personal needs was the significant issues of stress among the doctors. Most of the doctors had stress on workplace due to arguments with superiors, coworkers or patients/attendants. A massive portion of doctors was pleased in performing their job. Sense of un-achievement was also the important cause of stress despite of hardworking on patient's treatment. Most of the doctors had average stress. Seminars and health education programs are required to be held among ICUs doctor to reduce stress and to boost their morale towards better performance.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# To Determine the Frequency of Vitamin D Deficiency in Patients with Liver Cirrhosis

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## ABSTRACT

**Objectives:** To determine the frequency of vitamin D deficiency in the patients of liver cirrhosis.

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was conducted at the Department of Medicine, DHQ Hospital of Muzaffargarh from August 2014 to September 2015.

**Materials and Methods:** Every case of liver cirrhosis was made a part of this study after diagnosis. Severity of the cirrhosis was classified according to child Pugh classification. Severity of vitamin D deficiency was categorized as mild, moderate and severe. Vitamin D level was evaluated through blood sample of every case from diagnostic hospital Laboratory

**Results:** In this study 100 patients were chosen. The number of male was appeared in majority 71.0% and mean age was 46.7±7.2 years. Mean of alanine aminotransferase was figured as 60±42 U/L. HCV infection was the major etiological factor in 53.0% of the cases. Majority of the cases in Child-Pugh's class 'A' 42%. Ascites was almost in all cases. Severe deficiency of the vitamin D was found significantly associated with Pugh grade C in 37.5% cases, followed by 26.4% in grade B of and 21.5% in grade A of child Pugh.

**Conclusion:** Deficiency of vitamin D in cirrhotic patients is big prevalent, and also associated with severity of the cirrhosis.

**Key Words:** Vitamin D, liver cirrhosis, child Pugh class.

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## INTRODUCTION

Cirrhosis is dangerous and non-reversible disease. It is result of chronic liver disease distinguished by liver tissue replacement through the fibrotic scar tissue, likewise regenerative nodules lead to progression in liver dysfunction.<sup>1</sup> It is a big reason of mortality through the world, also the main reason of death in Pakistani population<sup>2</sup> and leading cause of hospitalization.<sup>3</sup> Development of the cirrhosis is about 10 to 20% during 5 to 30 years. Viral hepatitis is major cause of it in the comparison of west where alcohol consumption is common.<sup>4</sup> Vitamin D plays significant role in decreasing risk of chronic illnesses; including diabetic Mellitus type II, many types of cancers, autoimmune, cardiovascular and different infectious illnesses. Deficiency of the Vitamin D is much common in cirrhotic cases. More than 93% of CLD cases had vitamin D deficiency.<sup>5</sup> Even the patients having mild liver disease also effected by its deficiency, while liver cirrhotic cases highly affected by severe vitamin D deficiency.

Many general populations based studies showed that decreased level of 25(OH)D remarkably rises the chances of death from all causes as well as CVD.<sup>6</sup> With respect to several etiologies of CLD, vitamin D deficiency also is the one which related with risen mortality, fibrosis severity, portal hypertension, bacterial infections and other severe complications.<sup>7-10</sup> Though, liver plays a vital role in metabolism of vitamin D and pleiotropic functions. Severity of the hepatic disease decreases vitamin D hydroxylation, albumin and the DBP concentration, and all of these are associated to decreased 25(OH)D level. However, deficiency of vitamin D in the CLD is only partially result of hepatic dysfunction, as evidenced through fact that deficiency of vitamin D is frequent in the non-cirrhotic cases. In cirrhotic cases concentration of 25(OH)D can normalize after treatment of vitamin D, which discloses that 25-hydroxylation is the preserved,<sup>11</sup> and even though DBP decreased moderately in cases having cirrhosis.<sup>12</sup> In CLD cases decreased level of vitamin D is linked with malnutrition and may low exposure sunlight. Liver is distinguished by decrease absorption of vitamin D by intestine and decreased level of the binding protein (albumin and DBP), which transfer the hormones to kidneys and liver in activated order. Additionally liver hydroxylation of vitamin D is reduced and leading to decrease active hormonal production, however vitamin catabolism is raised.<sup>13</sup> Nowadays Pakistan is under the large burden of CLD and cirrhosis. Therefore aim behind this study

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was to assess the frequency of decreased vitamin D level in cases having liver cirrhosis.

### MATERIALS AND METHODS

This study was carried out in the medicine department of DHQ hospital of Muzaffargarh. Duration was 14 months as; August 2014 to September 2015. All the cases after diagnosis as cirrhotic patients were incorporated. Cirrhosis was diagnosed on ultrasound abdomen. All the non-cirrhotic cases were not selected. All the selected cases were examined carefully to assess the etiology of illness and its complications at time of presentation and the disease prognosis. All the required and routine laboratory investigations were carried out, along with complete clinical examination. CT scan has been carried out in patient where it is needed. Disease prognosis was evaluated through using modified Child-Pugh's classification, which is graded according to bilirubin level, albumin level, PT, hepatic encephalopathy and ascites and finally classified in three grades as Child-Pugh's A grade, B grade and C grade with score as; <7, 7 to 9 and > 9) respectively. For the assessment of vitamin D concentration blood samples were taken from all the cases and send to Diagnostic lab of Hospital. Level of the vitamin D was categorized as mild = 20–31 ng/ml, moderate =7–19 ng/ml and severe =< 7 ng/ml. All the data was recorded in the proforma.

### RESULTS

100 patients were selected for the study and male gender was in majority 71.0% and 29.0% were female. The mean of age was 46.7±7.2 years. Mean of the ALT was found 60±42u/l. HCV infection was major etiological factor in 53.0% of the cases, followed by HBV, HCV+HBV,

**Table No.1: Basic data of the patients N=100**

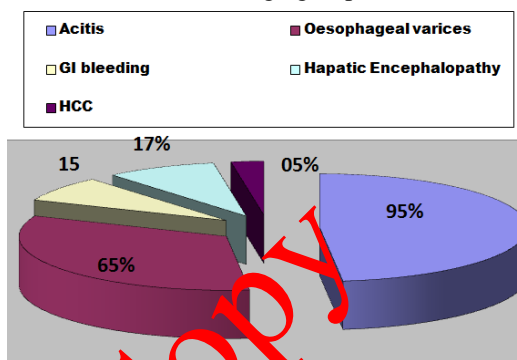
Characteristics	No. of cases/ (%)
<b>Age (mean±SD)</b>	46.7±7.2
<b>Gender</b>	
Male	71(71.0%)
Female	29(29.0%)
<b>Risk factors</b>	
HCV	53(53.0%)
HBV	12(12.0%)
HCV+HBV	07(07.0%)
Alcohol	09(09.0%)
Fatty liver	14(14.0%)
Unknown	07(07.0%)
<b>ALT (mean±SD)</b>	60±42

Alcohol, Fatty liver and Unknown with the percentage of 12.0%, 07.0%, 09.0%, 14.0% and 07.0% respectively. Table 1.

Majority of the cases in Child-Pugh grade A 42%, followed by Child- Pugh grade B 34.0% and Child-Pugh grade C 24.0%. Table 2.

Ascites was found almost in all cases 95%, while oesophageal varices, GI bleeding, hepatic encephalopathy and HCC were found as 65%, 15%, 17% and 5% respectively. Figure 1.

We found severe vitamin D deficiency in 27 cases out of 100 and it was mostly associated with child Pugh group C 37.5%, followed by 26.4% in child Pugh group B and 21.5% in child Pugh group A. Table 3.



**Figure No.1: Morbidities of the patients N=100**

**Table No. 2: Child Pugh Classification of the patients N=100**

Child Pugh Grades	Frequency/ (%)
Child-Pugh's grade A	42(42.0%)
Child- Pugh's grade B	34(34.0%)
Child-Pugh's grade C	24(24.0%)

**Table No.3: Vitamin D deficiency child pugh Classification N=100**

Vitamin D deficiency	Child-Pugh group		
	Group A n=42	Group B n=34	Group C n=24
Mild (20–31 ng/ml)	18(42.8%)	13(38.3%)	07(29.1%)
Moderate (7–19 ng/ml)	15(35.7%)	12(35.3%)	08(33.4%)
Severe (>7 ng/ml)	09(21.5%)	09(26.4%)	09(37.5%)
Total	42(100%)	34(100%)	24(100%)

### DISCUSSION

The liver Cirrhosis is irreversible disease, and the focus of our treatment is to prevent the progression and to prevent complications among patients. The liver transplantation is the only option in advanced stages of cirrhosis.<sup>14</sup> HCV and liver Cirrhosis is a frequent and common cause of hospitalizations. Within 5yrs-30 years 10-20% patients develop chronic liver disease

and 50% of HCV infected patients develops liver cirrhosis.<sup>15</sup> In our study male gender was in majority 71.0%, while 29.0% were female, the mean of age was 46.7±7.2 years and mean of the ALT was found 60±42u/l. In the favour of our study Arteh J et al,<sup>16</sup> shown that mean age of vitamin D deficient patients was 53.2 ± 8.9 years, along with mean of ALT as 60 ± 69. The study of Rahimoon AG et al<sup>17</sup> founded that the mean of age of cases 49.8±6.5years, and mean of ALT was 51±55. In study of Anty R et al,<sup>18</sup> reported that male gender was most common. Similarly Falleti et al,<sup>19</sup> also reported same findings, and reported that male were commonest with chronic HCV infection and vitamin D deficiency. Rahimoon AG et al<sup>18</sup> reported that 60.0% male in comparison with female 40.0%.

In this study HCV infection was the major etiological factor in 53.0% of the cases, followed by HBV, HCV+HBV, Alcohol, Fatty liver and Unknown with the percentage of 12.0%, 07.0%, 09.0%, 14.0% and 07.0% respectively. Similarly Almani SA et al<sup>20</sup> reported that the main causing factor of cirrhosis is HCV infection was in 52% cases. The study of Shah, et al<sup>21</sup> founded that majority of HCV infected patients, presented with developed liver cirrhosis. The study of Bukhtiari, et al<sup>22</sup> founded that 35% of anti-HCV positive and 07% of anti-HCV and HBsAg co-infection as well. Also Farooqui, et al<sup>23</sup> founded that HBs and HCV both were +ve in 3% of whereas patients of HBsAg was positive in 32% patients and anti-HCV was positive in 59% patients. Almani SA et al<sup>20</sup> labeled the increasing stage of cirrhotic patients on the basis of classification of Child-Pugh's and measured 37% had Child-Pugh's prognosis grade A, grade B was in 26% and also 26% of prognosis had Child-Pugh's in grade C. Y N, et al<sup>24</sup> founded that Child-Pugh grade A was in 22% patients. Grade B in 41% and grade C in 36%. Similarly we found majority of the cases in grade 'A' Child-Pugh's that is 42%, grade 'B' Child- Pugh's 34.0% and grade C 24.0%. EdmondoFalleti et al,<sup>19</sup> conducted study on vitamin D in chronic HCV cases and found 46.1% cases had deficiency of vitamin D.

We found severe vitamin D deficiency in 27 cases out of 100 and it was mostly associated with child Pugh group C 37.5%, followed by 26.4% in child Pugh group B and 21.5% in child Pugh group A. On other hand Jevora DI et al,<sup>25</sup> founded that more than 80% HCV infected cases were vitamin D deficient. The study of Mikkel Malham et al,<sup>26</sup> shown 18% of Alcoholic cirrhotic patients had severely decreased vitamin D level. Farniket al<sup>27</sup> founded that among HBV infected cases severe vitamin deficiency was in 34% cases. Arteh J et al,<sup>16</sup> reported that 30.2% cirrhotic patients with HCV were deficient of vitamin D. Comparable results were also found in the study of Mikkel Malham et al.<sup>27</sup> The deficiency of vitamin D was noted to many causes like mal absorption, an impaired hydroxylation of vitamin D in liver, improper diet,

decreased production of vitamin D binding protein in liver, and due to decrease exposure to sunlight causing impaired coetaneous production.<sup>28</sup> Also alcoholic patients with cirrhosis founded severe vitamin D deficiency (<10 ng/ml) noted high mortality rate.<sup>29</sup> In cirrhotic patients supplementation of Vitamin D can be beneficial to improve the quality of life and decrease the mortality and morbidity respectively.

## CONCLUSION

Deficiency of vitamin D in cirrhotic patients is big prevalent, and also associated with severity of the cirrhosis. Vitamin D insufficiency should be measured and treated as soon as possible in viral hepatitis patients, to decrease its progress and complications. Our research is containing small sample size; more big sample size research is needed.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Frequency of Nonalcoholic Fatty Liver Disease (NAFLD) in Diabetes Mellitus (DM) Type-II Patients

Ahsan Mobin<sup>1</sup>, Hafeezullah Shaikh<sup>2</sup>, Imtiaz Manzoor<sup>1</sup> and Muhammad Umar Khan<sup>1</sup>

## ABSTRACT

**Objectives:** To assess the frequency of nonalcoholic fatty liver disease (NAFLD) in diabetes mellitus (DM) type –II patients.

**Study Design:** Observational study.

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Dow University Health Sciences and Chiniot General Hospital Karachi from 18<sup>th</sup> August 2015 to 17<sup>th</sup> May 2016.

**Materials and Methods:** All diabetic type –II patients since 5 years, aged > 20 years were screened for nonalcoholic fatty liver disease attending medical outpatient clinic. Take a history was regarding alcohol use. Patient having a history of alcohol consumption, chronic liver disease of any cause and intake of hepatotoxic drugs were excluded. All patients plain fro ultrasonography for assessment of non alcoholic fatty liver. The data was entered and analyzed using SPSS version 20.0.

**Results:** 387 cases Diabetes Mellitus-II since 5 years. Female patients were mostly presented with DM-II in 272(70.28%) female, female to male ratio were 2.36:1. The mean age was 41+2.7 years. Mostly patients reported in 4<sup>th</sup> and 5<sup>th</sup> decade age groups 299(77.26%) cases in between 40-60 years. Grade-I nonalcoholic fatty liver disease was 42(10.85%) cases more reported as compare Grade-II and Grade -III. Frequency of nonalcoholic fatty liver disease on ultrasonography were observed in 72 (18.60%) cases.

**Conclusion:** Patients with type II diabetes along with NAFLD are a significantly increased risk of cardiovascular, cerebrovascular and peripheral vascular disease than general population.

**Key Words:** Nonalcoholic Fatty Liver Disease, Diabetes Mellitus, Type-II.

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## INTRODUCTION

The rise in obesity and other metabolic disorders have made NAFLD a common pathology. It is the most common cause of elevated liver enzymes. Its prevalence is very high in diabetics; 70% in diabetic patients as compared to 20% in general population. Many patients with NAFLD are asymptomatic with normal liver function tests (LFTs). It is suspected clinically when routine laboratory investigations reveal increased transaminases with ALT levels being greater than AST. In alcoholic liver disease, AST is greater than ALT because AST is found within the mitochondria which is eventually destroyed by alcohol. With progression of disease AST levels rise higher and increase the AST to ALT ratio. Progressive rise in AST levels demonstrate progression to non-alcoholic steatohepatitis (NASH) and fibrosis<sup>1</sup>.

Despite this, there has been no association between ALT levels and severity of NAFLD. Also the presence of normal levels of aminotransferases does not exclude the diagnosis of fatty liver<sup>2</sup>. The Dallas Heart Study shows 79% patients with hepatic steatosis having normal ALT levels. Another study demonstrates 86% patients with NAFLD having normal ALT levels<sup>3</sup>. This is the reason for patients undergoing liver biopsy to detect the level of pathologic damage to the liver<sup>4</sup>. Ultrasonography can also detect NAFLD as increased hepatic echogenicity however this is usually an incidental finding and ultrasound is usually not done for detection of NAFLD because of its poor sensitivity. The sensitivity of Ultrasound is 100% and CT scan is 93% only in the presence of hepatic fat content greater than 33%. If the hepatic fat content is less than described, the sensitivity of these modalities is diminished. Other laboratory findings may include dearrangement of Gamma Glutamyl-transferase, prolonged prothrombin time, low serum albumin and raised serum bilirubin<sup>5,6</sup>.

Insulin resistance in hepatic and extra-hepatic tissues such as adipose tissues account for underlying pathogenesis of NAFLD. The triacyl-glycerols accumulating within the liver comes from three main sources: circulating free fatty acids, from lipogenesis and from dietary lipids<sup>7</sup>. Increased intrahepatic glucose

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increases pyruvate levels and hence increased amount of acetyl CoA is converted to malonyl CoA for de novo lipogenesis. Development of steatohepatitis and fibrosis involves inflammatory mechanisms such as oxidative stress, mitochondrial dysfunction and circulating inflammatory mediators. The "hit" hypothesis proposes that fibrosis accounts for failure of hepatocytes to regenerate<sup>8,9</sup>. Insulin resistance leads to dysfunctional adipocytes which release large amount of inflammatory mediators such as TNF-alpha, IL-6 and low quantities of adiponectin. Adiponectin increases fatty acid oxidation and prevents lipid accumulation and inflammation<sup>10</sup>.

Histologically NAFLD has been categorized into the following four categories: Type 1 is simple fatty liver, type 2 indicates steatohepatitis, type 3 is steatonecrosis whereas type 4 is presence of hyaline or fibrosis along with steatonecrosis. In majority of cases NAFLD carries a benign course whereas NASH follows an aggressive course and leads to liver cirrhosis<sup>11</sup>.

**MATERIALS AND METHODS**

This study was conducted in medicine department of Dow University Health Sciences and Chiniot General Hospital Karachi, from 18th Aug 2015 to 17th May 2016.

All diabetic type –II patients since 5 years, aged > 20 years were screened for nonalcoholic fatty liver disease attending medical outpatient clinic. A history was taken regarding alcohol use. Patient having a history of alcohol consumption, chronic liver disease of any cause and intake of hepatotoxic drugs were excluded. All patients were screened by ultrasonography for assessment of non alcoholic fatty liver according to grades. The data was entered and analyzed using SPSS version 20.0.

**RESULTS**

**Table No.1: Demographic Variables n=387**

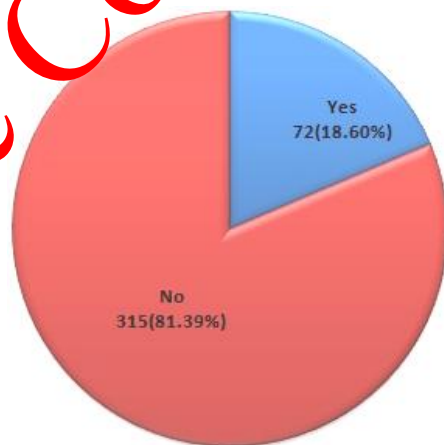
Variable	No. Patients	Percentage
<b>Gender</b>		
• Male	115	29.31%
• Female	272	70.28%
<b>Age</b>		
• 20-35 years	88	22.73%
• 36-50 years	189	48.83%
• 51-60 years	110	28.42%
<b>Grade of nonalcoholic fatty liver disease</b>		
<b>Ultrasound Finding</b>		
• Grade-0	315	81.39%
• Grade-I	42	10.85%
• Grade-II	21	5.42%
• Grade-III	9	2.32%

There were diagnosed 387 cases Diabetic Mellitus-II since 5 years. Female patients were mostly presented with DM-II in 272(70.28%) female, female to male

ratio were 2.36:1. The mean age was 41±2.17years. Mostly patients reported in 4<sup>th</sup> and 5<sup>th</sup> decade age groups 299(77.26%) cases in between 40-60 years. Grade-I nonalcoholic fatty liver disease was 42(10.85%) cases more reported as compare Grade-II and Grade –III( table 1 &2). Frequency of nonalcoholic fatty liver disease on ultrasonography were observed in 72 (18.60%) cases (Chart No.1).

**Table No.2: Grades of non alcoholic fatty liver according to sex n=387**

Grades of non alcoholic fatty liver	Sex			
	Male (n=115)		Female (n=272)	
	No. Patients	%age	No. Patients	%age
Grade – 0 N=315	77	19.89%	238	61.49%
Grade – I N=42	23	19.94%	19	4.90%
Grade – II N=21	9	2.32%	12	3.10%
Grade – III N=9	5	1.55%	3	0.77%



**Chart No.1: Frequency of non alcoholic fatty liver disease**

**DISCUSSION**

NAFLD is a wide spectrum of liver pathologies ranging from benign asymptomatic condition to fibrosis and eventually cirrhosis or hepatocellular carcinoma. Risk factors associated with NAFLD include male sex, family history of type II diabetes and certain ethnicities. Mutations in PNP3 gene has been found to be associated with early development of fatty liver. Other rare causes include some drugs such as amiodarone, synthetic estrogens, tamoxifen, diltiazem and highly active anti-retroviral therapy, refeeding syndrome, severe weight loss, lipodystrophy or long term total parental nutrition<sup>1</sup>.

It has been seen that the incidence of NAFLD increases with age<sup>12</sup>. The risk factors for NAFLD also increase with age. Amongst these include hypertension, diabetes and dyslipidemias<sup>13</sup>. Elderly with NAFLD have higher

mortality ratio than general population. These patients have higher than usual chances of early progression to severe hepatic fibrosis and hepatocellular carcinoma<sup>14,15</sup>. Elderly with obesity are at much increased risk. Cryptogenic cirrhosis which is also known as burned out NASH is common in obese elderly including those who were obese during younger age<sup>16</sup>.

Only few studies suggest that female gender is associated with higher incidence of NAFLD and fibrosis whereas majority of studies support the fact that men have higher incidence of NAFLD. Obesity is a well known risk factor for development of diabetes and metabolic syndrome. Both of these conditions can lead to early development of NAFLD. Females are more prone to obesity and metabolic syndrome. Our study shows 70.28% of females. Study conducted on 26,527 Asians reveal 31% males and 16% females with NAFLD<sup>17</sup>. Another study conducted in India shows greater number of males than females<sup>18</sup>. 81.3% patients had grade 0 histology whereas 10.85% had grade I histology. 5.42% had grade II histology whereas 2.32% had grade III histology. Matteoni et al reports biopsy results of 132 patients with NAFLD. He reports 37% patients with type I, 7% with type II, 14% with type III and 40% with type IV NAFLD. He reports that female gender was more common in type IV whereas in our study male gender was more common. He concludes that the overall ratio of deaths was similar among all four histologic categories. However cirrhosis and liver related deaths were more among patients with histologic stage 3 and 4 [19].

It has been seen that NAFLD is associated with increased risk of future cardiovascular events among patients with type 2 diabetes mellitus. This increased risk is independent of other risk factors of NAFLD. A cohort study was done in 132 patients with NAFLD. Diagnosis was confirmed by biopsy and the patients were followed upto 18 years. The most common cause of deaths among these patients was liver related problems followed by cardiovascular events and cancer related causes<sup>20</sup>.

Co-occurrence of diabetes and NAFLD are associated with more severe outcome than either of these conditions alone. There is evidence suggesting the fact that insulin therapy is beneficial for diabetic patients in terms of NAFLD. The degree of hepatic steatosis was found to be improved after 12 weeks of insulin glargine therapy as measured by MRS<sup>21</sup>.

Treatment of patients with diabetes and NAFLD focuses on resolving underlying insulin resistance. This includes lifestyle modifications such as regular exercise, weight loss and dietary modifications. Rapid weight loss should be avoided and it can lead to worsening of NAFLD. It is recommended that weight loss should not exceed more than 2lb per week (0.9 kg) (16,43)<sup>22</sup>. Alcohol use should be restricted.

Pharmacologic therapy includes metformin and thiazolidinediones<sup>23</sup>. Metformin can improve insulin sensitivity and improve hepatic fat content. In controlled studies where metformin was used in non-diabetic patients with NAFLD metformin proved to be an effective treatment. However in randomized trials in diabetics with NAFLD, metformin had no effect on hepatic triglyceride content<sup>24</sup>. However using metformin along with insulin therapy was found to be beneficial in normalizing serum transaminase levels and reducing hepatic steatosis<sup>25</sup>. Hepatic triglyceride content was reduced by 45% and reached normal levels in 75% patients with 3 months of insulin therapy along with metformin. In a group of patients with biopsy proven NASH along with insulin resistance or diagnosed type II diabetes, treatment was offered with pioglitazone which brought improvement in ALT levels, hepatic fat content and liver histology. However it was observed that there was average weight gain of 2kgs which may be due to redistribution of hepatic fat from liver to adipose tissues<sup>26</sup>.

## CONCLUSION

Patients with type II diabetes along with NAFLD are at significantly increased risk of cardiovascular, cerebrovascular and peripheral vascular disease than general population. Treatment goals include improving insulin resistance with lifestyle modifications along with pharmacologic therapy.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# To Compare Plating Versus Ilizrov External Fixation Approaches in the Management of Schatzker Type VI Tibial Plateau Fracture

Plating Versus Ilizrov External Fixation Approach in the Schatzker Tibial Fracture

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## ABSTRACT

**Objectives:** To compare plating versus Ilizrov external fixation approaches in the management of Schatzker type VI tibial plateau fracture.

**Study Design:** Cross sectional study.

**Place and Duration of Study:** This study was conducted at the Department of Orthopaedics at Liaquat Medical University Hospital Hyderabad/Jamshoro from 25.07.2015 to 24.06.2016.

**Materials and Methods:** All the relevant patients will be admitted to the orthopaedic unit I with schatzker Grade VI tibial plateau fractures, either through casualty or throughout patient department, then divided into two groups (Group 1: Plating management, Group 2: Iliazrov. Schatzker grade I TO V, Open fractures of tibia that requires any kind of flap to cover the naked bone and pathological fracture were excluded from this study).

**Results:** 40 patients of Schatzker type VI fractures were evaluated from which (70%) were male and (30%) were female patients mean age of study subjects was  $40.22 \pm 11.19$  years, with range 18–69 years. Mean age for plating group were  $39.22 \pm 5.19$ . 32 (80%) patients had their fracture due to Road Traffic Accident (RTA). The mean time of partial weight bearing (in weeks) was  $6.50 \pm 2.68$  weeks (range 6-8 weeks). The mean time of full weight bearing (in weeks) was  $15.50 \pm 3.20$  weeks (range 12-30 weeks). The mean time of union was  $10.15 \pm 2.50$  weeks (range 5-20 weeks). The mean time of follow up for the outcome assessment from primary surgery was  $25.50 \pm 3.50$  months (range 17-53 months). The mean hospital stays (in days) was  $24.12 \pm 4.15$  days (range 10 – 30 days). 24 (60%) patients had excellent functional outcome, 10 (25%) patients from plating group and 14 (35%) from Ilizrov group, 12 (30%) patients had good functional and 4 (10%) patients had poor functional results 2 (%) patients from plating group and 2 (5%) patients from Ilizrov group. Overall 13 (32.5%) patients had developed complications, 2 (5%) patients had infected original wound, 4 (10%) patients had pin tract or screw site infection, 9 (22.5%) patients complain pain during walking.

**Conclusion:** Both modalities of treatment have good functional results in different circumstances.

**Key Words:** Tibial plateau Fracture, Schatzker Type VI, fracture, Buttress plates, Ilizrove, external fixator.

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## INTRODUCTION

The tibia is a long bone, the anterior third of which is placed subcutaneously in the leg throughout most of its length, where it is covered only by skin and a thin layer of subcutaneous tissue, with no muscle cuff around.<sup>1</sup> The tibial plateau is one of the most critical load-bearing areas in the human body.<sup>2</sup> Tibial plateau fractures affect knee alignment, stability, and motion.<sup>2</sup>

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Although tibial plateau fractures compose approximately 1% of all fractures, a unified treatment has not yet been established.<sup>3</sup> Tibial plateau fractures involve the articular surface of the tibia resulting from a combination of axial loading with varus or valgus stress. Inadequate and inappropriate treatment may result in significant functional loss<sup>4</sup>.

Tibial plateau fracture usually occurs due to certain types of exertion of forces i.e. medial, lateral or axial. The fractures due to medially exerted force are also called bumper fracture and the main cause is motor vehicles or pedestrian accidents. The mechanism of tibial plateau fracture involves the combinations of both valgus and axial directed forces. In majority of the cases of tibial plateau, the medial or lateral force condyle acts as an anvil imparting a combination of both shearing and compacting force<sup>5,6</sup>. Tibial plateau fractures may take place with meniscal and ligamentous injuries to the knee. Even though, some kinds of injury



may recommend a predominantly osseous injury, others may also recommend significant soft-tissue injury to the knee. The cause of standard tibial plateau fractures which involve the displacement of the articular surfaces of the proximal tibia without concomitant significant injury to the ligaments of the knee<sup>7,8</sup>.

High-energy tibial plateau fractures are difficult to manage, as they are often associated with severe soft tissue injuries (open wounds, crushing, marked swelling, bruising, blebs formation and/or compartment syndrome). The mechanisms of injury involve a combination of axial loading and valgus/varus forces<sup>8</sup>.

The radiographic findings assess the prevalence of ligament injury of tibial plateau fractures is approximately 20%–30%<sup>7,9</sup>. Accordingly there has been much advancement in the classification, evaluation, prognostication and especially treatment of these fractures<sup>10</sup>.

The classification based on Schatzker focuses on standard tibial plateau fractures. On the other hand, the higher rankings of Schatzker fracture represent fracture-dislocations and also significantly associated soft-tissue injury. The classification of Schatzker is based on the idea that “certain pathoanatomic and etiological factors as well as therapeutic features demand that certain injury types be grouped together”.<sup>7,9</sup> In the Schatzker classification, each increasing numeric fracture category indicates increasing severity, reflecting not only increased energy imparted to the bone at the time of injury but also an increasingly worse prognosis. Therefore, orthopedic surgeons find the Schatzker classification useful in assessing the initial injury, planning management, and predicting prognosis. Many authors have reported that initial Schatzker rankings and surgical plans based on plain radiographic findings were modified after preoperative computed tomography (CT) or magnetic resonance (MR) imaging<sup>11</sup>. Based on these considerations this study aims to compare the results of plating versus Ilizarov method in the management of Schatzker VI tibial plateau fracture as per time to heal hospital stay and complications. Early reorganization and evaluation of the patients will save the patients to acquire life threatening complications.

## MATERIALS AND METHODS

This study was conducted in Department of Orthopaedics at Liaquat Medical University Hospital Hyderabad/Jamshoro Pakistan. Duration of study was one year between 25 July 2015 to 24<sup>th</sup> June 2016.

Total 40 patients of either gender with age between 18 to 60 years admitted to orthopedic unit with Schatzker type VI fractures were evaluated to compare plating versus Ilizarov external fixation approaches in the management of Schatzker type VI tibial plateau fracture. All the relevant patients were admitted to the orthopaedic unit I with Schatzker Grade VI tibial

plateau fractures, either through casualty or through OPD, direct arrivals or those mishandled by potters and quakes selected according to the selection criteria appropriate for intervention decision for either plating management or Ilizarov was taken by the consultant orthopedic surgeon of the ward have  $\geq 05$  years clinical experience group. Schatzker grade I TO V, Open fractures of tibia that requires any kind of flap to cover the naked bone and pathological fracture were excluded from this study.

## RESULTS

The frequency of gender in which 28 (70%) patients were male and 12 (30%) patients were female. In mode of injury 32 (80%) patients had their fracture due to Road Traffic Accident (RTA) (two and four-wheeler versus pedestrian in 15 (37.5%) cases, fall from two wheeler in 8 (20%) cases, and car versus two wheeler in 9 (22.5%) cases), 4 (10%) due to fall from height, 2 due to sports, and rest of the 2 (5%) had fracture due to machine injury.”

“Mean duration between the arrival and the surgery was  $41.64 \pm 15.13$  hours (range 12 hours-10 days). Mean time b/w arrival and primary surgery for plating group was  $40.34 \pm 15.13$  hours and for Ilizarov group  $40.34 \pm 13.13$  hours. Mean time of union was  $10.15 \pm 2.20$  weeks (range 5-20 weeks). The mean time of union for plating group was  $8.65 \pm 1.25$  weeks and for Ilizarov group  $9.50 \pm 1.50$  weeks. Mean time of follow up for the outcome assessment from primary surgery was  $25.50 \pm 3.50$  months (range 17-53 months). Mean time of follow up for plating group was  $25.00 \pm 2.13$  months and for Ilizarov  $23.15 \pm 2.50$  months.. The mean hospital stays (range 10 – 30 days) for plating groups was  $21.25 \pm 2.53$  days and for Ilizarov group  $23.52 \pm 3.83$  days.”

**Table No.1: Demographic Variable**

Variable	No.Patients	Percentage
<b>Gender</b>		
• Male	28	70%
• Female	12	30%
<b>Mode of Injury</b>		
• Road Traffic Accident	32	80%
• Fall from height	04	10%
• Sports	02	5%
• Others	02	5%

“Over all 13 (32.5%) patients had developed complications in both groups, 6 (15%) patients from plating groups and 7 (17.5%) from Ilizarov group. Total 2 (5%) patients had infected original wound one (2.5%) patients in plating groups and one (2.5%) in Ilizarov group; both patients were treated with 5 days course of intravenous antibiotics before procedure. 4 (10%) patients had pin tract or screw site infection. Total 9

(22.5%) patients complain pain during walking in initial follow-up days and become finished latter on.”  
 “Functional outcomes was compared and evaluated in two groups. Total 24 (60%) patients had excellent functional outcome, 10 (25%) patients from plating group and 14 (35%) from Ilizrov group. Total 12 (30%)

patients had good functional results 8 (20%) from plating group and 4 (10%) from Ilizrov group with p- value. Only 4 (10%) patients had poor functional results 2 (%) patients from plating group and 2 (5%) patients from Ilizrov group .”

**Table No.2. Comparison of different variables between two groups.**

Variables	Plating n=20	Ilizrov n=20	P-value
	mean±SD	mean±SD	
Mean Time b/w Arrival & Primary Procedure (hour)	40.34±15.13	40.34±13.13	.798
Mean Time b/w Primary Procedure & Fixation (hours)	3.8±1.8	3.5±2.1	.385
Mean Time of partial weight bearing (in weeks)	5.15±1.68	4.98±1.12	.060
Mean Time of full weight Bearing	15.15±1.20	14.75±2.20	.778
Mean Time of union	8.65 ±1.25	9.50 ±1.50	.219
Mean follow up time (months)	25.00±2.13	23.15±2.50	.186
Mean Hospital stays (in days)	21.25±2.53	23.52±3.83	.017
Comparison of different complications in two groups.			
• “Infected original wound”	1 (2.5%)	1 (2.5%)	1.00
• “Infected Surgical wound”	0	0	----
• “Non union”	0	0	----
• “Delay union”	0	0	----
• “Infected Entry point”	0	0	----
• “Screw site infections”	2 (5%)	0	.154
• “Pin tract infection”	0	2 (5%)	.154
• “Pain during walking”	4 (10%)	5 (12%)	.714
• “Pin site osteolysis”	0	0	----
• “Pin loosening”	0	0	----
• “Pin site hyper-granulation”	0	0	----

**Table No.3. Comparison of functional outcomes in two groups.**

Functional outcomes	Total N(%)	Plating N(%)	Ilizrov N(%)	P-value
Excellent	24 (60%)	10 (25%)	14 (35%)	.065
Good	12 (30%)	8 (20%)	4 (10%)	.011

**DISCUSSION**

The tibia is a long bone, the anterior third of which is placed subcutaneously in the leg throughout most of its length, where it is covered only by skin and thin layer of subcutaneous tissue, with no muscles cuff around. High energy tibial plateau fractures of Schatzker VI are complex fracture often associated with sever soft tissue injury and high risk of wound complication following formal open reduction and internal fixation.<sup>2</sup>  
 In present study the frequency of gender in which 28 (70%) patients were male and 12 (30%) patients were female in each group. Statistics of gender of our study is comparable with a study by Prasad GT et al.<sup>12</sup> Twenty one patients were assessed with a minimum follow up of 1 year. There were 20 (95%) males and 1 (5%) female in the study group.  
 In our study mean age was 40.22±11.19 years, with range 18–60 years. Mean age for plating group were 39.22±5.19 while for Ilizrov group were 41.21±6.19. Statistics of age of present study is comparable with a

study by Pun TB et al<sup>13</sup> the mean age of the group was 43.85 years (range 22-61 years). In another study by Prasad GT et al<sup>12</sup> The age of the patients varied from 22 to 61 years (mean 40 years).  
 In current study showed mode of injury in which 32 (80%) patients had their fracture due to Road Traffic Accident (RTA) (two and four-wheeler versus pedestrian in 15 (37.5%) cases, fall from two wheeler in 8 (20%) cases, and car versus two wheeler in 9 (22.5%) cases), 4 (10%) due to fall from height, 2 due to sports, and rest of the 2 (5%) had fracture due to machine injury. Results were compared with a study done by Kavin Khatri et al<sup>14</sup> showing that The mechanism of injury was motor vehicle accident (RTA) in 53 (81.5%) patients , pedestrian struck by vehicle.  
 In this study mean time of full weight bearing (in weeks) was 15.50±3.20 weeks (range 12-30 weeks). When we compare Results of this study with a study by Osman A et al<sup>15</sup> showing that Full weight bearing was allowed at a mean of 14.4 weeks (range, 12 to24 weeks) another study by Pun TB et al<sup>13</sup> showed that the mean time of full weight bearing (in weeks) was 12.5±1.2 weeks (range 6-15 weeks). In this study mean time of union was 10.15 ±2.50 weeks (range 5-20 weeks). Results were comparable with a study by Prasad GT et al<sup>12</sup> showed that patients had union in 8-22 weeks (average 14 weeks). Another study from Malaysia by Ranatunga IR et al<sup>16</sup> in which Mean union

time was recorded at 3.72 months. All fractures were united within four months. Ten patients required additional casting and eight patients did not require any other form of supports. Another study from Pakistan by Khan MA et al<sup>17</sup> reporting that All the fractures united with an average time of 3.6 months.

In this study mean hospital stays (in days) was 24.12±4.15 days (range 10 – 30 days). Results were comparable with a study by Prasad GT et al<sup>12</sup> showed that Hospital stay varied from 5 to 14 days (mean 6 days). In current study overall rate was 13 (32.5%) patients had developed complications, 2 (5%) patients had infected original wound, 4 (10%) patients had pin tract or screw site infection, 9 (22.5%) patients complain pain during walking in initial follow-up days and become finished latter on, a study from Malaysia by Ranatunga IR et al<sup>16</sup> in which Four patients had pin site infection. These infections were treated with a one-week course of antibiotics and daily dressings. There were no other recorded complications of septic arthritis, osteomyelitis, amputation or knee laxity. Another study by Khan MA et al<sup>17</sup>, showing the same complication There were two pin tract infections which did not involve the bone. Deep venous thrombosis was diagnosed in one patient with the help of ultrasound. Another study by Sheshagiri V et al<sup>18</sup> showing complications observed were pin track infections in 5 patients and non-compliance in 1 patient.

## CONCLUSION

We concluded from this study that both therapies have a positive effect of the functional range as the Locking plating offers good treatment option for heavy or difficult bicondylar tibial plateau fractures. Compared with external fixation, locking plates is to provide high levels of healing and restoration of the articular surface and reducing problems including knee stiffness and reoperation. While on other hand external fixation provide

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# To Determine the Association of Neutrophil to Lymphocyte Ratio with Mortality and Outcome in Non ST Elevation Myocardial Infarction, who Present to the Emergency Department of a Tertiary Care Hospital of Karachi, Pakistan

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## ABSTRACT

**Objectives:** To determine the association of neutrophil to lymphocyte ratio with mortality and outcome in non ST elevation myocardial infarction.

**Study Design:** Observational study.

**Place and Duration of Study:** This study was conducted at the Department of Emergency, Karachi institute of Heart Diseases and Dow University Health Sciences Karachi from 1st July 2016 to 31st December 2016.

**Materials and Methods:** This study consisted of two hundred thirty one patients. Detailed History was taken from all the patients with special regard to chest pain. Detailed Clinical examination of the patient was done. Systemic review was also done to see any co-morbidity. All patients underwent for basic and specific investigations. Patients aged 18 to 65 years, who have an NLR of >3.04 who present with signs and symptoms associated with NSTEMI and either gender were included in this study. Patients with a history of trauma, surgery, neoplasm, or infectious disease in the last 30 days prior to admissions. Patients currently using immunosuppressant (including corticosteroids) were excluded from study. Results were prepared with help of tables and graphs.

**Results:** Out of 231 patients included in this study 156(44.20%) males and 75(59.79%) females. Male : Female Ratio was 2.08:1. The mean age was 48.19±5.21 years. Most common risk factors were family history of CAD in 188(81.38%) cases and hypertension in 111(48.05%) cases. High Neutrophil to lymphocyte ratio was present in 146(63.20%) patients while the low Neutrophil to lymphocyte ratio was in 85(36.79%) patients. Clinical outcome were observed hospital mortality were in 13(5.62%) and atrial fibrillation in 29(12.55%) cases and ST segment deviation were observed in 49(21.21%) cases.

**Conclusion:** We conclude that patients with Non ST Segment elevation Myocardial Infarction with high Neutrophil to lymphocyte ratio, is a good predictor of In hospital mortality, atrial fibrillation and ST segment deviation.

**Key Words:** Neutrophil To Lymphocyte Ratio, Non ST Elevation, Myocardial Infarction.

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## INTRODUCTION

Cardiovascular disease are the most important cause of mortality and morbidity worldwide. It has been estimated that every 26 seconds one American suffers heart attack and every minute some one dies of heart attack<sup>1</sup>. WHO have estimated that the global number of coronary heart diseases will increase upto 11.1 million by 2020<sup>2</sup>.

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Acute coronary syndromes have been divided into three categories: STEMI, NSTEMI and unstable angina. NSTEMI and unstable angina have similar clinical presentations however biochemical markers are absent in unstable angina and elevated in NSTEMI. Atherosclerosis leads to acute coronary syndromes via plaque disruption with platelet aggregation and thrombosis. Plaques vulnerable to disruption are rich in lipid and have a thin fibrous cap. What mechanisms predispose plaques to disruption are still not known.

Following infarction, neutrophils aggregate at the site of infarct and exacerbate vascular plug formation and promote further secretion of markers of inflammation. Inflammatory cytokines can activate endothelium and alter its adhesive and coagulant properties. Inflammatory mediators cause local vasoconstriction by mediating formation of endothelin in endothelium and macrophages increasing vascular smooth muscle hyper-reactivity to vasoconstrictors<sup>3</sup>. Neutrophil count raise following inflammation and lymphocytes decline due to

the action of stress hormones such as cortisol. This led to the development of neutrophil to lymphocyte ratio as a marker for predicting ongoing inflammation<sup>4</sup>. It is considered as an independent marker for predicting short and long term mortality following cardiovascular events such as NSTEMI, STEMI, advanced heart failure, arrhythmias or stable coronary artery disease<sup>5,6</sup>. High N/L ratio can predict the intensity of inflammatory response and this is the mechanism for predicting future mortality and morbidity following cardiac events. Inflammatory mediators should be taken into account apart from other modalities such as ECG, troponins etc. Another inflammatory marker of great significance is CRP however it is expensive than N/L ratio and is not readily available in many health care facilities.

The neutrocyte to lymphocyte ratio (N/L) is important in determining ongoing systemic inflammation via taking check of the balance between neutrophil and lymphocyte production<sup>7</sup>. N/L ratio is more important in predicting the over all mortality as compared to WBC count<sup>8,9</sup>. As atherosclerosis is the main phenomenon underlying acute coronary syndromes, inflammation is closely linked to underlying processes in atherosclerosis<sup>10</sup>.

**MATERIALS AND METHODS**

This study was carried out department of Emergency, Karachi institute of heart diseases and Dow University Health Sciences Karachi, from 1st July 2016 to 31st December 2016.

This study consisted of two hundred thirty one patients. Detailed History was taken from all the patients with special regard to chest pain. Detailed clinical examination of the patient was done. Systemic review was also done to see any co-morbidity. All patients underwent for base line and specific investigations. Patients aged 18 to 65 years, who have an NLR of >3.04 who present with signs and symptoms associated with NSTEMI and either gender were included in this study. Patients with a history of trauma, surgery, neoplasm, or infectious disease in the last 30 days prior to admissions. Patients currently using immune-suppressant (including corticosteroids) were excluded from study. Results were prepared with help of tables and graphs. The data was entered and analyzed using SPSS version 20.0.

**RESULTS**

Out of 231 patients included in this study 156(44.20%) males and 75(59.79%) females. Male : Female Ratio was 2.08:1. The mean age was 48.19+5.21 years. Most common risk factors were family history of CAD in 188(81.38%) cases and hypertension in 111(48.05%) cases. High Neutrophil to lymphocyte high ratio was present in 146(63.20%) patients while the low Neutrophil to lymphocyte ratio was in 85(36.79%)

patients. Clinical outcome were observed hospital mortality were in 13(5.62%) and atrial fibrillation in 29(12.55%) cases and ST segment deviation were observed in 49(21.21%) cases.

**Table No.1: Demographic Variable N=231**

Variable	No.Patients	Percentage
<b>Gender</b>		
• Male	156	44.20%
• Female	75	59.79%
<b>Age</b>		
• 18-35 years	46	19.91%
• 36-50 years	128	55.41%
• 51-65 years	57	24.67%
<b>Neutrophil to lymphocyte ratio</b>		
• Low	85	36.79%
• High	146	63.20%



**Chart No.1: Clinical Outcome**

**DISCUSSION**

N/L ratio can be calculated at the time of admission, after PCI, average of all readings or maximum of all recordings. Park et al have concluded that NLR at the time of admission was more predictive of mortality than that measured 24 hours after admission<sup>6</sup>. Azab et al and Jingyu et al concluded that average N/L ratio was the best indicator for mortality as compared to N/L ratio at the time of admission, average or at the time of discharge<sup>4,11</sup>. Nunez et al reported that maximum value of N/L ratio during first 96 hours of admission is the best indicator<sup>11</sup>. Jingyu et al reported that high average N/L ratio is associated with cardiac dilation, hypotension and defibrillation.

Papa et al have shown in his study that clinically stable patients with increased N/L ratio have increased cardiac mortality. Cho et al suggested that neutrophil to lymphocyte ratio is an independent marker for six month mortality<sup>12</sup>. Ozturk et al also proved association of N/L ratio in young patients with NSTEMI and unstable angina. Other inflammatory markers associated with ongoing inflammation include CRP and fibrinogen levels<sup>13</sup>. Jingyu et al have concluded that average N/L ratio as predictor of all cause mortality.

Tamhane et al studied N/L ratio in hospitalized patients and upto 6 months following hospitalization. He concluded that N/L ratio is an independent predictor of all cause mortality in these patients<sup>14</sup>. In another study, 133 patients were studied and N/L ratio was found to be a predictor for mortality for upto one year<sup>15</sup>. Our study reports in-hospital mortality of 5.26% whereas atrial fibrillation occurred in 12.55% cases. ST segment deviation was found in 21.21% cases. Aguado-Romeo reports overall mortality of 8.3%<sup>16</sup>. Raza et al reports 5.9% deaths in males and 6.3% in females<sup>17</sup>. Ahmed et al showed mortality rate of 10.2% and atrial fibrillation was found in 11.5% cases<sup>18</sup>. Barron et al stated that the frequency of atrial fibrillation increases with rising leukocyte levels<sup>19</sup>. Azab et al and Ahmed et al that frequency of ST segment deviation increases with raised NLR ratio. Males predominated the number of cases presented to the emergency department. Our study reports 67.5% males. Raza et al reports 68% males whereas Iqbal et al reports 77.1% males<sup>20</sup>. Jafrey et al reports 68.1% males<sup>21</sup>.

One study shows complete depletion of MPO enzymes in neutrophils following 4 hours after the onset of symptoms in patients with NSTEMI and STEMI. Myeloperoxidase is found in primary azurophilic granules in neutrophils. MPO depletion is associated with platelet activation and formation of aggregates of platelet with neutrophils and monocytes. As the condition resolves, MPO levels return back to control levels<sup>22</sup>.

Despite adequate treatment following acute coronary syndromes, the mortality reaches 3-8%<sup>23</sup>. 10-20% patients are readmitted following reinfarction or die within a month following acute coronary event and 5% patients develop congestive heart failure<sup>24</sup>. ECG and biochemical markers are less accurate in predicting mortality. This is where N/L ratio comes into play as inflammation is the key factor in initiating these processes and is a better marker for future clinical outcome. However false elevation of neutrophil count can occur due to dehydration, re-perfusion therapy or following catecholamine release<sup>25</sup>.

Coronary care unit is not the only unit in which N/L ratio is predicting future prognostic outcome. Other diseases such as fatty liver disease, cancer chemotherapy patients, Alzheimer's disease, appendicitis and many more offer predicting future outcome by measurement of N/L ratio<sup>26</sup>. There have also been association between high N/L ratio and cardiac calcium score which is a marker of vessel disease<sup>27</sup>.

## CONCLUSION

There are very few physicians in emergency care department taking into account the N/L ratio of patient in predicting short and long term mortality. It is therefore advised to take this factor into consideration as it can demonstrate ongoing systemic inflammatory

changes and it much easily available and cheap than CRP levels.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# To Assess the Functional Outcome of Genu Valgus Deformity Treated with Focal Dome Osteotomy by Ilizarov Ring Fixator

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Abbas Memon<sup>2</sup> and Muhammad Ayub Laghari<sup>1</sup>

## ABSTRACT

**Objectives:** To assess the functional outcome of genu valgus deformity treated with focal dome osteotomy by ilizarov ring fixator.

**Study Design:** Quasi experimental study.

**Place and Duration of Study:** This study was conducted at the Department of Orthopaedics at Liaquat Medical University Hospital, Hyderabad/Jamshoro Pakistan from 18th Aug 2014 to 17th Aug 2016.

**Materials and Methods:** Patients that fit in the inclusion criteria were admitted through OPD, all the procedure were explained to the patients. Verbal and written informed consent was taken from the patient. The detailed examination of the effected limb was done and after the surgical procedure and discharge of the patients, assessment was reviewed during patients follow up on every 2 weeks and results was analyzed through SPSS version 21.

**Results:** The mean age of the patients at the time of the index operation was 23.3 years with SD  $\pm$  8.86 years. (range from 18 to 50 years). Majority of the patients (32 (94.1%) out of 34) mentioned the cosmetic deformity or limp of the knee as the presenting complaint, Out of 34 patients in 23 (67.6) cases the deformity was considered idiopathic in nature, 09 (26.4) of the patients had evidence of nutritional rickets/ osteomalacia, and 02 (5.8) patient had a post-traumatic genu valgum deformity. The mean duration of hospital stay in our setup was 8 days (range, 5 days - 15 days). The mean period of follow-up of patients was 19.8 months (range, 15 months to 29 months). The mean duration of Ilizrove external fixation was 17.65 weeks (range, 15 months to 48 weeks). The mean preoperative HSS score of our patients was 68.2 (range 31-96). Postoperatively the average HSS knee score was 90.1 (67-100). HSS score improved by an average of 22 points (range: 4-51 points) and this improvement was statistically significant ( $p = 0.01$ ) The HSS score was Excellent or good results in 16 (85.18%) of cases and fair or poor results in 8 (14.8%). Only 02 (5.8) cases had deep wound infection that required removal of external fixator at 6 and 8 months respectively. Both cases responded well after external fixator removal.

**Conclusion:** Focal dome osteotomy with Ilizarov technique has excellent results in most of the patients in our study. It has potential advantages over commonly used open techniques in being minimally invasive, easily reproducible and provides a versatile alternative to currently available methods for fixation of proximal femoral osteotomies.

**Key Words:** Genu valgum. Correction focal dome osteotomy. Ilizarov technique.

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## INTRODUCTION

Genu valgum is a latin word used to describe the knock-knee type. Although many children health wise good but have a knock-knee as a series of passes some people maintain or improve this type of hereditary disorders or genetic or bone diseases<sup>1</sup>.

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Typical aspect of gait, requiring that each of the swing leg when walking outside to take action without any effort on their legs planted with moving. Not only are the mechanics of gait compromised but also, with significant angular deformity, anterior and medial knee pain are common. These symptoms reflect the pathologic strain on the knee and its patellofemoral extensor mechanism<sup>2,3</sup>.

Both closed and open wedge osteotomies lead to a secondary translational deformity of the osteotomy fragments, because the osteotomies are being carried out away from the CORA (Centre of Rotation of Angulation). Clinically, a limb with translational deformity of 1.5 cm may not look aesthetic even if it appears straight, because the part distal to the



osteotomy will be shifted medially. Moreover the forces transmitted through the hip, knee and ankle joint following correction will be mal-oriented, which predispose to joint degeneration<sup>4</sup>.

Focal dome osteotomy also provides excellent apposition of fragments, which leads to a reasonably stable situation after it is fixed with Ilizrov ring fixator, doing correction gradually, (Book: The principles of deformity correction by Dror paley)<sup>5</sup>.

Rational of our study is the angular correction with a dome osteotomy occurs as two matching cylindrical shaped bone ends slide on each other rotating around the central axis of the cylinder. The ACA (axis of correction of angulation) of the dome osteotomy is the central axis of the cylindrical cut. Two- dimensionally, the cylindrical dome osteotomy appears as an arc of circle and its central axis as the centre of the circle. If the ACA (axis of correction of angulation) of the dome osteotomy is centered on the CORA, complete realignment of the proximal and distal bone axes is achieved. The advantages of dome osteotomy are adjustability, large bone to bone contact and stability<sup>6</sup>. Bone ends maintain maximum bone contact (because of cylindrical shaped osteotomy. Aim of this study is to assess the functional outcome of genu valgus deformity treated with focal dome osteotomy by Ilizrov ring fixator.

**MATERIALS AND METHODS**

This study was conducted in Department of Orthopaedics at Liaquat Medical University Hospital Hyderabad/Jamshoro Pakistan. Duration of study was two year between 18th Aug 2014 to 17th Aug 2016. Total 34 patients of either gender with age between 18 to 50 years admitted to orthopedic unit with Genu valgus (undergoing focal dome osteotomy with the illizrove fixator for 2 years). Patients were age < 18

years , mentally retarded patients, patients with coxa vara \ coxa valga, and post polio residual deformity were excluded from study

**RESULTS**

Total 34 focal dome osteotomies done in genu valgus deformity during two year study period. We had 34 patients from which 25 (73.52%) patients were female and 09 (26.47%) patients were male making female to male ratio 1.2:8. The mean age of the patients at the time of the index operation was 23.3 years with SD ± 8.86 years. The mean age of the male patients was 19.4 years and female patients 24.4 years ( Table No.1).

**Table No.1: Demographic Variable (N=34)**

Variable	No.Patients	Percentage
<b>Gender</b>		
• Male	09	26.47%
• Female	25	73.52%
<b>Age</b>		
• 18 to 30 years	17	50%
• 31 to 40 years	13	38.2%
• 41 to 50 years	04	11.7%
<b>Presenting complain</b>		
• Only Limp	16	47.05%
• Limp and pain	10	29.41%
• Limp and gait	6	17.64%
• Fall while walk	2	5.88%
<b>Distribution of causes of genu valgum</b>		
• Idiopathic	23	67.64%
• Rickets/ osteomalacia	9	26.47%
• Post-traumatic	2	5.88%

**Table No.2: Preoperative and post operative values of different variables.**

Variables	Mean	Range	P -value
pre-operative intermalleolar distance	13.83 cm	9 cm - 21 cm	0.001
Post-operative intermalleolar distance	1.5 cm	0 cm - 6 cm)	
Clinical tibio -femoral angle before operation	23.5o	18o to 30o	0.001
Clinical tibio -femoral angle after operation	6.1o	0o to 10o	
Radiological tibiofemoral angle before operation	22.2o±2.926	16o to 29o	0.001
Radiological tibiofemoral angle after operation	5.1o±2.126	0o to 10o	
Preoperative LDFA	79.23o±2.907	72o to 83o	0.001
Postoperative LDFA	89.13o±2.029	87o to 91o	
Before surgery MAD	19.56±2.029 mm	9 mm to 31 mm	0.001
After surgery MAD	3.7 ±3.875 mm	0 to 5 mm	
Preoperative degree of valgus in frontal plane	25.5°	15° to 45°	0.001
Postoperative degree of valgus in frontal plane	nill	nill	
Preoperative degree of valgus in sagital plane	8.3°	5° to 10°	0.001
Postoperative degree of valgus in sagital plane	nill	nill	
preoperative HSS knee score	68.2	31-96	0.001
Postoperative HSS knee score	90.1	67-100	

Majority of the patients 32 (94.1%) mentioned the cosmetic deformity or limp of the knee as the presenting complaint, 16 (47.05) patient had only limp, 10 (29.4%) patients had pain + limp on presentation, 08 (17.6%) patients complained of gait abnormalities, and only 2 (5.8%) patients had a history of a fall while walking. Out of 34 patients in 23 (67.6) cases the deformity was considered idiopathic in nature, 09 (26.4) of the patients had evidence of nutritional rickets/ osteomalacia, and 02 (5.8) patient had a post-traumatic genu valgum deformity( Table No.1). Preoperative and post operative values of different mean variables shown in table No.2.

Postoperatively the average hospital special Surgery Knee Score HSS knee score was 90.1 (67-100). The HSS score was excellent in 36 (66.6) limbs, good in 10 (18.5), fair in 6 (11.1) limb and poor in 2 (3.7) limb. Excellent or good results were present in 46 (85.18%) of cases and fair or poor results in 8 (14.8%) ( Chart No.1). Two cases had a deep wound infection that required removal of external fixator at 6 and 8 months respectively.

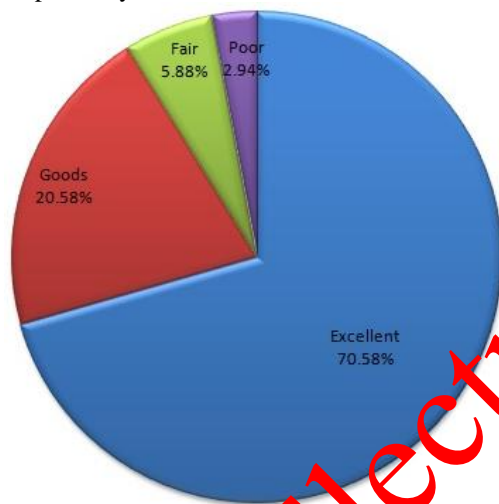


Chart No.1: Hospital Special Surgery Knee Score

## DISCUSSION

Genu valgum is the Latin-derived term used to describe knock-knee deformity. While many otherwise healthy children have knock-knee deformity as a passing trait, some individuals retain or develop this deformity as a result of hereditary or genetic disorders or metabolic bone disease<sup>1</sup>. The typical gait pattern is circumduction, requiring that the individual swing each leg outward while walking in order to take a step without striking the planted limb with the moving limb. Not only are the mechanics of gait compromised but also, with significant angular deformity, anterior and medial knee pain are common. These symptoms reflect the pathologic strain on the knee and its patellofemoral extensor mechanism<sup>2,3</sup>.

In our study the mean age of the patients at the time of the index operation was 23.3 years with SD  $\pm$  8.86 years. Age range from 18 to 50 years. 26 (76.4%) were females and 8 (23.5%) were males with female to male ratio of 1:0.30. A study by Kawoosa AA et al<sup>7</sup> reporting mean age was 21.8 years (range 10-56 years) 17 (65.3%) were females and 9 (34.6%) were male with female to male ratio 1: 0.52. A study by Sad M and Kader A<sup>8</sup> reporting mean age was 16.4 years (range 12-24 years) 10 (55.6%) were females and 8 (44.4%) were male with female to male ratio 1: 0.8. In current study Majority of the patients 32 (94.1%) mentioned the cosmetic deformity or limp of the knee as the presenting complaint, 16 (47.05) patient had only limp, 10 (29.4%) patients had pain + limp on presentation, 08 (17.6%) patients complained of gait abnormalities, and only 2 (5.8%) patients had a history of a fall while walking. A study by Gupta V et al<sup>9</sup> reporting in his study the majority of the patients (27 out of 30) mentioned the cosmetic deformity of the knee as the presenting complaint, 11 patients had pain on presentation, 7 patients complained of gait abnormalities, and only 2 patients had a history of a fall while walking.

Our study Out of 34 patients in 23 (67.6) cases the deformity was considered idiopathic in nature, 09 (26.4) of the patients had evidence of nutritional rickets/ osteomalacia, and 02 (5.8) patient had a post-traumatic genu valgum deformity. A study by Kawoosa AA et al<sup>7</sup> reporting The aetiology of deformity was idiopathic in 12, post-traumatic in 11, post-osteomyelitic in 2 and Blount's disease in one patient.

The mean pre-operative intermalleolar distance was 1.83 cm (range, 9 cm - 21 cm) that improved to a mean post-operative value of 1.5 cm (range, 0 cm - 6 cm) ( $p < 0.001$ ). The mean clinical tibio -femoral angle was 23.5o (range, 18o to 30o) before surgery, that improved to a mean postoperative value of 6.1o (range, 0o to 10o) ( $p < 0.001$ ). A study by Gupta V et al<sup>9</sup> reporting in his study the mean pre-operative intermalleolar distance was 13.83 cm (range, 9 cm - 21 cm) that improved to a mean post-operative value of 1.5 cm (range, 0 cm - 6 cm) ( $p < 0.001$ ). the mean clinical tibio -femoral angle was 23.5o (range, 18o to 30o) before surgery, that improved to a mean postoperative value of 6.1o (range, 0o to 10o) ( $p < 0.001$ ). In our study The functional outcomes was assessed after removal of fixator and scored according to Hospital Special Surgery Knee Score (HSS). The mean preoperative HSS score of our patients was 70.5 (range 31-96). Postoperatively the average HSS knee score was 93.2 (65-100). HSS score improved by an average of 25 points (range: 5-50 points) and this improvement was statistically significant ( $p = 0.01$ ). A study by Shiha A et al<sup>10</sup>, reporting the mean preoperative HSS score of our patients was 68.2 (range 31-96). Postoperatively the average HSS knee score was 90.1 (67-100). In this

study the HSS score was excellent in 36 (66.6) limbs, good in 10 (18.5), fair in 6 (11.1) limb and poor in 2 (3.7) limb. Excellent or good results were present in 46 (85.18%) of cases and fair or poor results in 8 (14.8%). In present study Two cases had a deep wound infection that required removal of external fixator at 6 and 8 months respectively. Both cases responded well after external fixator removal. None of the cases had other complications like knee stiffness, recurrence of deformity, shortening, reversal of deformity, or non-union of the osteotomy site. A study by Gupta V et al<sup>9</sup> reporting in his study two cases had a deep wound infection that required implant removal at 6 and 8 months respectively. Both cases responded well after implant removal. None of the cases had other complications like knee stiffness, recurrence of deformity, shortening, reversal of deformity, or non-union of the osteotomy site.

## CONCLUSION

Focal dome osteotomy with Ilizarov technique has excellent results in most of the patients in our study. It has potential advantages over commonly used open techniques in being minimally invasive, easily reproducible and provides a versatile alternative to currently available methods for fixation of proximal femoral osteotomies.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# An Experience With and Without Insertion of Subcutaneous Wound Drain in Stomal Reversal

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## ABSTRACT

**Objectives:** To evaluate the outcomes of SSI with or without Subcutaneous suction drain in ileostomy closure.

**Study Design:** Interventional randomized control trial study.

**Place and Duration of Study:** This study was conducted at two Units of Surgery at tertiary care academic hospitals of Liaquat University of Medical & Health Sciences Jamshoro (LUMHS) and People's University of Medical & health Sciences, Nawabshah (PUMHS) from February 2013 to March 2016.

**Materials and Methods:** 140 patients of both genders from 16-60 years in age, who underwent for elective open reversal of protective Ileostomy were enrolled in this prospective interventional randomized control trial (RCT) study after having informed consent to participate as per described policy. Patient having ASA of group III or malignancy were not enrolled in this study. Study population was divided into two A and B groups based on having or not having insertion of SD respectively. The simple randomization for probability of sampling was achieved. While samples were of equal size of 70 each to maintain the balance. Follow up at 0th day after discharge then fort-nightly for 3 months.

**Results:** In this plot of 140 patients, 12 (8.57%) males and 5 (3.57%) female developed wound infection in general. While, the incidence of SSI in group B (without SD) was 20% (14/70) and 4% (03/70) in group A (with SD). Anastomosis leak was observed only in B group. The median post-operative hospital stay was 14 (range, 9-42 days) in B group and 12 days (range, 8-27 days) in group A. There were hospital re-admission in 03 patients of B group, with no mortality in any group. However, the incidence of SSIs when comparing both groups (group B versus group A), did reach statistical significance of  $P < 0.38$ .

**Conclusion:** We believe that SD has potential benefit in high risk patients and patients with deeper subcutaneous fat in closure of ostomy wounds.

**Key Words:** Subcutaneous wound drains, Ileostomy reversal, Post-operative wound infections

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## INTRODUCTION

An ever-changing wound care evolved from pre-history to modern science, in ancient times the necessity of hygiene was realized with development of new concept of surgery, and in the 19<sup>th</sup> century the germ theory (microbiology) and cellular pathology assisted in improvement of wounds<sup>1</sup>.

Surgical fecal diversion of any loop of intestine brought to anterior abdominal wall is called ostomy in field of surgery<sup>2</sup>. There are many surgical and traumatic entities where temporary ileostomy is used to save unwanted complications and retain the optimal fitness of<sup>3</sup>.

Surgical site infections (SSIs) are defined as wound infection after surgical procedure, and are associated with ill-defined situation of surgical site.<sup>5</sup> The medical literature is replete with postoperative complications of reversal of ileostomy standing upto 40%.<sup>6</sup> The incidence of wound infection following ileostomy closure ranges between 2 and 41% as has reported by different studies.<sup>7</sup>

Wound infections utilizes health care system with unwanted morbidity with more hospital stay in patients who developed SSI.<sup>8</sup>

An adequate treatment of SSI can be achieved by local drainage, wound cleaning, and antibiotics, but cosmetic results remains unsatisfactory, and is associated with an increased risk of incisional hernias and a prolonged hospital stay.<sup>9</sup>

The antiseptic lines reducing the number of microbes on surgeon and patient been proposed with a view to reduce SSIs and routine became a standard in every surgery<sup>25</sup>. So drains after surgery are not much rewarding.<sup>10</sup>

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The presence of devitalized tissue results in high rates of infections.<sup>11</sup> Hence the blood and serous fluids from the wound should be removed by drains before fluids can get infected. This concept is frequently implemented in clinics. Based on this theory, many techniques have attempted to improve SSI rates following ostomy closure. Medical literature identify the reduced rates of SSI after SD placement.<sup>12,13</sup>

So the aim of this study was to evaluate the outcomes of SSI with or without Subcutaneous suction drain in ileostomy closure.

## MATERIALS AND METHODS

140 patients of both genders from 16-60 years in age, who underwent for Elective Open reversal of Protective Ileostomy by two Units of Surgery at tertiary care academic hospitals of Liaquat University of Medical & Health Sciences Jamshoro (LUMHS) and People's University of Medical & health Sciences, Nawabshah (PUMHS) from February 2013 to March 2016 were enrolled in this prospective interventional randomized control trial (RCT) study after having informed consent to participate as per described policy. Patient having ASA of group III or malignancy were not enrolled.

Patient were divided into two cohorts for having SD insertion (A) and no SD insertion (B). While the eligible participants, who came for admission in wards and stood on odd number of study enrollment were assigned in study group A with insertion of SD and other who stood on even number were assigned in group B without insertion of SD. This was maintained through telephone & e-mails between two units and hence, the simple randomization for probability of sampling was achieved. While samples were of equal size of 70 each to maintain the balance.

### Interventions

**In Both Groups A & B:** Prophylactic antibiotic (cefotaxime) 1gm half hour before surgery and afterward according to need. Post-operatively patients received intravenous fluids only and nothing else for 2-4 days. Vital were recorded twice a day. They were also observed for signs of infection or complication on daily basis.

### Procedure:

**Study Group A:** As per SSI protocols, all patients received skin and stomal preparation pre-operatively in wards and intra operative skin antisepsis scrubbing with alcoholic chlorohexidine. After liberation of ileal loops and completion of hand – sewn end to end anastomosis and closure of abdominal muscles, subcutaneous space was irrigated with normal saline and an active negative pressure (Rodevac) continuous suction drain was placed along the entire length of the subcutaneous tissue under raised skin flaps. The exit of the drain was separated from the incision and then skin was re-approximated without tension with interrupted sutures of non-

absorbable polypropylene (Proline-1). Stiches were spaced by every 1cm across the wound. Sterile dressing was applied. While dressing was removed on 2<sup>nd</sup> post-operative day. While SD was removed on 4-5 days.

**Control Group B:** Above all the same procedure except subcutaneous drain.

**Discharge:** When condition was satisfactory

**Outcomes observation duration:** 3 Months.

**Follow up:** At 10<sup>th</sup> day after discharge then fort-nightly for 3 months.

### Measurable Outcomes Indices:

1. SSI
  - a. Inflammation (Pain, swelling, tenderness).
  - b. Exudate.
2. Fever.
3. Length of hospital stay (days).
4. Incisional hernia.
5. Disruption of anastomosis.

**Statistical Analysis:** was performed using SPSS software version 18.0 (SPSS Inc. Chicago Illinois) for windows ordinal variable were analyzed using X<sup>2</sup> test, nominal variable were analyzed with fisher exact test, and P < 0.1 was set for statistical significance.

## RESULTS

A total of 140 patients met the inclusion criteria, 06 patients were drop out in follow up, hence, remaining 140 patients included from both hospitals in this study analysis.

**Table No. 1: Basic characteristics of demographics, age, gender, body mass index**

Characteristics/Patient Factors	Group B	Group A
Sex n (%)		
Male	42	46
Female	28	24
Age Years Median	43	44
Range	(20-57)	(24-58)
ASA (n %) I	46	48
ASA (n %) II	24	22
BMI, Kg/m <sup>2</sup> Median	23.1	24.1
	(15.3-28.5)	(17.4-30.2)
Diabetes Mellitus No	66	63
Diabetes Mellitus Yes	04	07
Reasons of Ileostomy	40	43
Typhoid Perforation		
Trauma	14	12
Others / (volvulus, TB, Adhesions)	16	15
Surgical approach		
• Closure of ileostomy site	68	67
• Re-Laparotomy	02	03

**Table No. 2: Objective outcomes in two groups.**

Outcomes	Group B	Group A
Fever	16	10
SSI	14 (20%)	03 (4%)
Length of hospital stay	14 (9-42)	12 (8-27)
Disruption of anastomosis	03	00
Incisional hernia	03	00

Table No. 1 displays the basic characteristics of demographics, age, gender, body mass index, pre-operative comorbidities, ASA scores, reasons of protective ileostomies and types of surgical approaches. In both groups the experience of operating surgeons were more than 15 years.

**In Group A**, the mean age was 44 years (ranges, 24-58) in 46 (66%) of males and 24 (34%) of females.

**In Group B**, the mean age was 43 years (ranges, 20-57) in 42 (60%) of males and 28 (40%) of females.

**In General**, (Both groups) regarding co-morbidities 11 (7.85%) patients were Diabetic. According to American society of Anesthesiologists score 94 (67%) patients were in physical status II, while rest (46 / 33%) patients were in score III. Among these 140 patients the most common (83 / 59%) of protective ileostomy was typhoid ileal perforation.

After reversal of ileostomy, closure of wound was through ileostomy site in 135 and re-laparotomy in 05 patients respectively. There were hospital re-admission in 03 patients of group B and

While the Table No. 2 compares the objective outcomes (aims of study) in two groups.

In this plot of 140 patients, 12 (8.57%) males and 5 (3.57%) female developed wound infection in general. Out of these 17 patients six were diabetic. Among these six Diabetics, all 04 were from group B and two were from group A.

While, the incidence of SSI in group B (without SD) was 20% (14/70) and 4% (03/70) in group A (with SD). Anastomosis leak was observed only in B group.

The median post-operative hospital stay was 14 (range, 9-42 days) in B group and 12 days (range, 8-27 days) in group A.

There were hospital re-admission in 03 patients of B group, with no mortality in any group.

## DISCUSSION

This study is attempted to report on the clinical experience between two groups having SD (B) and NO SD (A) in wound after reversal of protective ileostomy and describe the comparison of out comes as mentioned in table No. 2. The number of studies investigating the effectiveness of SD currently limited.<sup>14-6</sup>

Inspite of growing emphasis on patients outcomes still there are many unwanted complications resulting in unfavorable results.<sup>17</sup> Among these complications, SSI is the most serious infections complication associated with rates of re-operation, prolonged hospital stay with

increased costs and discomfort to patient.<sup>18</sup> While the current practice in surgery does not commonly approve the use of SD in wounds post operative. It is general thought that SSIs are related to number of bacteria, pool of effusion and hematoma in wound, subcutaneous dead space and altered local circulation. So the SD drains are still common in practice to remove the exudates and reduce the accumulation of inflammatory mediators at resource limited hospitals. The incidence of SSI in our study was 4% in patients with SD drains and 20% in patients having No drains. Several studies<sup>19-21</sup> have reported SSI rates similar to what is demonstrated by our study.

Different studies have placed different rates of SSI with different procedures of ileostomy closure.<sup>22-24</sup> While Higson and his colleagues found increased rates of SSI in SD group in comparison to no SD controlled cohort. Perhaps, all above mentioned studies<sup>25-27</sup> are disapproved but others as having small samples in their studies, so we cannot rely on these non randomized quasi trials.

Medical literature again reflects reduction of SSI, when SD are used in emergency contaminated laparotomies.<sup>28</sup> While other studies show no remarkable difference with SD versus no SD, however SD helps to reduce SSI in high risk. The other meta-analysis is not supporting the obesity as a major reason for wound. However, despite the pros of SD, there have been conflicting reports in the literature about use of SD.

The length of hospital stay was not much significantly higher in SD group in comparison to other studies. Incisional hernia was observed in patients having no drains, and these findings somehow co-relate with study of Kashimura, et al.<sup>14</sup>

## CONCLUSION

To aid clearance of SSIs from potentially contaminated cases and reduce high rate of morbidity, we believe that SD has potential benefit in high risk patients and patients with deeper subcutaneous fat in closure of ostomy wounds.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# An Experience with Primary versus Delayed Primary Wound Closure in Dirty Abdominal Surgery

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## ABSTRACT

**Objectives:** To evaluate as primary closure versus delayed primary closure in dirty abdominal surgeries.

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was conducted at two units surgery at tertiary care academic hospitals of Liaquat University of Medical and Health Science (LUMHS) Jamshoro and Peoples University of Medical and Health Science (PUMHS) Nawabshah from March 2014 to May 2016

**Materials and Methods:** 100 patients of both genders from 18 - 62 years in age. Who underwent in exploratory laparotomy for gut perforation or intra-abdominal abscess by two units were involved in this prospective interventional randomized control (RCT). Study population was divided into A and B Groups, based on having primary closure and delayed primary closure respectively. The randomization of patients samples was simple by alternating technique. While samples were of equal size 70 in each group to maintain balance. Study population was divided into A and B Groups, based on having primary closure and delayed primary closure respectively. The randomization of patients samples was simple by alternating technique. Primary and secondary outcomes were SSI and length of history and incisional hernia respectively.

**Results:** All patients in both groups (28(30%)) operated for either penetrating or blunt abdominal trauma were in between (21-32 years). In this plot of 94 patients, 25 (26.5%) from both groups developed wound infection. While in group A, the incidence of SSI was 36% versus 17% of Group B. The total length of hospital stay was bit greater in group B versus A. while rate of post-operative complications and re-admission was higher in group A versus group B. Cause of death was not wound infection in both groups.

**Conclusion:** Delayed primary closure is safe and effective with reduce rates of SSI as in our part of the world, where infectious disease are on the top and hospital resources are limited.

**Key Words:** Wound closure, dirty abdominal surgery, and surgical site infection..

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## INTRODUCTION

Exploratory laparotomy is a very common surgical procedure mostly offered in emergency for dismal and treacherous intra peritoneal insults, while to close primarily or left it open remains controversial debate.<sup>1</sup> The unclosed abdomen after surgery is a nightmare for surgeons and causes a heavy burden to public health resource.<sup>2</sup> While, incisional hernia results more common in contaminated surgery.<sup>3</sup>

It has been noticed that primary fascial closure may be associated with high mortality rates due to induced

visceral compression per se.<sup>4</sup> While delayed abdominal closure in dirty abdominal surgical procedures would effectively prevent the life threatening complication of SSI<sup>11</sup>. Although the delayed closure often leads to a planned ventral hernia but it earns growing popularity in infectious conditions compared with primary fascial closure.<sup>5</sup>

Surgical site infection (SSI) following abdominal surgery is common. Surgical site infection confers significant morbidity, with an additional risk of mortality.<sup>6</sup> There are further health care-related costs, through increased hospital stay, repeated surgery, nursing care costs, and drug treatment<sup>15</sup>. Because of these factors, there is international interest in reducing the rate of SSI.<sup>7</sup> Open wounds should always be irrigated with normal saline on daily bases to decrease the load of contamination. Indeed, reduced rates of SSI are seen in more in delayed closure of abdomen. While these infected surgical site wounds exhausts health care system of treatments.

It is observed that rates of SSI get decreased when are closed later after 3 to 5 days with decreasing number of

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bacteria by daily washing with normal <sup>26</sup>. It is the matter of record, that daily cleansing of wound with normal saline gives good granulation of wound to close.<sup>8</sup>

However the most recent systematic review and meta-analysis comparing the efficacy of delayed primary closure by including only randomized controlled trials (RCTs) found no benefit of delayed primary closure compared to primary closure <sup>30</sup>. So the perplexed reports in literature are not drawing clear guide lines.

So, this study was designed to evaluate as primary closure versus delayed primary closure in dirty abdominal surgeons.

## MATERIALS AND METHODS

100 patients of both genders from 18-62 years in age, who underwent in exploratory laparotomy for gut perforation or intra-abdominal abscess by two units of surgery at tertiary care academic hospitals of Liaquat University of Medical and Health Science (LUMHS) Jamshoro and Peoples University of Medical and Health Science (PUMHS) Nawabshah from March 2014 to May 2016 were involved in this prospective interventional randomized control (RCT), after having informed consent as per described policy. Patients with uncontrolled diabetes mellitus, H/O previous abdominal surgery, intra-abdominal collections or having chronic liver disease and advanced malignancy were not included in this study.

Variables including patients demographic, clinical characteristics, reasons for subsequent laparotomy and post-operative complications compared in both groups were selected for analysis.

Study population was divided into A and B Groups, based on having primary closure and delayed primary closure respectively. The randomization of patients' samples was simple by alternating technique. While samples were of equal size in each group to maintain balance.

**Interventions:** After having rehydration, every patient received prophylactic antibiotic (3rd generation cephalosporin/cefotaxime) 1gm intra venously (I/V) half hour before induction of anaesthesia and surgery, then 12 hourly along with metronidazole (500mg) and analgesic (Diclofenac Sodium 50-75mg) (I/V) 8 hourly daily. The antibiotics were changed after culture and sensitivity (C/S) reports. Vitals were recorded twice daily and wounds were also observed for signs of infection once a day.

### Procedure

- After all aseptic measures exploratory laparotomy was done in every patient.
- Peritoneal cavity contaminants were taken for C/S test and then were sucked.
- Definitive surgery with meticulous hemostasis was offered.

- Copious peritoneal lavage was done with 3 - 6 liters of normal saline.
- Deep abdominal wall (musculoperitoneal layer) was closed with continuous inter locking stitches with non-absorbable monofilament number 0 - 1 suture having tension free edges.
- Superficial wound was again irrigated with normal saline.
- So the patient were enrolled either in wound open or closed.
- The left over wounds were packed with povidone-iodine soaked gauze pieces and primary closed wounds were dressed with dry gauze.
- All these surgeries were carried out by qualified consultant surgeons.

**Post-operatively:** All open wounds were cleansed and dressed with Eusol daily for 5-7 days and then when wound was without any bloody or purulent discharge and having granulation was closed (delayed primary closure) and was dressed with dry gauze.

Stitches were removed on 7<sup>th</sup> and 15<sup>th</sup> post-operative day in group A and B respectively.

**Discharge:** When the condition of patient was satisfactory.

**Outcome Observation duration:** 3 months.

**Follow up:** At 10<sup>th</sup> day after discharge then fortnightly for 03 months.

**Definition:** Dirty abdomen means infection present in peritoneal field before laparotomy secondary to traumatic wounds with retained devitalized tissue or existing clinical infection with or without perforated viscera.

**Primary outcomes:** SSI

- Inflammation (Pain, swelling, tenderness).
- Exudate.

**Secondary outcomes:**

- Length of hospital stay (days).
- Incisional hernia.

**Data Collection:** Demographics information, pre-operative and post-operative data including operating time, volume of blood transfused and reason / nature of disease were collected and recorded on specially designed form of this study by Registrars and Residents of both units accordingly.

**Statistical Analysis:** Was performed using SPSS software version 18.0 (SPSS Inc. Chicago Illinois) for windows ordinal variable were analyzed using X<sup>2</sup> test, nominal variable were analyzed with fisher exact test, and P < 0.05 was set for statically significance.

## RESULTS

**Patient Population:** A total of 100 patients met the inclusion criteria, 06 patients were drop out in follow up. Hence, remaining 94 patients from both hospitals were included in this study analysis.

There were no significant differences in demographics or clinical variables between the control group A and study group B.

However, table No. 1 displays the basic characteristics of demographics, age, gender, body mass index, pre-operative co-morbidities, ASA scores, reasons for emergency exploratory laparotomy and type of surgical approaches. In both groups the experience of operating surgeons were more than 10 years.

**Table No. 1:**

Characteristics of patients	Group A	Group B
Sex n (%)		
Male	34	37
Female	13	10
Median Age in years	35	32
Range	(20-58)	(18-60)
ASA (n%) 1		
ASA (n%) 2		
ASA (n%) 3		
BMI, Kg/ m <sup>2</sup> (Median)	22.1 (14.5-25.5)	24.5 (17.4-31.2)
Controlled Diabetes Mellitus	07	09
<b>Reasons for laparotomy</b>		
Typhoid perforation	25	27
Duodenal perforation	04	02
Abdominal tuberculosis	03	02
Penetrating abdominal trauma	08	06
Blunt abdominal trauma	05	07
Bowel gangrene	02	03

**Table No. 2:**

Outcomes	Group A	Group B
Fever. SSI	17 (36%)	8 (17%)
Length of total hospital stay	12.5 days	14.36 days
Re-admission	6 (13%)	9 (19%)
Mortality During hospitalization	1	2
During 3 days	1	1
Post-op. wound dehiscence	6 (13%)	2 (4.2%)
Intestinal leak/blow out	3 (6.3%)	2 (4.2%)
Incisional hernia	6 (13%)	3 (6.3%)

**Age and Sex:** In group A, the median age was 35 years (ranges, 20-58) with 34 (72.3%) male and 13 (27.7%) female, resulting in male to female ratio of 2.6 to 1. While in group B, the median age was 32 years (ranges, 18-60) with 37 (78.7%) males and 10 (21.3%) females, results as male to female's ratio of 3.7 to 1. In both

groups the peak age remains (20-38), that almost accounts for 50% of the cases. All cases in both groups (28(30%)) operated for either penetrating or blunt abdominal trauma were in between (21-32 years).

While, table No. 2 compares the outcomes (aims of study) in two Groups

In this plot of 94 patients, 25 (26.5%) from both groups developed wound infection.

While in group A, the incidence of SSI was 36% versus 17% of Group B. The total length of hospital stay was bit greater in group B versus A. while rate of post-operative complications and re-admission was higher in group A versus group B. Cause of death was not wound infection in both groups.

## DISCUSSION

Inspite of trail blazing innovations in medicine, SSI still remains to be the most common incompatible challenge for surgeons in abdominal surgeries, and accounts for 15-25% depends on the level of contamination.<sup>9</sup> Bacterial colonization on the patient's skin, alimentary tract and genital tract are the principal contributing sources that leads to SSI. SSIs are associated with greater cost, morbidity/mortality, re-admission rates, and longer hospital stay.<sup>10</sup>

In general (sum of both groups), the prevalence of SSI (26.5%) in our study is little higher in comparison to 10-20% as is reported in other studies.<sup>11,12</sup> This may be because this study carries the greater number of typhoid perforations, as the incidence of SSI increases with level of contamination inspite of liberal peritoneal and wound lavage.<sup>13</sup>

This study exhibited multiple co-morbid conditions as multiple co-morbidities inevitably put an increased risk for developing SSI and wound infection, and has inferred the rate of SSI of 36% in primary closure compared to delayed primary wound closure (17%), which is higher. This significant inference is in same line of focus seen by other studies.<sup>14,15</sup>

A Study by Usang et al,<sup>16</sup> to assess outcome of patients with typhoid perforation, documented significant complications including SSI in patients who had a primary closure of their wound.<sup>16</sup>

Smilanich et al, observed 27% incidence of wound infection in primary closure in contrast to 3% for delayed closure.<sup>17</sup>

In this study, the wound dehiscence was 13% or 3% in primary and delayed primary wound closure respectively. While Senbanjo and Ajayi observed 2.5% rate of dehiscence of the abdominal wound<sup>18</sup> and Fleischer et al, found that 1%.<sup>19</sup>

However, further contamination of wound from environmental bacteria during dressings can increase rates of SSI in delayed primary repair.

Our study premises that delayed primary closure experienced with decrease SSI rate in comparison to primary closure and this is in similarity to Cohn SM

and Giannotti G et al.<sup>20</sup> While the rate of incisional hernia was unacceptably high in group A (13%) versus group B (6.3%).<sup>21</sup>

## CONCLUSION

Delayed primary closure is safe and effective with reduce rates of SSI in our part of the world, where infectious disease are on the top and hospital resources are limited.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Frequency of Triple Negative Receptor Status in Patients Diagnosed with Carcinoma Breast

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## ABSTRACT

**Objective:** To determine the frequency of triple negative receptor status in patients diagnosed with carcinoma breast.

**Study Design:** Descriptive / cross sectional study.

**Place and Duration of Study:** This study was conducted at the Department of Surgical Unit III of Nishtar hospital, Multan from July 2016 to December 2016.

**Materials and Methods:** A total of one hundred and seventy one female patients of age between 30-60 years who were diagnosed breast cancer were presented in this study. All numerical variables were presented as mean  $\pm$  standard deviation and categorical variables were presented as frequency and percentages. Chi square test was applied to see the effect of confounders.  $P \leq 0.05$  was considered as significant.

**Results:** It was noted that out of 100% (n=171) patients, 20.5% (n=35) were having TNBC and 79.5% (n=136) were not. It was also observed that out of these 100% (n=171) patients, a big majority 78.9% (n=135) were having Menopausal Status and 21.1% (n=36) were not. While Family History of TNBC showed that 18.1% (n=31) were Positive TNBC. Out of these 100% (n=171) patients, a big majority 78.9% (n=135) were having Menopausal Status. While Family History of TNBC showed that 18.1% (n=31) patients with positive family history were having Positive TNBC.

While, the incidence of SSI in group B (without SD) was 20% (14/70) and 4% (03/70) in group A (with SD). Anastomosis leak was observed only in B group. The median post-operative hospital stay was 14 (range, 9-42 days) in B group and 12 days (range, 8-27 days) in group A. There were hospital re-admission in 03 patients of B group, with no mortality in any group. However, the incidence of SSI when comparing both groups (group B versus group A), did reach statistical significance of  $P < 0.38$ .

**Conclusion:** Breast cancer particularly triple negative disease was found in younger age group and patients usually present in advanced stage of their disease.

**Key Words:** Triple negative breast cancer, Ductal carcinoma in situ, Carcinoma breast, Metastasis

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## INTRODUCTION

Breast cancer is a leading cause of death in women, worldwide, it is most often diagnosed life threatening incident in female<sup>1</sup>. In United States breast cancer found 29% of all cancers which holds 2<sup>nd</sup> rank after lung cancer as a cause of death<sup>2</sup>. Due to its severity and proliferation surgery has been recommended as a primary treatment. Lot of patients with early stage of breast cancer is cured with surgery alone without chemotherapy and radiotherapy.

Breast cancer is a heterogeneous disease by its molecular and genetic studies and can be classified into different groups on the basis of its immune histochemical biomarkers<sup>3</sup> such as progesterone receptors, estrogen receptors and human epidermal growth factor receptors 2 are the leading ones<sup>4,5</sup>. In 2007 St. Gallen proposed a combination therapy also known as adjuvant therapy (chemotherapy, endocrine therapy, and trastuzumab) for the treatment of primary breast cancer labeled on the basis of estrogen receptors (ER), progesterone receptor (PR) and human epidermal growth factor receptor 2 (HER2)<sup>6</sup>.

Another subtype of breast cancer known as triple negative breast cancer (TNBC) that was negative for PR, ER and HER2 is found to be most difficult to treat among these newly classified breast cancers. The main cause of difficulty in its treatment is unavailability of targeted therapy such as lapatinib, trastuzumab and ER modulators. Metastatic property of TNBC is similar to other subtypes but it takes shorter time period to proliferate and death. Frequency of TNBC found between 10-20 % of all breast cancers and mostly

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diagnosed in young premenopausal female with more aggressive biological feature and higher proliferation rate. Globally, frequency of breast cancer varies according to the geographic changes, genetic variations, environmental factors and living status 8: as found in Mozambique 3.9/100,000 and in U.S 101.1/100,000.<sup>7</sup> Patil VW et al.<sup>8</sup> conducted a study on triple neative breast cancer in Indian population with sample size of 683 patients and found frequency of positive TNBC (Negative for Estrogen receptor, Progesterone receptor and her-2/neu receptor) in 136 (19.92%) of patients and neative TNBC in 529 (77.45%) of patients. They also concluded that TN breast cancer was found mostly in younger age (<35 years)<sup>9,10</sup>. In another study conducted by Ambrose M<sup>11</sup> frequency of TNBC was found in 25% of patients. But, we could not find any study conducted to investigate the frequency of TNBC in Pakistani population. After this study we will be able to find out the frequency of triple negative breast cancer TNBC status in our local patients, purpose of this study is not only to add local information in our database but also to pay attention to this aggressive disease by routine screening and close monitoring of cancer patients.

## MATERIALS AND METHODS

This cross sectional descriptive study was conducted on female patients of age between 30-60 years who were diagnosed breast cancer. After approval from ethical review committee of hospital, a total of 171 patients were enrolled during period of July 2016 to December 2016 in department of Surgical Unit III of Nishtar hospital, Multan. Sample size was calculated from formula  $(n = z^2 \times p(1-p) / d^2)$ ,  $z = 1.96$ ,  $p = 19.92\%$  (Anticipated proportion of patients with Triple negative receptor status) and  $d = 6\%$ . Carcinoma Breast was diagnosed on the basis of history and clinical examination with a lump in the breast and was confirmed on histopathology of the breast lump. Triple negative receptor status was labeled to be present if the histopathological specimen turns out to be negative for Estrogen receptor, Progesterone receptor and Her/neu receptor on immune-histochemistry from an authentic laboratory (Shaukat Khanam Memorial Trust Hospital). It was labeled to be absent if any of the three receptors were found to be present in the histopathological specimen on immunohistochemistry. Each patient was assured for maintaining privacy and confidentiality and that the name of the patient was not be disclosed in the results. Study protocol, use of data for research and risk-benefit ratio was explained to each patient to take an informed and understood consent. The demographic information like name and age were recorded. All these patients were undergo mastectomy by Consultant surgeon (having 5 years' post-fellowship experience). All the specimens were sent to a reference laboratory(Shaukat Khanam Memorial Trust Hospital)

for immune staining for presence or absence of Esterogen receptor, Progesterone receptor and Her / neu receptor. All this data was noted on a structured proforma (Annexure).Patients unfit to undergo surgical excision, established metastatic disease and irregular menstrual cycle were excluded.

The data was analyzed using SPSS version 19.0. Mean and standard deviation was calculated for quantitative variables like age and size of the tumor. Frequency and percentages were calculated for qualitative variables like triple negative receptor status (present/ absent). Effect modifier like age and size of the tumor was controlled through stratification and post-stratification chi square was applied to see the effect of these on outcomes. P-value of  $\leq 0.05$  was taken as statistically significant.

## RESULTS

A total of 171 patients were included in this study (all were female). The mean age of the patients was  $43.46 \pm 8.38$ . The mean size of tumor of the patients was  $2.52 \pm 0.025$ . The main outcome variable of this study was the Triple negative receptor status (TNBC). In our study it was noted that out of 100% (n=171) patients, 20.5% (n=35) were having TNBC and 79.5% (n=136) were not. It was also observed that out of these 100% (n=171) patients, a big majority 78.9% (n=135) were having Menopausal Status and 21.1% (n=36) were not. While Family History of TNBC showed that 18.1% (n=31) patients with positive family history were having Positive TNBC and 81.9% (n=140) were not. These 100% (n=171) patients were divided into three groups with respect to age categories i.e. patients from 30-40 years included in group 1, including 38.6% (n=66) patients, aged from 41-50 years included in group 2, including 40.4 (n=69) patients, and patients from 51-60 years of age included in group 3, including 21.1% (n=36) patients.

When chi-square was applied to check the effect modification it was observed that family history and stratified age were significantly associated with TNBC having P-values 0.033 and 0.000 respectively. And in our study, Menopausal Status was not significantly associated with TNBC with P-value 0.769.

**Table No.1: Demographics (n=171)**

Characteristics	Frequency	Percentage (%)
<b>TNBC</b>		
Yes	35	20.5
No	136	79.5
Total	171	100.0
<b>Menopausal Status</b>		
Yes	135	78.9
No	36	21.1
Total	171	100
<b>Family History</b>		
Yes	31	18.1

No	140	81.9
Total	171	100
Stratified Age		
30-40 years	66	38.6
41-50 years	69	40.4
51-60 years	36	21.1
Total	171	100

**Table-2: TNBC with respect to Menopausal Status**

Menopausal Status	TNBC		Total
	No	Yes	
No	28	8	0.769
Yes	108	27	
Total	136	35	

**Table-3: TNBC with respect to Family History**

Family History	TNBC		Total
	No	Yes	
No	107	33	0.033
Yes	29	2	
Total	136	35	

## DISCUSSION

Breast cancer is a heterogeneous disease when assessed on clinical, pathological and molecular basis<sup>12</sup>. In earlier times it was classified by size due to limited knowledge about this disease. But now in these days with the help of histological knowledge breast cancer was divided into eighteen subtypes. A common subtype of cancer ductal carcinoma cannot be classified without histological involvement. This histomorphological classification of BC is also not capable to design homogenous groups for treatment options. This heterogeneous nature of cancer is a challenge for physicians and patients to treat as treatment modalities are not directed towards targeted therapy. When gene expression profiling came into existence than breast cancer was classified into five distinct gene expression profiles based subtypes by cDNA microarray analysis, on basis of this classification treatment modalities were started. Among these five subtypes three are derived from ER tumors and two are derived from ER+ subtypes also known as luminal "a" and b<sup>13</sup>. Other than these two types another type of breast cancer exists known as triple negative breast cancer TNBC, found 10-17% of all breast cancers.

In our study total of one hundred and seventy six patients were included (all were female). The mean age of the patients was  $43.46 \pm 8.38$ . The main outcome variable of this study was the Triple negative receptor status (TNBC) and it was found that out of 100% (n=171) patients, 20.5% (n=35) were having TNBC and 79.5% (n=136) were not. In a study conducted by Khan RI et al.<sup>14</sup> on Pakistani population, pathological record of 4715 samples was analyzed. TNBC was found in 815 (17.2%) patients. This percentage of TNBC was closer to upper margin of the range investigated globally. In

this study mean age of TNBC positive patients was  $46.26 \pm 12.22$  years which is significantly younger than that global figure. These results were comparable with our results. In a study conducted by Sajid MT<sup>15</sup> at Women College Hospital and University, Toronto, Canada, incidence of TNBC was 11.2% with mean age of <53 years. A large number of patients about 90% were TNBC found within basal like subtype as named according to its gene expression. This type of BC mostly found in African and American population [111].

In a study conducted by Sajid M and Ahmad M<sup>15</sup> on age related frequency of triple negative breast cancer in women and reported that TNBC was found in 17.28% of the Pakistani female who were diagnosed breast cancers. Out of TNBC positive patients, 537 patients (65.88%) were aged < 50 years while 278 (34.11%) patients were aged > 50 years. ( $p < 0.001$ ). A large number of patients were fall within younger age group. Involvement of younger patients requires more attention for treatment invention and management of TNBC. The results of our study are near about to this study and comparable.

In a study conducted by Marwan G et al.<sup>16</sup> data analysis was done on 1,334 patients out of them in 9.3% patients TNBC was found median age of these patients was 52 years. He further divided these patients in subgroups as positive family history was reported in 15 (9%) patients, invasive ductal carcinoma reported as 35%, medullary carcinoma reported as in 5%, invasive lobular carcinoma was in 5% of triple negative breast cancer patients. This study has small percentage of TNBC as compared to many previous studies. In our study it was also observed that out of these 100% (n=171) patients, a big majority 78.9% (n=135) were having Menopausal Status and 21.1% (n=36) were not. While Family History of TNBC showed that 18.1% (n=31) were Positive TNBC and 81.9% (n=140) were not. The mean size of tumor of the patients was  $2.52 \pm 0.025$ . Similarly, in a study conducted by Tanja O et al.<sup>17</sup> reported that a large number of patients were postmenopausal (60.3%) when presented at center of enrollment mostly patients were fall in grade III category (82.5%), in this study 59% of patients were having tumor size more than 2 cm.

Thike A et al.<sup>18</sup> conducted a study on ductal carcinoma in situ associated with triple negative invasive breast cancer: evidence for a precursor-product relationship and reported 97.9% triple negative which include oestrogen receptor, progesterone receptor and cerbB2 negative. In some previous studies conducted by Gluz O<sup>19</sup>, Dawson SJ<sup>20</sup>, Elston CW<sup>21</sup> it is reported that triple negative breast cancers were comparatively of larger size (>2cm) than other cancers.

## CONCLUSION

Breast cancer particularly triple negative disease was found in younger age group and patients usually present in advanced stage of their disease.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Comparing the Effect of Unilateral with Bilateral Spinal Anaesthesia on Post Block Induced Hypotension in Patients Undergoing Infraumbilical Surgery

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Hypotension  
Between  
Unilateral And  
Bilateral Spinal  
Anesthesia

## ABSTRACT

**Objectives:** To compare the frequency of hypotension (changes in the systolic blood pressure) between unilateral and bilateral spinal anesthesia in adult patients undergoing infraumbilical surgeries.

**Study Design:** randomized control trial study.

**Place and Duration of Study:** This study was conducted at the Department of Anesthesia and Intensive Care, Nishtar Hospital Multan from January 2016 to January 2017.

**Materials and Methods:** Total number of patients divided into two groups by lottery method. Mean and standard deviation was calculated for qualitative variable like age and systolic BP. And for qualitative variables like efficacy and ASA status percentages and frequencies were calculated. stratification of data was done to control effect modifier and confounder like age, gender and ASA status. Chi square test was applied to calculate P value. P value less than 0.05 considered as significant.

**Results:** A total number of 60 patients were enrolled in the study and divided into two groups, group A (unilateral block) and group B (bilateral block). In unilateral group eight patients having ASA I and 22 patients of ASA II and in bilateral group 22 patients having ASA I and 21 patients of ASA II. Frequency of hypotension was 8 patients in unilateral group and 15 in bilateral group and remaining patients did not show any change in mean arterial BP in both groups.

**Conclusion:** In this study it was concluded that unilateral spinal anesthesia is more effective in terms of less hypotension as compare to bilateral spinal anesthesia for adult patients undergoing infraumbilical surgeries.

**Key Words:** Spinal Anesthesia, Unilateral anesthesia, Bilateral Anesthesia, Infraumbilical Surgery.

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## INTRODUCTION

Simplicity of its use, being reliable, rapid onset of action and minimal biochemical changes in the body due to its use are the features that have paved the ground for increasing popularity of spinal anesthesia in developing countries including Pakistan.

Anesthesiologist of the whole world are concerned about the hemodynamic changes resulting from spinal anesthesia.<sup>1,2</sup>

Hemodynamic side effects of spinal anesthesia and their relation to the outcome of procedure have given special attention in various studies.<sup>6</sup> One of the side effects that occur more commonly than any of the side effects of spinal anesthesia is hypotension which has been narrated in the literature to appear in 15% to 33% of cases.<sup>3</sup>

Bradycardia, nausea and vomiting, post-duralpuncture headache, urinary retention, cauda equine syndrome and spinal cord damage are other less common side effects of spinal anesthesia.<sup>4</sup> Intravascular volumeloading, use of vasopressors and patient positioning are the measures used to prevent and treat hypotension resulting from spinal anesthesia.

Unilateral spinal anesthesia is more beneficial and propitious in comparison to conventional (bilateral) spinal anesthesia due to the fact that it results in selective block on the operative side, decrease incidence of urinary retention, better mobilization and patient satisfaction.<sup>5,6</sup> Therefore, its preference over conventional (bilateral) spinal anesthesia should be sought particularly in patients at risk of hemodynamic instability. Restricted sympathetic block, efficient and adequate hemostatic vascular mechanisms in non-blocked areas can be given credit for compensation of vasodilation in other leg.<sup>7</sup> 68% incidence of hypotension in patients undergoing hip surgery under conventional spinal anesthesia was shown in a study by Miniville. Hyperbaric solution like inj. Bupivacaine 0.75% is communally used drug in spinal block.<sup>8</sup> To obtain unilateral spinal anesthesia, limited only to the operative side, lateral decubitus position should be

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maintained for a certain period of time leading to the benefits of faster resolution of block, early discharge and less side effects contrary to patients receiving bilateral block and suffering more side effects.<sup>9</sup>

From a long period of time efforts have been made to reduce the spinal anesthesia recovery by reducing the dose of long-acting local anesthetics 3-5 or using a short-acting spinal anesthetic with safe hemodynamic effects.<sup>10</sup>

Purpose and rationale of our study is to be sure of the advantageous nature of unilateral spinal anesthesia and comparison of hemodynamic changes with conventional (bilateral) spinal anesthesia. This will prove a great help for preparation of guidelines to make a better choice in selecting the type of spinal anesthesia in Pakistani patients. The technique with more hemodynamic stability and less incidence of hypotension will be prioritized in our community

## MATERIALS AND METHODS

Sixty patients fulfilling the inclusion criteria were selected after local ethics committee approval and patient's informed consent. Patient with infection at the place of injection (redness observed), any brain disorder, hypertension, diabetes mellitus with HbA1c more than 6.5 and fasting sugar more than 126 mg/dl at continuous three readings and with bleeding issues coagulopathy and known history of sensitivity to local anesthetic will be excluded from the trial. Lottery method was used for randomization to make two groups to allocate type of anesthesia between group A (unilateral block) and group B conventional (bilateral block). Before procedure, baseline parameters were recorded. Non-invasive blood pressure monitor, ECG, pulse oxymeter was used for monitoring purposes. Preloading with lactated Ringer's solution (10-20 ml/kg) was done.<sup>17</sup> Drugs and equipments required for resuscitation was made available during whole of the procedure. After explaining the procedure to patients, they were instructed to lie down on the operation table in lateral position with their surgical side down and back were exposed. After making sure that aseptic measures are taken, 2 ml (15 mg) of 0.75% hyperbaric bupivacaine was injected intrathecal in all patients at L4-5 or L3-4 intervertebral space using 27 gauges Pencil point spinal needle. Lateral decubitus position was maintained for Group A patients for 10 minutes with surgical side down. The position of Group B patient was immediately changed to supine position for 10 minutes. By checking the sensation of temperature with cold spirit swab on the operated and non-operated sides, effect of spinal anesthesia was confirmed. Loss of sensation to a cold stimulus at the T6 level within 10 minutes after administration of the local anesthetic was used to define successful anesthesia. Efficacy of spinal block was labeled as loss of sensation to a cold stimulus at the T6 level and full motor blockade within 10

minutes after administration of the local anesthetic. A systolic blood pressure drop of more than 25% of baseline values was labeled as hypotension. It was assessed at 3 minute intervals till 30 minutes. one or more readings of systolic blood pressure drop >30% was labeled as hypotension.

Hemodynamic data (mean arterial blood pressure) was recorded at intervals of 3 minutes after the spinal injection for 30 minutes. The patients were labeled hypotensive, If the blood pressure drops more than 30% of baseline values and they were treated first with fluids and then with a vasopressor drug as required by anesthetic on his clinical decision. Specially designed proforma was used for recording all the relevant data information. Mean and standard deviation were calculated for mean blood pressure and percentage of ASA status and frequency of hypotension in both group. Chi square test was used to check hypothesis, a P value less than 0.05 was consider significant.

## RESULTS

A total number of 60 patients included in the study. Mean age of patients was  $39.50 \pm 8.80$  in unilateral group and  $40.70 \pm 10.64$  in bilateral group (Table-1). Mean blood pressure at baseline was  $119.1 \pm 5.5$  in unilateral group and  $118.1 \pm 4.8$  in bilateral group.

**Table No.1: Demographics and mean Blood pressure**

Characteristics	Unilateral Group Mean± SD	Bilateral Group Mean ±SD
Age	$39.50 \pm 8.80$	$40.70 \pm 10.64$
Mean Blood Pressure		
Baseline (BP)	$119.1 \pm 5.5$	$118.1 \pm 4.8$
After 3 min	$112.3 \pm 5.0$	$103.5 \pm 8.2$
After 6 min	$113.6 \pm 4.9$	$102.6 \pm 9.4$
After 9 min	$112.5 \pm 10.6$	$102.6 \pm 10.9$
After 12 min	$112.5 \pm 9.7$	$100.8 \pm 10.5$
After 15 min	$109.8 \pm 10.7$	$103.3 \pm 8.3$
After 18 min	$112.5 \pm 7.0$	$102.5 \pm 10.5$
After 21 min	$113.6 \pm 8.7$	$104.6 \pm 7.9$
After 24 min	$114.6 \pm 9.3$	$139.5 \pm 183.4$
After 27 min	$113.5 \pm 4.1$	$100.5 \pm 8.8$
After 30 min	$114.1 \pm 10.0$	$101.6 \pm 8.7$

After 3 minutes mean BP in group A was  $112.3 \pm 5.0$  and in group B was  $103.5 \pm 8.2$ , after 6 minutes mean BP was  $113.6 \pm 4.9$  in group A and in group B was  $102.6 \pm 9.4$ , after nine minutes mean BP in group A was  $112.5 \pm 10.6$  and in group B was  $102.6 \pm 10.9$ , after twelve minute it was  $112.5 \pm 9.7$  in group A and  $100.8 \pm 10.5$  in group B, after fifteen minutes mean BP of group A was  $109.8 \pm 10.7$  and in group B was  $103.3 \pm 8.3$ , after eighteen minutes mean BP of group A was  $112.5 \pm 7.0$  and in group B  $102.5 \pm 10.5$ , after twenty one minutes it was  $113.6 \pm 8.7$  in group A and  $104.6 \pm$

7.9 in group B, after twenty four minutes mean BP of group A was  $114.6 \pm 9.3$  and in group B was  $139.5 \pm 183.4$ , after twenty seven minutes mean BP of group A was  $113.5 \pm 4.1$  and in group B was  $100.5 \pm 8.8$ , after half hour mean BP of group A was  $114.1 \pm 10.0$  and in group B was  $101.6 \pm 8.7$  given in table-1. When we concern about frequency of ASA status, in unilateral group 8 patients were having ASA I and 22 patients having ASA II and in bilateral group 22 patients having ASA I and 21 patients were of ASA II (Table-2). Frequency of hypotension was 8 patients in unilateral group and 15 in bilateral group and remaining patients did not showed any change in MAP in both groups. P value = 0.05 a significant value (Table-4).

**Table-2: Frequency of ASA Status**

ASA Status	Groups		Total
	Unilateral	Bilateral	
ASA I	8	9	17
ASA II	22	21	43
Total	30	30	60
P Value		0.774	

**Table No.3: Frequency of Hypotension**

Hypotension	Groups		Total
	Unilateral	Bilateral	
Yes	8	15	23
No	22	15	37
Total	30	30	60
P Value		0.05	

## DISCUSSION

This randomized control trial was carried out at the Anesthesia Department and Intensive Care Units of Nishatr Hospital Multan to compare the frequency of hypotension (changes in the mean arterial blood pressure) between unilateral and conventional bilateral spinal anesthesia in adult patients undergoing infraumbilical surgeries. According to our study results, the hypotension was found in 23 (38.33%) patients (8 from unilateral group and 15 from bilateral group). Bilateral group patients showed statistically significant hypotension as compared to unilateral group patients. i.e p-value=0.05.

Inguinal hernia repair are mostly being performed under spinal anesthesia worldwide. Despite of its several complications like headache, nausea, vomiting, urinary retention, hypotension, bradycardia, dysrhythmia and cardiac arrest, it is considered relatively safe.<sup>11</sup> Especially in high risk patients, high sympathetic block leading to precipitous arterial hypotension remains a common issue associated with conventional spinal anesthesia. Continuous spinal anesthesia (CSA) and frequently unilateral spinal anesthesia (USpA) are preferred mode of anesthesia for lower extremity surgeries.

A study done by Nazia Ijaz, Khawar Ali et al<sup>12</sup> reported a significantly low frequency of hypotension (6.7% in Unilateral group vs. 60% in Bilateral B, p = 0.00) and a decrease frequency of bradycardia in the patients who received a unilateral block (6.7% in Unilateral group vs. 10% in Bilateral group). The conclusion of this study correlates and is similar to our study.

Unilateral block has proven its worth in restricting the extent of sympathetic block to only operative side and sparing other side, thus resulting in minimal haemodynamic changes when compared with bilateral block. A study by U. Chohan et al<sup>13</sup> gives validation to this concept of superiority of unilateral spinal anesthesia over bilateral spinal anesthesia. USpA and single-dose spinal anesthesia showed significant difference in hypotension frequency when compared through a study done by Casati et al.<sup>14</sup> Minimal hemostatic changes were narrated and shown by their study when 0.5% hyperbaric bupivacaine was administered with USA.

Same as in our study, Osinaike et al narrated that patients in the bilateral spinal anesthetic block group compared to those in the unilateral group had statistically significant decrease in the systolic blood pressure at the interval of 15, 30 and 45 minutes in comparison to the baseline (p = 0.003, 0.001 and 0.004 respectively)<sup>15</sup>. Kuusniemi<sup>16</sup> study shows that they spent 20 to 30 minutes in the lateral position and obtained 39% to 65% unilateral block. Miniville study on conventional spinal anesthesia in patients undergoing hip surgery showed a 68% incidence of hypotension. In a study conducted by Zahid A et al<sup>16</sup> reported that there is no markable difference in unilateral and bilateral spinal anesthesia with respect to heart rate and mean hypotension control and p value was 0.05.

In another study conducted by Mushfiqur R, Mahbul H et al.<sup>18</sup> shown that duration of onset to sensory and motor block in unilateral group is significantly shorter as compare to bilateral group. Similarly hemodynamic stability was also higher in unilateral group. Result of this study was also comparable with our study. The results of this study were quite different from our study, so this topic needs more research work for confirmation of better way of spinal anesthesia administration. Similarly in a study conducted by Bergmann I et al.<sup>19</sup> reported that The motor block was strictly unilateral in 55 patients (98%) and the sensory block was strictly unilateral in 53 patients (94%). The median decrease in systolic blood pressure was 6 mmHg. In another study conducted by Sayyed Mostafa M et al.<sup>20</sup> unilateral technique was preferred over standard spinal anesthesia by hemodynamically as well as sensory and motor block

## CONCLUSION

In this study it was concluded that unilateral spinal anesthesia is more effective in terms of less hypotension as compare to bilateral spinal anesthesia for adult patients undergoing infraumbilical surgeries.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Comparing the Incidence of Wound Infection in Periumbilical Incision with Intraumbilical Incision Technique in Laparoscopic Appendectomy

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## ABSTRACT

**Objectives:** To compare the infection rate in periumbilical incision and intraumbilical incision in laparoscopic appendectomy patients.

**Study Design:** Randomized control trial study.

**Place and Duration of Study:** This study was conducted at the Department of Surgery, NMC/NH, Multan from January 2016 to January 2017.

**Materials and Methods:** A total of three hundred and ninety six patients enrolled in our trial and the patients were randomized in two equal groups (Group P and Group I). Data collected was entered in computer program SPSS version 23 and analyzed. Mean  $\pm$  standard deviation were calculated for numerical values like infection score. Categorical variables were presented as frequencies and percentages. Effect modifier like age and gender were controlled by stratification of data. Post stratification chi square test was applied. A p value  $\leq 0.05$  was considered statistically significant.

**Results:** Group P treated with periumbilical incision and Group I treated with intraumbilical incision. It was seen that in group P, 3.5% (n=7) patients were having wound infection while 96.5% (n=191) were not, and in group I, only 1.5% (n=3) were having wound infection while 98.5% (390) were not.

**Conclusion:** The ratio of complication in intraumbilical incision is less than periumbilical incisions. So the incision on intraumbilical region is easy and safe to replace the surgery of incision on periumbilical region with best cosmetic results.

**Key Words:** Periumbilical, Intraumbilical incision, Laparoscopy, Appendectomy.

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## INTRODUCTION

Appendix is a pouch like structure protruding through the cecum situated at its posteromedial region. It is located 2.5 cm down the ileocecal valve. It develops from the midgut between the 5<sup>th</sup> and 8<sup>th</sup> weeks of pregnancy<sup>1</sup>. Afterward it becomes fixed in the right lower quadrant of the abdominal cavity. It is a useless structure in humans at adult age but in childhood it has some role in immune function. An inflamed appendix is an emergency and should be treated as early as possible. Surgical treatment of appendix called appendectomy, laparoscopic appendectomy is a latest and globally accepted treatment of appendectomy in field of general surgery<sup>2</sup>.

For this procedure laparoscopic port can be inserted from vagina and rectum but insertion from these ports is unethical. Insertion from umbilicus is a natural safe<sup>3</sup>. Sometime a laparoscopic appendectomy needs to be converting on open appendectomy due to intra operative complications<sup>4</sup> so it is very important to choose a better method of incision. Minor incision on the upper or lower border of umbilicus (peri umbilical incision) is a useful method for insertion of laparoscopic port into the abdominal cavity. It is a U-shaped incision at the skin through subcutaneous fat and fascia below or above the umbilicus. Incision on intraumbilical region is a vertical cutt extending to the length of the umbilicus, can also be used. Only fat and fascia needs to be divide in the intraumbilical incision which is less time consuming and easy to perform. Intraumbilical incision technique leads to better cosmetic results in laparoscopic surgery.<sup>5,6</sup>

Umbilicus is situated a little deeper than its surrounding areas leading to inhabitation of more bacteria compared to its surrounding. More than 1400 types of bacteria from 95 umbilical bacterial cultures were found in a recent study. Till now, there is no study on the comparison of complication rate of periumbilical and

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intraumbilical incision. Some experts hypothesize that with proper sterilization there is no significant difference in the complication of intraumbilical and umbilical incision. Some studies are tying infection rates to the methods used for ligation of appendix at the end of laparoscopic surgery. A loop (using thread), absorbable clip, and an endoscopic stapler are communally used methods for the purpose of ligation of appendix.

Endoscopic stapler is considered to lower the risk of intra-abdominal surgical-site infection by some surgeons<sup>7</sup>, its use and this concept varies from country to country and from surgeon to surgeon<sup>8</sup>. In a trial conducted by Jun SL et al<sup>9</sup> find no difference in duration of hospital stay, analgesic demand and operation time of both groups of intraumbilical and periumbilical incision. Wound infection rate of 0.6% (one case) in intraumbilical and 2.5% (3 cases) in periumbilical group was found in that study. This study aims at comparing the infection rate in periumbilical incision and intraumbilical incision in laparoscopic appendectomy for the sake of adopting a better method of incision with less infection rates.

## MATERIALS AND METHODS

This randomized control trial was conducted Department of Surgery, NMC/NH, Multan during period of January 2016 to January 2017. A total of three hundred and ninety six patients enrolled in the study and the patients were randomized into two equal groups (Group P and Group I). Group A was having data of those patients who were operated with periumbilical incision method and Group B was having data of those operated with intraumbilical incision method. Informed consent was taken for procedure and confidentiality. Contact numbers of patients and address of home were taken for proper follow up. Risks and benefits of treatment were discussed with patients parents or their guardians. Study was conducted after approval from ethical committee of the institution. All patients were operated by single consultant surgeon with post fellowship experience of 4 years and with same technique. Follow up was done by an independent fellow who is kept blind about the study to minimize bias till 7 days. Wound Infection was considered present if collective score of following was 3 or more according to hospital data on post operative follow up till seven weeks. (1): Localize Erythema = score 1, (2): Edema= score 1, (3): Subjective pain = score 1, (4): Purulent Discharge = score 1. Patients with acute appendicitis (diagnosed on the basis of USG abdomen), both gender and patients > 16 years were included. Patients who were convert to open appendectomy due to intra operative complications, which was show clinical evidence of septicemia, respiratory failure, congestive heart failure and patient who were known diabetic who were taking steroid for some other

illnesses, or immune suppressor drugs were excluded. Data collected was entered in computer program SPSS version 23 and analyzed. Mean  $\pm$  standard deviation were calculated for numerical values like infection score. Categorical variables were presented as frequencies and percentages. Effect modifier like age and gender were controlled by stratification of data. Post stratification chi square test was applied. A p value  $\leq 0.05$  was considered statistically significant.

## RESULTS

A total of 396 patients were included in this study (both genders). Gender distribution of the patient showed that there were more males i.e. 64.1% (n=254) while the females were 35.9% (n=142). The mean age of the patients was  $32.89 \pm 11.09$ . The mean score of the patients was 0.14 and S.D 0.642. When patients were grouped into different age categories it was seen that almost half of the patients 50.5% (n=200) were of age 31-60 years and about half of the patients 49.5% (n=196) were of age 16 to 30 years of age.

These 396 (100%) patients were divided into two equal groups, 198 of each. Group P treated with periumbilical incision and Group I treated with intraumbilical incision. It was seen that in group P, 3.5% (n=7) patients were having wound infection while 96.5% (n=191) were not. And in group I, only 1.5% (n=3) were having wound infection while 98.5% (390) were not. So group I had better performance than group P. The mean age of the patients in group P was  $23.53 \pm 4.15$  years and  $42.25 \pm 7.30$  years in group I. while the mean score of the patients in group P was  $0.12 \pm 0.592$  and  $0.03 \pm 0.301$  in group I. Gender distribution of the patients in groups showed that in group P, there were more males i.e. 64.1% (n=127) while the females were 35.9% (n=71) and in group I, there were the same results as the group P i.e. 64.1% (n=127) were males and 35.9% (n=71) were females.

**Table No.1: Demographic Variables**

Characteristics	Group P	Group I
Age	$23.53 \pm 4.15$	$42.25 \pm 7.30$
Female	71 (35.9%)	71 (35.9%)
Male	127 (64.1%)	127 (64.1%)
Wound Infection		
Yes	7 (3.5%)	3 (1.5%)
No	191 (96.5%)	195 (98.5%)

**Table No.2: Inferential variables**

Gender	Wound infection		P Value
	No	Yes	
Female	142	0	0.017
Male	244	10	
Total	386	10	

When chi-square was applied to see the effect modification it was observed that gender was associated with wound infection and in our study, it was very

interesting to note that stratified age was not associated with wound infection.

**Table No.3: Inferential variables**

Age Groups	Wound infection		P Value
	No	Yes	
16-30 Years	189	7	0.189
31-60 years	197	3	
Total	386	10	

## DISCUSSION

Peoples are working continuously for betterment in cure and cosmetic outcomes to meet the everlasting craving of society for beauty when appendectomy with the help of laparoscopy has been started in the early 1980. A method of SILS done through an incision in intraumbilical region was reported by Chow et al.<sup>10</sup> without any scar on the skin at the end of surgery. Vidal et al.<sup>11</sup> also reported a kind of SILS performed with a Suprapubic approach which resulted in remarkable cosmetic results because of the incision in pubic region. The periumbilical incision is still widely used in spite of these options.

In our study, I group (intraumbilical) and the P group (periumbilical) shows no makeable difference in the wound complication rate but to our surprise I group have a reduced rate of wound infection compared to P group. In support of our hypothesis that inner portion of umbilicus I also germ free like outer portion preparation for surgery. Cultural swab have been taken from the inner side and outer side of the umbilical ring from 30 patients, after sterilization of both areas. It is found that after the seven day period cultural growth was not found on samples of both areas. In addition, a infection of the wound in infraumbilical group one patient and in periumbilical group five patients were having minimum wound problems, at eight days after discharge, the patient in I group visited the outpatient clinic with minimum granuloma at the site of intraumbilical incision. This type of wound with minimum granuloma was healed with dressing only. In periumbilical group three out of five patients were having small amount of discharge from wound, only one having bulla and one patient presented with wound dehiscence treated with sutures under regional/local anesthesia. These patients were healed within two weeks.

A study done at Lee et al.<sup>12</sup> conducted a study on comparison of SILA with incision in intraumbilical region with appendectomy with open wound and found that instead of more complicated cases in laparoscopic surgery group infection incidence was less in group of single incision than open surgery. Main reason of these results is that in incision on intraumbilical region does not breach subcutaneous, this provide a very small prone space for sarcoma or hematoma development and

reducing the chances of wound infection as hematoma and sarcoma acts as an excellent growth medium for bacterial growth.

Appendectomy with laparoscopy is a easy procedure to perform so every general surgeon should trained for this technique before other kind of surgery<sup>13</sup>. For patients satisfaction it is necessary to perform this procedure by a well trained surgeon to make the operation less event full and results should be better and satisfactory. Now in these days 30-40% of peoples consider their umbilicus is an important for better image of their body.<sup>14, 15</sup>. In this survey it I also reported that 45% of male have this believe that appearance of umlicus is a major concern for their partner attraction. These results show the importance of the cosmetic value of the umbilicus. In major surgeries like surgery of cancer cells and laparotomy it is not necessary to consider these cosmetic problems but in minor operations like appendectomy patients cosmetic appearance must be primary concern of surgeon. Surgeries with incision on periumbilical region must leave a scar around the umbilicus but in intraumbilical surgeries whole incision done within umbilicus so no visible scar seen on the outer side. Umbilicus also has many creases and folds so incision made within any fold never be visible. In addition surgery with incision on intraumbilical egion is easy and takes a very small time. Only one suture on full layer is sufficient for closure of the wound. A single full layer suture is sufficient for closure in most patients. In comparison, the periumbilical incision is more cumbersome. Closure has to be done on all layers like subcutaneous tissues and fascias were closed separately. Periumbilical incision is difficult to perform in obese while intraumbilical incision offer no such difficulty<sup>16, 17</sup>.

Although the study was somewhat limited as it was retrospective and other factors causing wound infection were not considered but the issue of choice of point for access of laparoscope is not only a problem for appendectomy<sup>18</sup>. Almost every intra abdominal laparoscopic surgery may benefit from intraumbilical incision. Laparoscopic surgery is an easy and safe alternative of open surgery not only for minor but also for major surgeries now in these days.<sup>19, 20</sup>

## CONCLUSION

The ratio of complication in intraumbilical incision is less than periumbilical incisions. So the incision on intraumbilical region is easy and safe to replace the surgery of incision on periumbilical region with best cosmetic results.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Incidence of Acute Appendicitis on Histopathology

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## ABSTRACT

**Objectives:** To evaluate the incidence of appendectomy due to acute appendicitis and its conformation by histopathology so that the true positive and false positive procedures can be estimated.

**Study Design:** Cross sectional study.

**Place and Duration of Study:** This study was conducted at the Department of General Surgery, Nishtar Hospital Multan from February 2016 to January 2017.

**Materials and Methods:** A total two hundred and forty five (245) patients with clinical diagnosis of acute appendicitis were included in the study. Data was analyzed on computer software SPSS version 23. Mean and standard deviation were calculated for numerical variables, frequency and percentages were calculated for categorical variables. P value  $\leq 0.05$  was considered as significant.

**Results:** The main outcome variable of our study was Positive Appendectomy in all the patients of appendectomy due acute appendicitis. It was seen that out of 245 (100%) subjects, 75.1% (n=184) were found true positive appendectomy and 24.9% (n=61) were found false positive appendectomy. Alternatively, it was also observed that out of 245 (100%) patients, 24.9% (n=61) were negative appendectomy and 75.1% (n=184) were positive appendectomy. When patients were grouped in different age categories it was seen that majority of the patients 77.1% (n=189) were of age 20 to 40 years. And only 22.9% (n=56) were of 41 to 60 years of age.

**Conclusion:** Surgeons should keep in mind the all possibilities of parasitic infestations mimicking acute appendicitis and confirmation of all clinical diagnosis with histological findings in our setting justifies routine histopathological examination of appendices.

**Key Words:** Acute Appendicitis, Histopathology

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## INTRODUCTION

Inflammation of Appendix is called acute Appendicitis. Surgical appendectomy is the gold standard treatment of this acute emergency<sup>1, 2</sup>, in spite of advanced modalities nowadays<sup>3, 4</sup>. Acute appendicitis is 7% of lifetime risk, 6.7% and 8.6% in females and males respectively<sup>5</sup>. Appendectomy decreases the risk of life-threatening complications and allows for the histopathology examination which is the gold standard for confirmation the diagnosis of acute appendicitis, irrespective of the intraoperative findings<sup>6</sup>. Pathologically acute appendicitis is characterized by transmural inflammation of the appendix, granulocytes in the mucosa and infiltrated into the epithelium<sup>7</sup>.

However, appendectomy has a high rate of negative appendectomy, which is referred to an appendectomy based on the clinical diagnosis of acute appendicitis but

in which the histopathologically examination of the appendix is normal. In spite of advanced radiological investigation such as ultrasonography and CT scan (computed- tomography) in the diagnosis of acute appendicitis, the rate of misdiagnosed cases of appendicitis remains the same during these years (15.3%), same as the rate of perforated appendix.

The histopathologically examination of the appendectomy specimen is highly recommended because of interobserver variations among distinguished surgeons<sup>8</sup>. The primary goal of this study was to find out the accuracy of the criteria used by surgeons based on their observations in the operation room (OR) in comparison with the histopathologically examination for acute appendicitis. It has an additional benefit of determining the rate of negative appendectomy in our center<sup>9</sup>.

Sudha et al.<sup>10</sup> conducted a study on incidence of acute appendicitis confirmed by histopathologically diagnosis. In his study a total of five hundred and ninety three (593) patients of appendectomy were enrolled. Out of these total (100 %) patients 80.1 % were confirmed positive on histopathology 3.4% were having chronic appendicitis and remaining 14.1% diagnosed negative on histopathology.

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## MATERIALS AND METHODS

This cross sectional study was started after approval from the ethical review committee of Nishtar hospital Multan. A total of 245 patients with clinical diagnosis of appendicitis were admitted for appendectomy during the period of February 2016 to January 2017. After taking informed consent various parameters were recorded by taking history and examination. All patients were operated by qualified surgeon with at least 5 years clinical experience after post graduation, standard protocol of general anaesthesia was observed and qualified anesthetist with 5 years clinical experience monitored the patients. Patient's demographic data i.e age, gender and histopathologic data i.e appendectomy surgery date and microscopic features of appendix were noted in preformed Performa. Patients who underwent appendectomy during other surgical procedures such as trauma surgery, colorectal cancer surgery or having malignant disease were excluded from study. Appendectomy performed on the basis of clinical diagnosis of appendicitis but on histopathology examination it was found to be normal was labeled as negative appendectomy. Specimen found to be inflamed on histopathology were labeled as positive.

The data was analyzed by computer software SPSS version 23. Mean and standard deviation for age was calculated. The qualitative variables like gender, Positive appendectomy and negative appendectomy were calculated as frequency and percentage. Chi square test was applied to analyze the data. Effect modifiers like age and gender were controlled through stratification and post-stratification chi square test was applied. P-value  $\leq 0.05$  was taken as significant.

## RESULTS

To evaluate the incidence of appendectomy due to acute appendicitis and its confirmation by histopathology so that the true positive and false positive procedures can be estimated, the current study was conducted in Department of General Surgery, Nishtar Hospital Multan, taking a sample of 245 (100%) subjects (both genders).

The mean age of the patients was 33.59 and SD 8.95. Minimum age was 20 years and maximum age was 60 years. Gender distribution of the patient showed that there were more males i.e. 57.6% (n=141) while the females were 42.4% (n=104) (Table-1).

The main outcome variable of this study was Positive Appendectomy in all the patients of appendectomy due acute appendicitis. It was seen that out of 245 (100%) patients, 75.1% (n=184) were found positive appendectomy and 24.9% (n=61) were found negative appendectomy (Table-1). Alternatively, it was also observed that out of 245 (100%) subjects, 24.9% (n=61) were negative appendectomy and 75.1%

(n=184) were positive appendectomy. When patients were grouped in different age categories it was seen that majority of the patients 77.1% (n=189) were of age 20 to 40 years. And only 22.9% (n=56) were of 41 to 60 years of age (Table-2).

When chi-square was applied to see the effect modification it was observed that stratified age was associated with positive appendectomy and in our study, it was very interesting to note that gender was not associated with positive appendectomy as shown in table-3.

**Table No.1: Demographics**

Characteristics	Gender	
	Frequency	Percentage (%)
Female	104	42.4 %
Male	141	57.6 %
Positive Appendectomy		
No	61	24.9 %
Yes	184	75.1 %
Negative Appendectomy		
No	184	75.1 %
Yes	61	24.9 %
Age	33.59	8.95 %

**Table No.2: Inferential Results**

Age Groups	Positive Appendectomy		P Value
	No	Yes	
20-40 Years	53	136	0.037
41-60 years	8	48	
Total	61	184	

**Table No.3: Inferential Results**

Gender	Positive Appendectomy		P Value
	No	Yes	
Female	26	78	0.975
Male	35	106	
Total	61	184	

## DISCUSSION

Acute appendicitis is one of the most commonly encountered causes of acute abdomen, and appendectomy is commonly performed surgical procedure worldwide. The incidence of appendicitis varies from country to country based on various factors such as sex, age, race, region, dietary habits, hygiene, socioeconomic status and season.<sup>11</sup> Current data shows that it is more common in Europe and USA in comparison to African and Asian countries.<sup>12</sup> High protein and low fiber diet is associated with increased risk of appendicitis.<sup>13</sup> The incidence of acute appendicitis and lymphoid development go hand in hand, with peak incidence between the ages of 10 and 30 years.

Although sex equity is seen in cases of acute appendicitis before the age of puberty and in old age patients but the frequency in adults shifts gradually in favour of males reaching ultimately to a ratio of 2:1. The overall lifetime risk of acute appendicitis is 7%, with 8.6% for men and 6.7% for women; however, the incidence of appendectomy is lower for males than for females (12% versus 23%, respectively). In our study highest number of appendectomy cases were seen between 20- 40 years of age group. This is similar to finding of study done at Zulfikar et al<sup>14</sup> and Makaju in nepal.<sup>15</sup> In the present study males were more commonly affected than females. The results are almost similar to a study done by Makaju et al, 60.42% of their cases were males and 39.58% cases were females.<sup>15</sup> but this is in contrast to the finding of a study done by Shrestha et al as 52.6% of their patients were females.<sup>16</sup> The diagnosis of acute appendicitis made on the basis of the patient's history, laboratory investigations and radiologic findings, as well as on the surgeon's subjective judgment based on experience. Histopathological examination is used not only for confirmation of the diagnosis of acute appendicitis but also to disclose many additional pathological lesions that can change the management plan for patient. A similar study was conducted by Mahesh Set al.<sup>17</sup> in which inflamed appendix was found in 86% cases out of which 14% cases were having negative appendectomy. Therefore accurate diagnosis of appendicular inflammation emphasis more on histopathology than on macroscopic evaluation. However, in the light of authenticated studies such as study conducted by Kim-Choy Ng et al.<sup>19</sup> the rate of histology-proven negative cases following appendectomy ranges between 9.2% and 15.0%. Fascinatingly, the rates of negative cases are exceptionally high for women during child-bearing years. The current study shows the rate of negative appendectomy (24.9%) is comparable to with collective literature. However, if surgery is denied to patients requiring it, theoretically there will be an increase risk of undesirable complications. Differential diagnosis can be aided in most patients with abdominal ultra sonography (US), computed tomography (CT), or diagnostic laparoscopy. US is cost effective and proven valuable in the diagnosis of doubtful cases of appendicitis. CT is more accurate, operator independent, less commonly performed due to its cost. It has emerged as the leading modality for adults whose diagnosis is uncertain from history, physical examination and other radiological modalities. Regardless of the etiology, development of luminal obstruction is regarded as the most significant factor in the etiopathogenesis of acute appendicitis. In the first two decade of life lymphoid hyperplasia is most commonly encountered condition underling the pathogenesis of acute appendicitis while in elderly

patients it is fecal obstruction. Several other less common conditions may also contribute in the pathogenesis of acute appendicitis. In another study conducted by Nadir M et al.<sup>20</sup> a total of 219 cases of appendectomy were included. In his study negative appendectomy was found in 6.8% of cases.

Fibrous obliteration is reported in 30% of resected specimen. Despite its explicit name, this occlusive process is predominantly comprised by neurogenic proliferation. Neurogenic appendicopathy and appendicular neuroma have recently been proposed as alternative diagnostic terminology. The underlying molecular pathogenesis mechanism is still unknown. Patient's clinical history, symptoms, and laboratory and physical examination findings help in the differential diagnosis between appendicular neuroma and acute appendicitis. It is a difficult differential diagnosis. Most of the cases of appendicular neuroma are found incidentally on pathological examination of appendix revealing fibrous obliteration in asymptomatic patients. Sudha et al.<sup>10</sup> conducted a study on incidence of acute appendicitis confirmed by histopathologically diagnosis. In his study a total of five hundred and ninety three (593) patients of appendectomy were enrolled. Out of these total (100 %) patients 80.1 % were confirmed positive on histopathology 3.4% were having chronic appendicitis and remaining 14.1% diagnosed negative on histopathology.

## CONCLUSION

Acute appendicitis is mostly diagnosis clinically on the basis of clinical findings and physical examination by the surgeons. But a definitive diagnosis is made by histopathological investigation and many The causes of a disease are simultaneously highlighted. Negative appendectomies provide a lead to surgeons' clinical judgment. It is essential to submit all specimens of appendectomy for histopathological evaluation.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Frequency of H-pylori Stool Antigen in Patients with Perforated Duodenal Ulcer Disease

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## ABSTRACT

**Objective:** To find the frequency of H-pylori stool antigen in patients with perforated duodenal ulcer disease.

**Study Design:** Descriptive / cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of General Surgery, Nishtar Hospital Multan from March 2016 to January 2017.

**Materials and Methods:** A total number of three hundred and seventy eight patients were enrolled. Data was analyzed with a statistical software SPSS version 23. All numerical variables were calculated as mean  $\pm$  SD and categorical variables were calculated as frequency and percentages. Chi square test was applied to see the effect modification and p value  $\leq 0.05$  was accepted as significant.

**Results:** Total number patients included in this study were three hundred and seventy eight (378) in which 237(62.7%) were male with mean age  $44.75 \pm 8.46$  and 141(37.3%) were females with mean age  $44.89 \pm 9.93$ . From these 378 patients, 200 (52.9%) patients having H-Pylori antigen and in 178 (47.0%) patients H-Pylori antigen was absent.

**Conclusion:** It is concluded that patient with perforated duodenal ulcer are at high risk of Helicobacter pylori infection, so the case of perforated duodenal ulcer should be investigated more aggressively. Early diagnosis can save the patient from dangerous effects of H-pylori infection.

**Key Words:** H-Pylori, Stool antigen, perforated duodenal ulcer, Serological tests

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## INTRODUCTION

Duodenal and gastric ulcer disease is strongly and closely related to Helicobacter pylori which is a spiral gram negative rod residing underneath the mucous layer adjacent to epithelial cells of gastric mucosa, leading to gastric mucosal inflammation with polymorphonuclear neutrophils and lymphocytes and ulcers. Two genes Vac A and Cag A seem to play an important role in the mechanism of injury<sup>1</sup>. Different countries and population varies in the prevalence of H-pylori infection, being low in developed countries compared to developing countries<sup>2,3</sup>.

From its many predisposing factors, use of cigarettes and nonsteroidal anti-inflammatory drugs (NSAIDs) are more important. Presence or absence of mucosa protective substances in the diet is also a major controlling factor in the prevalence of H-pylori and also contribute to the geological changes in the prevalence of duodenal ulcerative disease<sup>4,5</sup> which are unrelated to the prevalence of H-pylori infection. Staple diets containing certain phospholipids and sterols are one of the known group included in these protective substances.<sup>6</sup>

Diagnostic methods to detect H-pylori are divided into invasive and non-invasive group. Serological tests like IgG or IgA titer against various antigens and stool antigen detection are included in non-invasive group while bacterial culture, histological examination of biopsy specimen with different stains, and assays for urease activity are invasive methods. Only few reports showing the association of H-pylori with perforated peptic ulcer were present in the last ten years of English literature. Gastric mucosal atrophy is associated with high prevalence of H-pylori. Natural history of duodenal ulcer disease could be notably revised by eradicating the H-pylori infection. After eradication therapy nil or low recurrence of ulcer at the end of one year is observed in contrast to natural recurrence of

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70%<sup>7</sup>. Therefore, in patients of duodenal ulcer disease eradication therapy of H-pylori is recommended<sup>8</sup>. This treatment has proven efficacy and effectiveness in H-pylori positive peptic ulcer disease<sup>9</sup>. In developing countries, this goal has a proven difficulty with a very high reinfection rate which could be attributed to either recrudescence or reinfection. But, the successful therapy almost annihilates the recurrence of duodenal ulcer. Reasons for low efficacy of triple therapy regime could be narrowed down to improper selection of drugs, low compliance and antimicrobial resistance<sup>15</sup>. ELISA for antibodies against H-Pylori was shown to be positive in 56.46 % of Patients Presented with Perforated Peptic Ulcer in a study conducted at Asad U et al<sup>10</sup>.

This study is planned to provide basis literature on the frequency of H-pylori in perforated duodenal ulcer in local area leading to an opportunity of better investigation and proper treatment.

## MATERIALS AND METHODS

This cross sectional descriptive study was conducted in the department of general surgery Nishtar hospital Multan from March 2016 to January 2017. Sample size of 378 patients was calculated with formula  $n=Z^2(pq)/d^2$  ( $P=56.46$ <sup>16</sup>, Margin of error= 5%, Confidence interval = 95%). After giving complete information to the patients and their guardians about participation in the study a written consent was taken. Patient's contact numbers were taken to ensure follow up. Risks and benefits of treatment were discussed with patients/parents. Study was conducted after approval from ethical committee of the institution. All patients were operated by single consultant surgeon with post fellowship experience of 4 years and with same technique. Follow up was done by researcher, who is kept blind about the study to minimize bias. The first stool passed by the patient was collected and send for testing of H-pylori antigen to laboratory. Patients with history of taking acid reducing drugs (H receptor antagonist or PPI) in the last six weeks, any history of septicemia, failure of respiratory system, heart disease, known history of diabetes and who were taking steroid for some other illnesses, or immune suppressor drugs were excluded from the study. H-Pylori Antigen was considered present or absent on the basis of Stool testing for H-pylori antigen. Duodenal Ulcer was diagnosed on clinical examination epigastric pain and radiologically (on X-Ray abdomen + chest) under diaphragm.

The collected data entered and canvassed by using statistical software SPSS version 23. Mean  $\pm$  standard deviations were calculated for quantitative variables like age and perforated duodenal ulcer. Frequency and percentage were calculated for categorical variables like gender and presence of H-Pylori antigen, chi square test was applied. Effect modifier like age, duration of

perforated duodenal ulcer and gender were controlled by stratification of data. Post stratification chi square test was applied to see the effect modification. A pvalue  $\leq 0.05$  was accepted as significant.

## RESULTS

Total number patients included in this study were three hundred and seventy eight (378) in which 237(62.7%) were male with mean age  $44.75 \pm 8.46$  and 141(37.3%) were females with mean age  $44.89 \pm 9.93$ . From these 237 patients, 200 (52.9%) patients having H-Pylori antigen and 178 (47.1%) patients were not having H-Pylori antigen. Total number of patients were divided into two age groups, patients from 30-45 years of age included in group 1, and age 46-60 years patients included in group 2 (table-1).

There were 217 patients from 30-45 years of age included in age group 1, in which 144 (66.4%) were males and 73 (33.6%) were females. From those 217 patients, 105 (48.4%) patients having H-Pylori antigen and 112 (51.6%) patients were not.

**Table No.1: Demographics and Frequency of H-Pylori**

Gender	Age Mean $\pm$ SD	Duration of perforated duodenal ulcer Mean $\pm$ SD
Male	44.75 $\pm$ 8.460	10.41 $\pm$ 6.645
Female	44.89 $\pm$ 9.931	10.87 $\pm$ 6.775
Frequencies (Percentage %)		
	Frequency	Percent (%)
Male	237	62.7 %
Female	141	37.3 %
H-Pylori Antigen On Stool Test		
Present	200	52.9 %
Absent	178	47.1 %
Duration of Perforated Ulcer		
1-12 hours	255	67.5
13-24 hours	123	32.5

**Table No.2: Inferential Results**

Gender	H-Pylori Antigen On Stool Test		P Value
	Present	Absent	
Male	116	121	0.045
Female	84	57	
Age groups			
30-45 years	105	112	0.041
46-60 years	95	66	
BMI groups			
20-27 kg/cm	92	65	0.061
28-35 kg/cm	108	113	

There were 161 patients included in age group 2 (46-60 years), in which 93 (57.8%) were males and 68 (42.2%) were females. From these 161 patients, 95(59%)

patients having H-Pylori antigen and 66 (41%) patients were not having H-Pylori antigen (table-1).

When Chi-Square was applied to check the association, it was noted that test H-Pylori antigen associated with age, gender and duration of Perforated Ulcer p values were 0.041, 0.045 and 0.05 respectively (Table-2,3,4). (Standard P-value was 0.05).

## DISCUSSION

H-pylori prevalence in perforated duodenal ulcer disease was found to be 52.9% by stool antigen detection test. Other studies performed in the developing world show high prevalence compared to our study<sup>11</sup>. Diversity of age, health condition, living standard, study population, geographic regions, the analytical methods, the type of test specimens (stool and blood), and target molecules are the various factors which might have influenced the study results and led to difference in study findings. When compared with the studies of other developing countries, lower prevalence of H-pylori in current study was mainly attributed to the current study population of above 18 years of age.

Studies done by Newton et al<sup>12</sup>, Jackman et al<sup>13</sup>, Brandi et al<sup>14</sup>, and Hestvik et al<sup>15</sup> are in favor of this concept. The prolonged persistence of antibodies even after the elimination of infection is likely to give different results in the same study population depending upon the selection of test which selectively detects either antigen or antibody. On the other hand, if a person is tested positive for antigen detection test but negative with antibody detection test might convey the idea of suffering from recent infection even before the development of detectable immune response. Cross reaction of normal intestinal microflora with H-pylori could also be the cause of false positive results. The concept of inhabiting GIT bacteria which could lead to false positive test results of H-pylori in peptic ulcer patients was also observed in a European study<sup>16</sup>. The fact that previously infected adults who remained asymptomatic in their subclinical course of disease will test positive by the antibody-detection tests and negative by the antigen-detection tests was brought to light by a study of Triantafyllopoulou et al.<sup>17</sup> That's why; the stool antigen detection test can be used preferentially to detect active infection or carrier persons.

In current study, H. pylori prevalence among the age group 1 (30-45 years) was 48.4% compared to the prevalence of 59% in age group 2 (46-60 years). This trend was similar to the results of a study by Kang et al<sup>18</sup>, in which seroprevalence of H. pylori kept on increasing with age in Indians, Malay and Chinese. Early colonization by H. pylori in less than-21-year population can lead to positivity of both antigen and antibody tests in that age group as narrated in a study done by Hestvik et al.<sup>15</sup>

In our study, out of all patients who had positive H. pylori antigen detection test 58% were males and 42% were females. Our findings confirm that a male adult of low socioeconomic status living with a partner should be considered as high risk person for H. pylori infection. Similar findings were narrated by a study done by Moayyedi et al.<sup>19</sup>

Possible predisposing factors to this infection were examined in our study. Though ELISA method was used to determine the significance of these predisposing factors but no considerable difference between the uses of two methods for this purpose was found. Lack of formal education, cigarette smoking and poor sanitation were found to be the significant predisposing factors to H. pylori infection with a p-value of <5%. These findings do not correlate with the study done at Ogihara et al<sup>20</sup>, in which cigarette consumption per day was related inversely to the H. pylori seropositivity. The fact stating that there is no considerable and statistically significant relation between cigarette smoking and H. pylori prevalence, was proved by the study of Khalifa et al.<sup>21</sup> leaving us with poor living conditions as the most likely risk factor. This risk factor has appeared consistent in similar studies from all over the world. Environmental, genetic, poor community water supply and occupational exposure were the factors to be blamed for the acquisition of H. pylori in the study of Tanih NF et al<sup>22</sup>. Gastritis, peptic ulcers, and intestinal perforation were the reported disease manifestation in H. pylori positive tested patients. Epigastric pain, burning abdominal pain sensation, bloody stool, acute abdomen and rarely hematemesis are the presentation for these diseases. All the collected data reveal no significant association of this infection with any specific symptom<sup>23</sup>.

## CONCLUSION

It is concluded that patient with perforated duodenal ulcer are at high risk of Helicobacter pylori infection, so the case of perforated duodenal ulcer should be investigated more aggressively. Early diagnosis can save the patient from dangerous effects of H-pylori infection.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# The Use of Aspirin and Statin as Primary Prevention for Cardiovascular Disease: Our Experience at Teaching Hospital; Punjab

Muhammad Irfan Bhatti, Azib Ilyas and Syeda Tooba Bukhari

## ABSTRACT

**Objectives:** To determine whether the use of statin and aspirin as primary prevention in patients with diabetes whether correctly used or not in our institute.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Bahawal Victoria Hospital, Bahawalpur from February 2016 to April 2016.

**Materials and Methods:** 150 patients participated in this scrutiny. Data was taken from patients with medical characteristics of electronic medical records, the results of existing co morbidities and laboratory investigations. Patients with ischemic heart disease. Kidney disease and stroke were excluded. We followed the recommendations of American Diabetes Association 2014.

**Results:** Of the 150 participants, the indication of aspirin was for 19%, but not prescribed in these patients. It was shown that 37% of cases were prescribed. Treatment with Statins was indicated in 38% of patients, but it does not prescribe, although in 62% cases it is expressed & prescribed

**Conclusion:** The frequency of patients achieving proper treatment goals in our institute is far greater as compared to other studies.

**Key Words:** Aspirin; Statin; Primary prevention; Diabetes; Cardiovascular disease.

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## INTRODUCTION

The burden of cardiovascular disease is considerably increased by two to four times the incidence of diabetes in patients with Cardiovascular events are matched with age and gender, and non-diabetic persons.<sup>1,2</sup> There is a great chances of cardiovascular change in diabetic patients, and mortality rate increases that stress the researchers to find out most affective plans and inventions to minimize the chances of cardiovascular changes.

Since many years, trials have come to find out the usefulness of the use of aspirin and statin in decreasing and minimize the cardiovascular changes in diabetics despite opposite results in the usefulness of aspirin used as primary prevention of cardiovascular disease in diabetics.

Although the American Diabetes Association (ADA), the American Heart Association (AHA), and the American College of Cardiology Foundation (ACCF) give guidelines and recommendations, these are practically very difficult to be implemented.<sup>3</sup>

Many factors influence the implementations of these guidelines; these factors may be the knowledge attitude of the physician, the behavior of the patient, and availability of health facilities so it is not easy to achieve the goal.

The guidelines of American Diabetes Association, recommend a comprehensive care plan for people with diabetes. These guidelines include aspirin and statins for prophylaxis according to specific criteria. According to previous studies,<sup>4</sup> often without proper prescribing of aspirin and lipid-lowering drugs are: In some practices aspirin prescriptions are prescribed under statins. While it is critical to understand the current practice in diabetes care to improve the prognosis of people with diabetes, there are several data to show to what extent these guidelines are followed.

## MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Medicine Bahawal Victoria Hospital, Bahawalpur from February 2016 to April 2016. 150 patients participated in the study. Data was collected from patients with medical characteristics of electronic medical records, the results of existing co morbidities and laboratory investigations. Patients with ischemic heart disease, kidney disease and stroke were excluded. We followed the recommendations of American Diabetes Association 2014.<sup>5</sup> Similarly; we followed the

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American Diabetes Association, working definition for aspirin therapy. Data entry was made in SPSS version 21. For the qualitative variable, the frequency and percentage are calculated.

## RESULTS

This study included 150 patients aged 50 to 65 years (mean 58.5 ± 10.8 years). Patients aged above 50 years were composed of approximately 4/5<sup>th</sup> of the samples. Women accounted for about 70 % of the samples. (93%) were overwhelmingly married. About 75% completed their high school education or above. Table. 1

**Table No.1: Demographic characteristics of the patients (n=150).**

Variables	Frequency	Percentages
<b>Age Group</b>		
<39 years	6	4
40-49 years	19	12
50-59 years	53	35
60-69 years	41	27
70-79 years	24	16
>80 years	7	4
<b>Gender</b>		
Male	43	29
Female	107	71
<b>Marital Status</b>		
Single	7	5
Married	141	94
Divorced/Widowed	2	1
<b>Educational Status</b>		
Primary	30	20
Intermediate	45	30
High School	41	27
Graduate	31	21
Post graduate and above	3	2

**Table No.2: Statin and Aspirin prescription among indicated and non-indicated cases**

Variables	Indicated n(%)	Not-Indicated n (%)	Frequency
<b>Aspirin Therapy</b>			
Prescribed	55	37	21
Not Prescribed	29	19	39
<b>Total</b>	84	60	144*
<b>Statin Therapy</b>			
Prescribed	93	62	3
Not Prescribed	42	28	5
<b>Total</b>	145	8	143*

\*The total is < 150 due to missing values

Of the 150 participants, the indication of aspirin was for 19%, but not prescribed in these patients. Treatment with Statins was indicated in 28% of patients, but it does not prescribe, although in 62% of cases it is expressed and prescribed. Table. 2

## DISCUSSION

Based on the recommendations of American Diabetes Association (ADA), the American Heart Association (AHA), and the American College of Cardiology Foundation (ACCF) mostly patients in this study were at great risk of cardiovascular changes and disease: about 4/5<sup>th</sup> was above 50 years of age and 63% had minimum 2 other diseases. However, 19% and 28% of patients were at chances of cardiovascular changes and diseases without using aspirin or statin. This shows the gap in the management of cardiovascular risks of the patients. Other studies have also reported the similar gap in the management of cardiovascular events in diabetics. Aspirin is widely used especially for primary prevention of cardiovascular disease worldwide in the patients many patients with cardiovascular disease, do not use aspirin.

In other study, statin therapy was not specified in 40% diabetic with risk of cardiovascular disease. Recent studies have shown; it is very limited in the primary prevention of cardiovascular disease. However, most of the physicians prescribe aspirin for the purpose of primary prevention of cardiovascular disease without determine the cardiovascular disease risk factors and it may take a time for doctors to change their practice according to recent recommendations and guidelines.<sup>8</sup> It is advisable to prescribe aspirin for diabetic patients requiring more emphasis, notification and explanation to the physician. Doctors should understand the wide range of management of diabetes and risk reducing plans in diabetics the gap between BP & lipid management is higher as compared with control of glucose.<sup>9</sup>

Studies show that care of diabetes is not optimal. In a study conducted in Italy, only 46% of patients with risk of cardiovascular disease, they used aspirin as for prevention,<sup>10</sup> while in other study shows that 35.5% patients were using for primary prevention.<sup>11</sup> Another scrutiny shows that this proportion is small who were prescribed aspirin.<sup>12</sup>

In contrast, other scrutiny explained that overuse of aspirin usage in patients where aspirin is not recommended<sup>13</sup> aspirin should be prescribed appropriately,<sup>14</sup> as there is a risk of GIT bleed, Physicians should take advantage of shared decisions.<sup>15</sup> aspirin and statin used can be improved through the use of a score system.<sup>16</sup> In addition; a heart this scoring system can improve appropriately targeting high-risk groups. We found that 62% of patients were properly prescribed statins. In another study, the statin prescribing model was assessed according to the

American diabetic association guidelines, and only 35% of patients were prescribed a new American coronary care foundation / American heart association guideline recommending primary prevention with moderate statin statins.<sup>17</sup> This will certainly increase the number of patients eligible for statin therapy.

## CONCLUSION

The frequency of patients achieving proper treatment goals in our institute is far greater as compared to other studies.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Association of Diabetes and Hypertension with Presenting Complaints Among Patients of Operative Dentistry

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Operative  
Dentistry in  
Diabetic &  
Hypertensive

## ABSTRACT

**Objectives:** This study was conducted to ascertain the role of diabetes and hypertension with presenting complaints among patients of operative dentistry as there is limited data available on this issue from Pakistan.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Operative Dentistry, Nishtar Institute of Dentistry, Multan from 01-08-2016 to 01-02-2017.

**Materials and Methods:** A total of 200 study cases presenting with different complaints were recruited in our study using non – probability convenient sampling technique. Data was entered analyzed by SPSS – 20.

**Results:** A total of 200 study cases were taken in this study, of which 89 (44.5%) were male patients while 111(55.5%) were female patients. Mean age of our study cases was  $38.58 \pm 10.92$  years (with minimum age of our study cases was 20 years while maximum age was 73 years). Among these 200 study cases, 71 (35.5%) were from rural areas while 129 (64.5%) were from urban areas, 62 (31%) were poor and 133 (66.5%) were from middle income families and only 2.5 % were rich. Diabetes was noted in 48 (24%) and hypertension was present in 70 (35 %). Pain in upper and lower posterior was noted in 101 (50.5%), sensitivity and food lodgment in 36 (18 %), post filling complaints in 21 (10.5%), aesthetic problems in 13 (6.5%) , sensitivity in upper and lower anterior was noted in 8 (4%) and 21 (10.5%) presented with other miscellaneous complaints.

**Conclusion:** Very high frequencies of hypertension and diabetes were noted in our study while pain in upper and lower posterior was the major presenting complaints followed by sensitivity. These presenting complaints were significantly associated with urban residential status however not associated with diabetes and hypertension.

**Key Words:** Diabetes, hypertension, operative dentistry

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## INTRODUCTION

Diabetes mellitus which affects patients of all age groups is a chronic illness and is regarded as one of the major causes of mortality, disability, poor quality of life and increased morbidity all over the world particularly in developing countries<sup>1</sup>. It is a growing public health concern all over the world representing common metabolic diseases. In literature, different macrovascular as well as microvascular complications have been reported among patients with diabetes<sup>2</sup>. Diabetes mellitus is characterized by different metabolic disorders which are defined by increased blood glucose levels which may be a results of total or relatively decreased insulin secretions and may also be due to insulin resistance or both. The metabolic disorders may involve carbohydrates, proteins and fat

metabolism in our bodies. Diabetes mellitus can affect all age groups, but it is more commonly noted in adults<sup>3</sup>. The World Health Organization (WHO) recently described diabetes to be a pandemic.<sup>2, 4</sup> The prevalence of diabetes in different population subsets have increased exponentially over the last few decades and it is expected to increase triple in the next decade and it is also regarded as one the leading causes of death and morbidity due to its underlying microvascular and macrovascular complications. However there is scarcity of data regarding oral complications associated with diabetes and hypertension<sup>5, 6</sup>. Different inflammatory illnesses and soft tissue diseases in our oral cavities are reported to be related with diabetes mellitus<sup>7,8</sup>; but little is known about such complications and there is a dire need to ascertain current magnitude of the problem<sup>9, 10</sup>. Periodontal diseases are often categorized as the sixth most common complication of diabetes mellitus after most commonly reported comorbidities and complications<sup>11</sup>. Periodontal diseases are described as a more prevalent oral complication of diabetes mellitus as compared with some other oral manifestations such as dry mouth and caries<sup>12</sup>. Diabetic patients having poor glycemic control often present with increased levels of severity of periodontitis<sup>13</sup>.

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Early identification followed by timely management of such oral complications can help in the early diagnosis of diabetes mellitus and to achieve desired glycemic control<sup>14,15</sup>. Therefore, diabetic oral manifestations are needed to be identified and included in the ultimate care of diabetes in order to fight this chronic metabolic disease effectively<sup>16</sup>.

## MATERIALS AND METHODS

This cross – sectional study was done Department of Surgery, Nishtar Institute of Dentistry (NID) Multan. Non – probability convenient sampling technique was used to collect data from patients and consecutive 200 patients with different presenting complaints were recruited, after taking informed verbal consent, in this study. These patients were interviewed by a researcher and all socio-demographic information was gathered by using pre-tested and validated questionnaire. Diabetes was defined as “patients having fasting blood glucose levels more than 126 mg/dl on 2 separate occasions or those who have been taking any hypoglycemic drug therapy for more than 2 years”. Hypertension was defined as “patients having blood pressure more than 140/90 mmHg twice one week apart or those who were taking any hypertensive therapy for more than 2 years.” These patients were categorized as poor if they had family income less than 20000 rupees per month, middle income in case of family income ranging from 20000 rupees to 50000 rupees and rich if they had more than 50000 rupees family income per month. All this data was analyzed with the help of SPSS – 20 and different categorical variables were tabulated for frequencies and percentages while mean and standard deviations have been calculated for numerical variables like age. Impact of confounders was controlled by uni – variate analysis by applying chi – square test at 0.05 level of significance.

## RESULTS

A total of 200 study cases were taken in this study, of which 89 (44.5%) were male patients while 111(55.5%) were female patients. Mean age of our study cases was  $38.58 \pm 10.92$  years (with minimum age of our study cases was 20 years while maximum age was 73 years). Among these 200 study cases, 71 (35.5%) were from rural areas while 129 (64.5%) were from urban areas, 62 (31%) were poor and 133 (66.5%) were from middle income families and only 2.5 % were rich. Diabetes was noted in 48 (24%) and hypertension was present in 70 (35 %). Pain in upper and lower posterior was noted in 101 (50.5%), sensitivity and food lodgment in 36 (18 %), post filling complaints in 21 (10.5%), aesthetic problems in 13 (6.5%) , sensitivity in upper and lower anterior was noted in 8 (4%) and 21 (10.5%) presented with other miscellaneous complaints (Figure – 1).

Among 89 male patients diabetes was noted in 18 (20.2%) while in females diabetes was present in 27 % patients but this difference was statistically insignificant ( $p = 0.318$ ). Similarly hypertension was noted in 34.8 % male patients while 35.1% female had hypertension ( $p = 1.00$ ).

**Table No. 1: Cross - tabulation of diabetes with regards to presenting complaints. (n = 200)**

Presenting complaints	Diabetes		P - value
	Yes (n = 48)	No (n= 152)	
Pain in upper and lower posterior (n = 101)	24	77	<b>0.787</b>
Sensitivity in upper and lower posterior (n = 36)	07	29	
Post filling complaints (n = 21)	06	15	
Aesthetic problems in upper & lower anterior. (n = 13)	05	08	
Sensitivity in upper and lower anterior (n = 08)	02	06	
Others (n =21)	04	17	
<b>Total</b>	<b>200</b>		

**Table No. 2: Cross - tabulation of hypertension with regards to presenting complaints. (n = 200)**

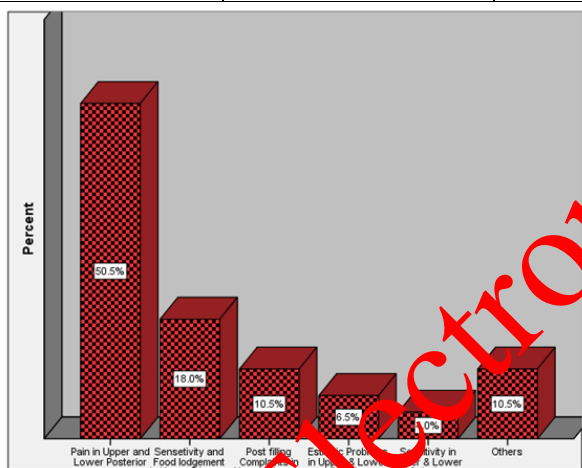
Presenting complaints	Hypertension		P - value
	Yes (n = 70)	No (n=130)	
Pain in upper and lower posterior (n = 101)	35	66	<b>0.553</b>
Sensitivity in upper and lower posterior (n = 36)	12	24	
Post filling complaints (n = 21)	08	13	
Aesthetic problems in upper & lower anterior (n = 13)	07	06	
Sensitivity in upper and lower anterior (n = 08)	01	07	
Others (n =21)	07	14	
<b>Total</b>	<b>200</b>		

**Table No. 3: Cross - tabulation of gender with regards to presenting complaints. (n = 200)**

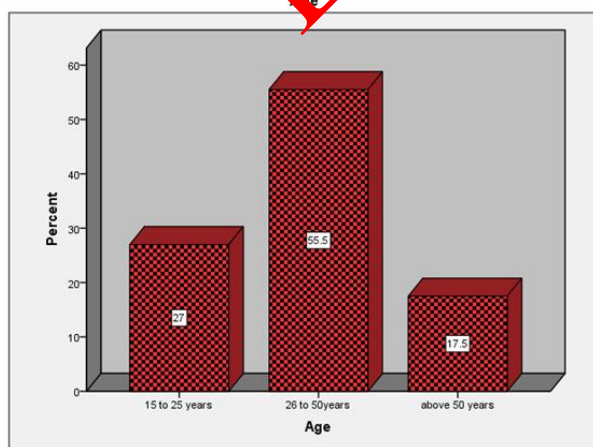
Presenting complaints	Gender		P - value
	Male (n = 89)	Female (n = 111)	
Pain in upper and lower posterior (n = 101)	45	56	<b>0.813</b>
Sensitivity in upper and lower posterior (n = 36)	14	22	
Post filling complaints (n = 21)	09	12	
Aesthetic problems in upper & lower anterior (n = 13)	05	08	
Sensitivity in upper and lower anterior (n = 08)	05	03	
Others (n =21)	11	10	
<b>Total</b>	<b>200</b>		

**Table No. 4: Cross - tabulation of residential status with regards to presenting complaints. (n = 200)**

Presenting complaints	Residential status		P - value
	Rural (n = 71)	Urban (n = 129)	
Pain in upper and lower posterior (n = 101)	47	54	<b>0.001</b>
Sensitivity in upper and lower posterior (n = 36)	04	32	
Post filling complaints (n = 21)	05	16	
Aesthetic problems in upper & lower anterior (n = 13)	02	11	
Sensitivity in upper and lower anterior (n = 08)	02	06	
Others (n =21)	11	10	
<b>Total</b>	<b>200</b>		



**Figure No. 1: Presenting complaints among study cases.**



**Figure No. 2: Age wise distribution of study cases.**

## DISCUSSION

In our study, 89 (44.5%) were male patients while 111(55.5%) were female patients. Similar kind of results have been reported in other studies as well showing female gender predominance. A study conducted in China by Ye et al<sup>17</sup> also reported female gender predominance with 59.5 % which is in compliance with that of our study results. However our findings are different from that of Siddiqui et al<sup>18</sup> who reported equal distribution of male and female patients. Mafla et al<sup>19</sup> also reported female gender predominance with 75% female patients which is in compliance with our study results. Mean age of our study cases was 38.58 ± 10.92 years (with minimum age of our study cases was 20 years while maximum age was 73 years). Ye et al<sup>17</sup> from china has also reported similar results. In our study 55.5% belonged to the age group of 26 to 50 years. Siddiqui et al<sup>18</sup> also reported that 56 % patients belonged to the same group which is same as that of our findings. Mafla et al<sup>19</sup> also reported similar results. Among these 200 study cases, 71 (35.5%) were from rural areas while 129 (64.5%) were from urban areas, 62 (31%) were poor and 133 (66.5%) were from middle income families and only 2.5 % were rich. Ye et al<sup>17</sup> from China has also reported that 62.26 % patients were from urban areas while 37.74% were from rural areas. Our study results are close to that of Reported by Ye et al<sup>17</sup>. Siddiqui et al<sup>18</sup> reported 21.9 % poor, 75.4% middle income and only 2.2 % were rich which is in compliance with our study results. Mafla et al<sup>19</sup> also reported middle income patients predominating which is similar to our study findings.

Pain in upper and lower posterior was noted in 101 (50.5%), sensitivity and food lodgment in 36 (18 %), post filling complaints in 21 (10.5%), aesthetic problems in 13 (6.5%), sensitivity in upper and lower anterior was noted in 8 (4%) and 21 (10.5%) presented with other miscellaneous complaints. Siddiqui et al<sup>18</sup> reported sensitivity and food lodgment in upper and lower posterior predominated with 40.7%, sensitivity in 28.6%, post – filling complaints in 10.4 %, aesthetic in 3.4% and 15 % presented with miscellaneous complaints. Our study results are in accordance with that of Siddiqui et al<sup>18</sup>. Diabetes was noted in 48 (24%) and hypertension was present in 70 (35 %). Among 89 male patients diabetes was noted in 18 (20.2%) while in females diabetes was present in 27 % patients but this difference was statistically insignificant ( $p = 0.318$ ). Similarly hypertension was noted in 34.8 % male patients while 35.1% female had hypertension ( $p = 1.00$ ). Siddiqui et al<sup>18</sup> reported hypertension in 15 % and quite low frequency of diabetes in 2 % only which are quite lower values and different from our findings.

## CONCLUSION

Very high frequencies of hypertension and diabetes were noted in our study while pain in upper and lower posterior was the major presenting complaints followed by sensitivity. These presenting complaints were significantly associated with urban residential status however not associated with diabetes and hypertension.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Determination of Chemical and Microbial Contamination in Surface and Ground Water of District Hyderabad, Sindh Pakistan

Aneela Atta Ur Rahman<sup>1</sup>, Shahab Akhter Kazi<sup>2</sup> and Shahzad Akhter Kazi<sup>2</sup>

## ABSTRACT

**Objectives:** Objective of the study was to assess Microbial & Chemical contamination load in drinking water sources.

**Study Design:** A prospective / descriptive study

**Place and Duration of Study:** This study was conducted at the District Hyderabad in September, 2016 to December, 2016

**Materials and Methods:** Illustrative drinking water sources samples were collected and analysed at Water Testing & Surveillance Laboratory, LUMHS, Jamshoro.

**Results:** Presence of causative agents in drinking water are responsible for different waterborne-illnesses internationally reported, deprived quality of drinking water growing the water pollution not only deteriorates water quality, but also subsidizes to public health complications, economic stress and community disproportion.

**Conclusion:** This research study indicates the presence of water pollutants in drinking water of Hyderabad city which make water unsuitable for drinking. The current research also aware community and health policy maker to take some positive steps towards this severe situation.

**Key Words:** Arsenic, drinking water, waterborne illness.

**Citation of article:** Rahman AA, Kazi SA, Kazi SA. Determination of Chemical and Microbial Contamination in Surface and Ground Water of District Hyderabad, Sindh Pakistan. Med Forum 2017;28(4):73-76.

## INTRODUCTION

There are two sources of drinking water in Pakistan these are the surface and underground water aquifers whereas the 70% is relies on underground water. The quality of drinking water at Pakistan is not unity and also does not match the WHO recommendations for drinking purpose. Various diseases are occur due to poor quality water in three districts of Sindh i.e. Thatta, Badin, and Thar<sup>1</sup>. At the left bank of Indus River the 2<sup>nd</sup> big city of Sindh Hyderabad district is situated, after the bifurcation of Hyderabad district on 4<sup>th</sup> April 2005, District Hyderabad now it is comprised of four Talukas i.e. Hyderabad City, Hyderabad Rural, Qasimabad, and Latifabad, 52 Union Councils. According to Census 1998 the population of District Hyderabad after bifurcation is 1494866<sup>2,3</sup>. Due to increasing urbanization the assessment of drinking water of Hyderabad city is become need of day. It is reported that in n India 36% of urban population and 65% rural

population are not drinking safe water<sup>4</sup>. The sources for contamination of drinking water is the improper disposal of solid waste, sewage and heavy usage of fertilizers<sup>5</sup>. According to water quality report (2004) around 30% of diseases and 40% of demise at Pakistan are due to drinking of contaminated water respectively. Therefore observing this critical situation it is imperative to assess the availability of different contaminants in drinking water which make the water unsuitable for drinking for the people of Pakistan.

## MATERIALS AND METHODS

Water samples were collected from different areas of Hyderabad and brought to the Water testing & Surveillance laboratory safely in ice box for analysis. The digital turbidity meter (PCCHECKIT, Germany) was used for measurement, and conductivity meter (Model no: sanso-direct con 200) was used to assess the Electrical Conductivity (EC) Salinity, Total Dissolved Salts (TDS)<sup>6,7,8</sup>. Kit method was used to analyze the arsenic availability in water by Merck with detection limit of 0.005mg/L to 0.5mg/L<sup>9</sup>. The bacteriological analysis of water samples was calculated for total coliforms count (TCC) and Total Faecal coliforms (TFC). The samples were handled in a laminar flow hood using sterilized culture media. The bacterial load of water samples was estimated by Most Probable Number (MPN) technique as per Standard Methods for the Examination of Water and Wastewater<sup>10</sup>.

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**RESULTS**

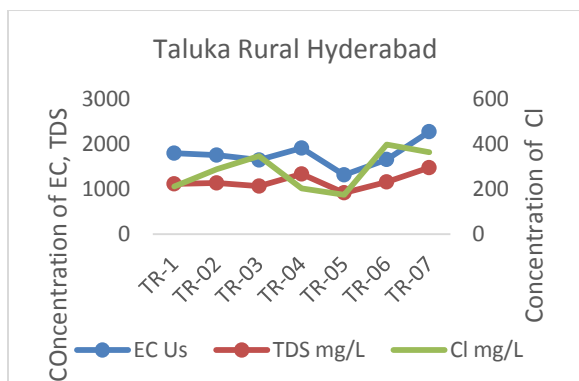
The turbidity in present water samples was recorded < 5 NTU and the results was much higher than the limits set by WHO as acceptable. The all physical parameters were also observed under the permissible levels. The samples coded TR: 01 to 07, TQD, 04 & TLD: 06 shows high level of EC, Salinity, TDS and was recorded more than the figures suggested by WHO i.e 1500  $\mu$ S/cm, 0.2 % to 0.5%, and 500-1000mg/L respectively. Chloride was noted above WHO level (250 mg/L) in the samples with codes TR:

01 to 07, TQD, 04 & TL: 06. Arsenic values was also found more in some samples of drinking water beyond the permissible limit, additionally As exist in organic and inorganic forms and poses very severe health impacts.

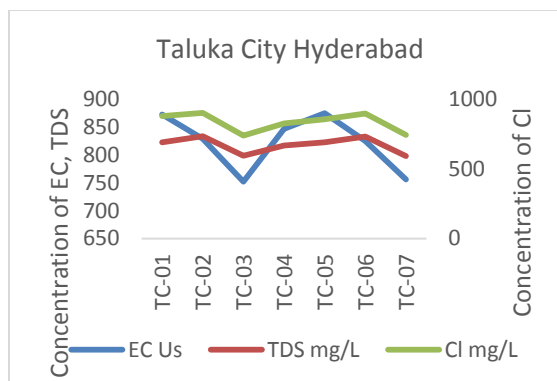
The bacteriological examination revealed that the all ground water samples shows no growth of E-Coli, Fecal Coliform and Total Coliform, whereas only samples number 17 of drinking water contain unacceptable amount of coliform bacteria shown in Figure 05.

**Table No.1:: Sampling Area Record**

Sampling Area	Sample Code	Source
		M0tor Pump
Tando Hyder, Taluka Rural Hyderabad	TR-02	Hand Pump
Tando Jam Taluka Rural Hyderabad	TR-03	Hand Pump
Tando Qaiser Taluka Rural Hyderabad	TR-04	M0tor Pump
Hatri Taluka Rural Hyderabad	TR-05	Hand Pump
Ghanghra Mori Hatri Taluka City Hyderabad	TR-06	Hand Pump
Hala Naka Taluka City Hyderabad	TR-07	Hand Pump
Tando wali Muhammad Taluka City Hyderabad	TC-01	Water Supply Line
Qasim Chowk, Taluka City Hyderabad	TC-02	Water Supply Line
Sindh university Old Campus colony Taluka City Hyderabad	TC-03	Water Supply Line
Naya Pul, Taluka City Hyderabad	TC-04	Water Supply Line
Badin Stop, Taluka City Hyderabad	TC-04	Water Supply Line
Khaahee Road near Memon Hospital Taluka City Hyderabad	TC-05	Water Supply Line
Pretabad Phuleli, Taluka City Hyderabad	TC-06	Water Supply Line
Qasimabad Phase -I, Taluka Qasimabad Hyderabad	TQD-01	Water Supply Line
Qasimabad Phase-II, Taluka Qasimabad Hyderabad	TQD-02	Water Supply Line
Naseem Nagar, Taluka Qasimabad Hyderabad	TQD-03	Water Supply Line
Wahadat Colony, Taluka Qasimabad Hyderabad	TQD-04	M0tor Pump
Hussainabad, Taluka Qasimabad Hyderabad	TQD-05	Water Supply Line
Alamdar Chowk, Taluka Qasimabad Hyderabad	TQD-06	Water Supply Line
Latifabad No.04, Taluka Latifabad Hyderabad	TLD-01	Water Supply Line
Latifabad No: 08, Taluka Latifabad Hyderabad	TLD-02	Water Supply Line
Latifabad No:12, Taluka Latifabad Hyderabad	TLD-03	Water Supply Line
Latifabad No:02, Taluka Latifabad Hyderabad	TLD-04	Water Supply Line
Indus Pahari, Taluka Latifabad Hyderabad	TLD-05	Water Supply Line
Hashmi Colony Near Fatah Chowk, Taluka Latifabad Hyderabad	TLD-06	M0tor Pump



**Figure No. 1: Average concentration of ECT, TDS, Cl of Taluka Rural Hyderabad**



**Figure No.2: Average concentration of ECT, TDS, Cl of Taluka city Hyderabad**



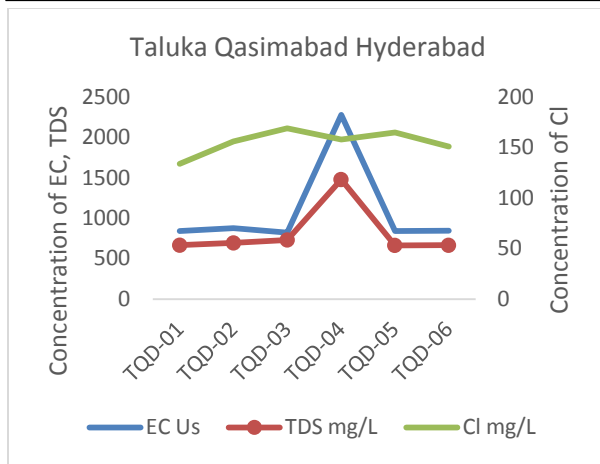


Figure No. 3: Average concentration of EC, TDS, Cl of Taluka Qasimabad Hyderabad

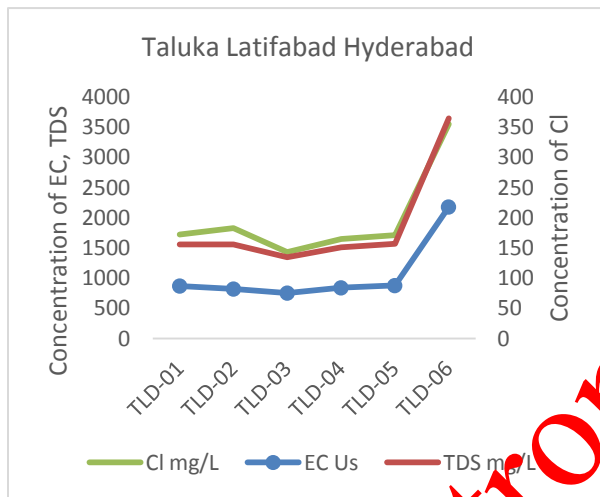


Figure No.4: Average concentration of EC, TDS, Cl of Taluka Latifabad Hyderabad

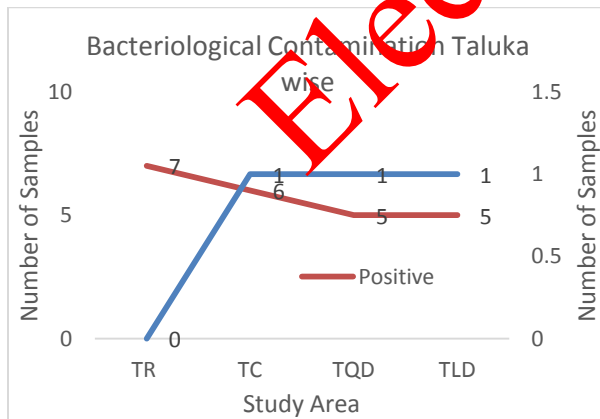


Figure No. 5: Average Bacteriological contamination Taluka wise

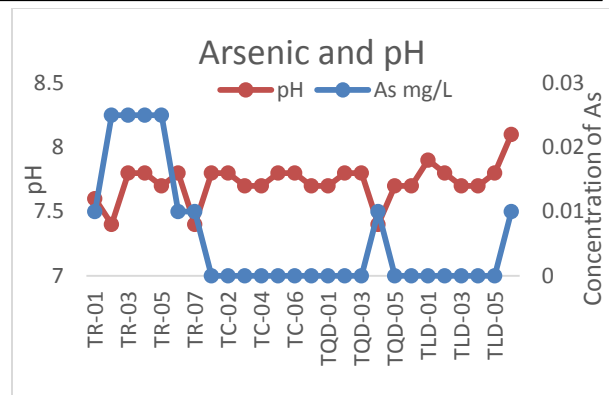


Figure No. 6: Average pH and As concentration

DISCUSSION

The physical parameters observed in this study were show conventionality with the results of a previous researches and ground water samples were observed colorless, odorless but were slight saline<sup>11</sup>. The high turbidity (5 NTU) is probably linked with higher levels of disease-causing microbes and indirectly constitutes a health problems<sup>12</sup>. Presence of chloride in drinking water affects indirectly upon health by corrosion of pipes which can elevate the metal level of water<sup>13</sup>.

The present results for electrical conductance (EC) were in accordance with earlier reported results for ground water samples from Bahawalpur City, Pakistan<sup>14</sup>. The recommended figures for TDS in drinking water is 500 mg/L to 1000 mg/L and the results show similarity with the results for ground water sources from district Matiari, Sindh where the EC, TDS concentration was found above the permissible value and pose various health effects<sup>12</sup>. Moreover the Arsenic is recognized by its carcinogenicity and causing major public health problems in many countries like Bangladesh, India, China, Vietnam, Nepal and Myanmar<sup>12</sup>, the concentration of arsenic in drinking water exceeds the WHO standard of 10 ppb ( $\mu\text{g/L}$ ) in many areas of Pakistan similar results was conform in a study conducted on drinking water of eleven cities of Punjab<sup>13</sup>.

In Pakistan, Sindh the 10 to 50 ppb As contaminated drinking water was affects the life of 16 to 36% population<sup>15</sup>. As in drinking water is reported for lung, liver, skin and bladder cancer<sup>16</sup>. The As pollution is increased due to ore mining and processing industry, dye manufacture facilities, tanneries, thermal power plants, and application of certain insecticides, herbicides and pesticides wastes into drinking water, therefore the contamination level above the 50 $\mu\text{g/L}$  and exceeding 200 $\mu\text{g/L}$  in Sindh<sup>5, 12</sup>.

The water sources usually contain low concentration of heavy metals as they dissolved these substances while

moving downwards as hydrological cycle. The heavy metals are essential for metabolic activities in the body but their over exposure can lead to adverse effects on living organism including humans<sup>17,18</sup>.

A few chemicals and arsenic and dangerous metals polluted the drinking water sources and connected with human wellbeing and that sully prompts to gastrointestinal, liver, kidney, cardiovascular, and neurological infections and malignancy<sup>19,20</sup>.

## CONCLUSION

The Present research work concluded that the quality of drinking water of district Hyderabad is not suitable for drinking as it contain many toxic contaminants which is linked with many diseases and leads to gastrointestinal, liver, kidney, cardiovascular, and neurological diseases and cancer, in present study the chemical and microbial contaminants left adverse impacts on human health.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Does Proton Pump Inhibitors Therapy Impair Bone? Study in Young Patients of Hyderabad, Sindh Pakistan

Imran Ali Shaikh<sup>1</sup>, Fozia Ajaz Shaikh<sup>2</sup> and Naila Masood<sup>1</sup>

## ABSTRACT

**Objectives:** To assess the negative impact of proton pump inhibitors on calcium and vitamin d on adults of Hyderabad sindh Pakistan

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was conducted at Clinics of sadder Hyderabad Sindh, June to December 2016

**Materials and Methods:** 50 patients were selected as inclusion criteria . all were young subjects age was 22.4±5.4 years. Mean duration of PPI was 3.4±2.1 months. None of subject was having complicated peptic ulcer disease. Sampling technique was non probability convenience. stational soft ware was SPSS 16 . Student paired t test was used to calculate p value before and after PPI use. P value was considered <0.05 significant.

**Results:** There was no significant impact noted. P value was <0.08 for serum calcium and <0.09 for serum vitamin D

**Conclusion:** There is no negative impact of long term PPI over calcium and vitamin d on young individuals

**Key Words:** PPI, Young, calcium , Hyderabad.

**Citation of article:** Shaikh IA, Shaikh FA, Masood N. Does Proton Pump Inhibitors Therapy Impair Bone? Study in Young Patients of Hyderabad, Sindh Pakistan. Med Forum 2017;28(4):77-79.

## INTRODUCTION

Most guidelines are supporting proton pump inhibitor (PPI) use as the sole option for treatment of nonerosive gastroesophageal reflux disease (GERD), erosive esophagitis, dyspepsia and peptic ulcer disease.

Omeprazole was first introduced in 1988, to become largest prescribed salt till 1996. Lansprazole was second to be marketed in 1991, Pantoprazole in 1994, Rabeprazole in 1999, Esomeprazole in 2001, and Dextlansprazole in 2009.

Rationale or irrational use of PPIs are still on the rise. In a London, only 8% of patients were receiving PPI therapy in 1997.<sup>1</sup> while Vlied et in 2008 showed that 43% of patients were taking PPIs during hospitalization even in chest wards.<sup>2</sup>

Sadaf Shafi et al in 2011 reported 51% of patients on Proton pump inhibitors without a definite indication.<sup>3</sup> A Karachi-based study demonstrated 47.2% patients were prescribed PPIs on their discharge card.<sup>4</sup>

Haroon et al showed in 2013, 79% patients were taking PPIs<sup>5</sup> clearly indicating an upward trends for PPI prescription.

The practice of PPI overutilization is considered a direct result of the lack of determination of need for continuous therapy in many outdoor patients . chronic use of PPI increases financial burden, various minerals and vitamin deficiencies<sup>6</sup>

Regarding mechanism of action of PPI on inhibition of the H<sup>+</sup>/K<sup>+</sup> ATPase enzyme in gastric mucosal parietal cells, which is responsible for hydrogen ion secretion in exchange for potassium ions in the gastric lumen<sup>7</sup>

Proton pump inhibitors (PPIs) were identified recently as an independent risk factor for osteoporotic fracture.<sup>8</sup> The possible mechanism is effect of high pH due to PPI use, which reduces absorption of calcium and vitamin B12, resulting in decreased bone mineral density.<sup>9</sup>

While there is conflicting evidence with regard to the role of intragastric hydrochloric acid in calcium absorption, and PPIs are known to inhibit this mechanism, one study found that gastric acid secretion and gastric acidity do not normally play a role in the absorption of dietary calcium<sup>10</sup>

Newer research offers conflicting data, implying that study subjects who had been on PPI therapy may be at a higher risk of osteoporotic fracture compared with an individual at average risk, yet the researcher concluded that PPI use was not associated with a change in bone mineral density<sup>11</sup>

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Literature shown multiple observational, case-control and cohort studies have shown a remarkable increase in fractures with chronic PPI use but Other studies have, however, failed to substantiate this association.<sup>12</sup>

Many of these studies, however, had important limitations, including retrospective design, inability to control for important potential confounders, small sample size, heterogeneous population at risk (older than 18 years of age vs. post-menopausal females vs. males), retrospective outcome (fracture) ascertainment and limited information on PPI exposure<sup>13</sup>

Duration of use of PPI is controversial like in some studies  $\geq 5$  years can increase the risk of osteoporotic fractures by 1.62 or more than  $\geq 7$  years increases the risk of osteoporotic hip fractures by 4.55-fold . PPI use for 6-12 months has been reported to be associated with an increased risk of osteoporotic hip and spine fractures<sup>14</sup>

The rationale of this study is to see the negative impact of chronic use of PPI over serum calcium and vitamin d in young individuals in Hyderabad sindh.

## MATERIALS AND METHODS

The cross-sectional, observational study was conducted at the sadder Hyderabad sindh from June to December 2016

The sample size was based on convenience sampling, 50 patients were selected from different clinics of sadder Hyderabad, which was a biggest area of consultants of province and cover all patient seeking advise from whole province

Inclusion criteria; Young individuals 20-30 years  
Taking proton pump inhibitors since 6 months

Exclusion criteria

Known endocrnopathies like hypo or hyperparathyroidism

Co morbidities like cardiac, renal or inflammatory bowel diseases

Patients already had complicated peptic ulcer disease  
Patients were young subjects mean age was  $22.4 \pm 5.4$  years and Mean duration of PPI was  $3.4 \pm 2.1$  months. All type s and all forms of proton pump inhibitors were included like omeprazole, lansoprazole and esomeprazole. The dose was 20-40 mg once or two times. BMI was  $22.1 \pm 3.8$ .

Patients base line characteristics were noted along with serum calcium and vitamin d were also done. Patients then advised to stop PPI for 1 month.

Serum levels of calcium and vitamin d were again noted after one month . Statical soft ware was SPSS 16 Student paired t test was used to calculate p value before and after PPI use. P value was considered  $<0.05$  significant.

## RESULTS

50 patients were enrolled in this study male to female ratio was 1:1.1. Base line characteristics noted shown in table 1.

After PPI abstinence the serum levels of calcium and vitamin d shown in table 2

P value was in significant for calcium  $<0.08$  and vitamin d  $<0.09$ .

**Table No.1: Base line characteristics at time of inclusion in study**

Variables	Results	Percentage
Male	24	48
Female	26	52
Duration of PPI	$3.5 \pm 1.7$ months	
BMI	$22.1 \pm 2.6$	
Serum calcium	$9.1 \pm 1.1$	
Vitamin D	$20 \pm 3.7$	

**Table No.2: Characteristics at stop on PPI 4 weeks**

Variables	Results	P value
Male	24	
Female	26	
Serum calcium	$8.9 \pm 1.2$	0.08
vitamin d	$20 \pm 2.8$	0.09

## DISCUSSION

This study was conducted in general population attending consultants clinics at sadder Hyderabad for different reasons . All included patients were young without any co morbidity. 50 subjects were selected , 48% were male and 52% were females. 75% were using PPI without any therapeutic indication .this is match able to Irish study reported that 32% (87 of 272 patients) were taking PPIs with only 37% having a valid indication and Vliel et al, reported that 40% of patients were taking PPIs for unregistered indications.<sup>15</sup> In our study all subjects were selected young and there was no risk of fracture by reducing calcium air vitamin D , the risk of fractures increased in eder subjects with PPI use as shown by Elaine W. Yu,<sup>16</sup>of long term PPI use with modestly increased risk of non-spine fracture was found in elderly people with low calcium intake Proton pump inhibitors did not impact on calcium and vitamin D as shown in our study where the p value was 0.08 calculated for calcium before and after PPI use and p value 0.09 calculated for serum vitamin d . Our results are supported to a study which showed that it remains uncertain whether PPI-associated hypochlorhydria truly decreases calcium absorption.<sup>17</sup>

One study shown PPI use for less than 6 years not associated with any risk of fracture.<sup>18</sup>

Wright Mj etal<sup>19</sup> done a study over serum calcium and urinary calcium excretion and did not show any difference in absorption or excretion with or without PPI use.

Sharara AI<sup>1</sup> et al<sup>20</sup> made two groups one on PPI and second without PPI of total of 58 participants. Mean age of participants was  $33.2 \pm 7.5$  years. Baseline characteristics and biomarkers were similar for both groups except for higher BMI (28.6 vs. 25.6 kg/m, in

the PPI group. There was no difference in parathormone (PTH), ionized calcium, vitamin D between the PPI and control subjects. Multiple linear regression modeling showed no effect of PPIs on any of the studied calcium or bone metabolism biomarkers. This study is matched with our study in which we didn't see any significant difference in single group with and without PPI on calcium and vitamin d.

According to a study on the impact of short-term (2-week) administration of omeprazole for the osteoclastic H<sup>+</sup>-pump in children, none of the levels among urinary calcium excretion, serum total alkaline phosphatase activity, collagen type 1 cross-linked C-telopeptide, osteocalcin were altered in any age or gender group<sup>21</sup>

## CONCLUSION

Proton pump inhibitors are not impairing bone metabolism in chronic use in young individuals. PPI are quite safe if continue less than 6 years.

This conclusion is made as Canadian Association of Gastroenterology found no persuasive evidence that the association or change calcium in prescribing PPI therapy due to concerns about the risk of hip fractures<sup>22</sup>.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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## the Treatment of Non Community Acquire Pneumonia

Muhammad Nadeem Chohan, Salma Shaikh and Shazia Memon

## ABSTRACT

**Objectives:** To assess the efficacy of oral Amoxicillin in the treatment of Non-severe community acquired pneumonia in children 2-59 months of age, attending the Pediatric Emergency Department LUMHS, Hyderabad.

**Study Design:** Descriptive / Cross-Sectional Study.

**Place and Duration of Study:** This study was conducted at the Department of Pediatric Emergency LUMHS, Hyderabad, from November 2015 to May 2016.

**Materials and Methods:** A total of 80 children aged 2-59 months with signs of both fast breathing and chest in drawing were classified as pneumonia. Oxygen saturation and chest X ray were done in all cases. Treatment with Oral Amoxicillin 90mg/kg/day for 5 days was given and response to treatment was assessed on 3rd day of admission. Children who did not improve on 3rd day of admission were declared treatment failure and switched to 2nd line treatment.

**Results:** In this study overall 78.7% children improved with Oral Amoxicillin 90mg/kg/day BD for 5 days, while 16.3% children had treatment failure on Oral Amoxicillin. Treatment failure was most commonly seen in children with oxygen saturation <95% on admission. 5% children defaulted due to parents concerns.

**Conclusion:** Oral Amoxicillin is effective in 78.7 % children presenting with fast breathing and chest in drawing. Dissemination and Implementation of these findings will provide cost effective treatment and reduce burden on both government and private sector by reducing rates of admissions and prescription of costly antibiotics.

**Key Words:** Community acquired Pneumonia, Abnormal Chest X-ray.

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## INTRODUCTION

Pneumonia in children is the leading cause of mortality aged less than 5 years; death caused by it is about 2.1 million per year in children less than 5 years old. In Pakistan every year 71,000 children die due to pneumonia.<sup>1</sup>

Most cases occur in India (43 million), China (21 million) and Pakistan (10 million). Of all community cases, 7-13% requires hospitalization due to its severity.<sup>2</sup>

According to WHO Pneumonia in children presenting with cough and difficulty are classified as Pneumonia if they have fast breathing and/or chest in drawing. In children from 2-12 months, if the respiratory rate is above 50, than it is fast breathing, while in children 1-5 years old, respiratory rate above 40 is counted as fast breathing. According to severity there are two classifications of pneumonia; one is "pneumonia" with

fast breathing and/or chest indrawing and other is "severe pneumonia", pneumonia with any general danger sign.<sup>3</sup>

Most common causes of Bacterial Pneumonia in children 2months to 5 yrs are Pneumococci H Influenza, Staphylococcus and Streptococcus while Atypical Pneumonia are also common caused by Chlamydia and Mycoplasma

For the conformation of Bacterial Pneumonia Chest X ray is useful while, laboratory markers like, C-reactive protein, white blood cell count, have limited use in the diagnosis of bacterial pneumonia.<sup>5</sup>

WHO has defined diagnostic criteria for the detection of radiological abnormalities in Chest X-rays. It has 4 categories 1. Significant Pathology, 2. End Point Consolidation, 3. Non end point infiltrates, 4. Pleural Effusion<sup>17</sup>.

Oral administration of antibiotics is preferred for bacterial pneumonia. In severe Pneumonia Injectable Antibiotics are given because oral intake is not good in these children. For suspected Pneumococcal infections Oral Amoxicillin is given because its response is better against this bug, and this bug is common cause of Pneumonia in children less than 5 years old.

This study is done to see the efficacy of Oral Amoxicillin for the Treatment of Non Severe Community acquired Bacterial Pneumonia; hence it can be applied at the community level. By doing this we can prevent the injudicious use of 2nd line Injectable

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Antibiotics and can prevent the emerging resistant of bacteria.

## MATERIALS AND METHODS

It was descriptive cross sectional study, carried out at the Department of Pediatrics, Liaquat University of Medical and Health Sciences Hyderabad on 80 patients of Pneumonia from November 2015 to May 2016. Permission was taken from institutional Ethical Committee and informed consent was taken from the parents of Children.

80 patients were dealt by non-probability, purposive technique. Data was entered and analyzed in SPSS version 22.0. Mean and standard deviation was calculated for numerical variables like age. Frequency and percentage was calculated for Outcome.

**Inclusion Criteria:** Children of either gender aged 2 months to 59 months who presented with Cough, Fever and difficulty in breathing with signs of both with fast breathing and Sub costal Recessions were included in the study.

**Exclusion Criteria:** Children having the sign of upper respiratory tract infections (Runny nose, red eyes, ear discharge and sneezing), were excluded from the study. Children having Cyanosis, Seizures, and Unable to feed or vomiting everything were also excluded from the study. Children with oxygen saturation less than 90% on admission

After detailed Physical Examination, Chest X ray was taken at the time of arrival. After that Children were admitted in Pediatric ward for the administration of Oral Amoxicillin (90mg/kg/day, BID), to confirm the compliance and to see the response of treatment.

Children were examined every 24 hourly for the presence of fever, fast breathing, chest in drawing and development of general danger signs. Those who were afebrile and having no fast breathing or chest indrawing on 3<sup>rd</sup> day of admission were discharged on Oral Amoxicillin to complete the 5 days of antibiotics at home and reassessed at Out Door Department. Those who continued to have fast breathing or chest in drawing on 3<sup>rd</sup> day of oral antibiotics were switched to Inj Ceftriaxone as a Second Line Antibiotics. Those who left the hospital before the 3<sup>rd</sup> day of admission or who insisted for early Injectable antibiotics were considered as defaulters.

**Operational Definitions:**

**Fast Breathing:** Age 2 – 12 months (Respiratory Rate 50 or above per minute), Age > 12 – 59 months (Respiratory Rate 40 or above per minute)

**Significant Xray Pathology:** Presence of consolidation, infiltration or effusion,

**End point consolidation:** A dense or fluffy opacity that occupies a portion or whole of a lobe or of the entire lung, that may or may contain air bronchograms,

**Non end point infiltrate:** Linear and patchy infiltrate in a lacy pattern involving both lungs, **Pleural effusion:**

presence of fluid in lateral pleural space between lung and chest wall, this will be seen at the costophrenic angle or as a layer of fluid adjacent to lateral chest wall. **Non end point infiltrate:**

**Outcomes:** 1) Improved: No fever and no fast breathing or chest in drawing on 3<sup>rd</sup> day of admission, 2) **Treatment Failure:** Fast breathing or chest indrawing persisting at 3<sup>rd</sup> day of admission, 3) **Defaulters:** Insisted to start injectable 2<sup>nd</sup> line antibiotics within 3 days of admission or who left the hospital before 3<sup>rd</sup> day of admission.

## RESULTS

There were total 80 children, 73.8% children were between 2-12 months old age group, while 26.2% children were among >12-59 months old age group. 62.7% children were male and 37.3% children were female among 2-12 months old age group, while 71.4% were male and 28.6% were female among >2-59 months old age group. Treatment failure was 15.3% among 2-12 months old age group, while 19% among >2-59 months old age group. Chest X ray was abnormal in 76.3% cases and treatment failure was present in 19.7% children.

In this study overall 78.7% children improved with Oral Amoxicillin 90mg/kg/day BD for 5 days, while 16.3% children had treatment failure on Oral Amoxicillin. 5% children were defaulted due to parents concerns.

**Table No.1: Age Group and Gender N=80**

Age Group	Male	Female	Total (%)	Treatment Failure	Mean (SD)	P Value
2 m-12m	37 (62.7%)	22 (37.3%)	59 (73.8%)	9 (15.3%)	6.525 (3.213)	<0.01
>12 - 59m	15 (71.4%)	6 (28.6%)	21 (26.2%)	4 (19.1%)	26.761 (9.894)	

**Table No.2: Radiological Findings**

Radiological Findings	Frequency	Treatment Failure	Mean (SD)	P Value
Abnormal Chest X Ray	61 (76.3%)	12 (19.7%)	0.3250 (0.4713)	<0.01
Significant Pathology	10	2 (20%)		
End Point Consolidation	0	0		
Non end point infiltrate	66	11 (16.6%)		
Pleural Effusion	0	0		

**Table No.3: Oxygen Saturation**

Oxygen Saturation	Frequency (%)	Treatment Failure
<90	0	0
90-95	44 (57.8)	11 (25%)
>95	32 (42.1)	2 (6.25%)

**Table No.4 :Outcome**

Outcome	Frequency	%	P Value
Improved	63	78.7	<0.002
Improved within 24 hours	54	85.7	
Improved between 24-48 hours	8	12.6	
Improved between 49-72 hours	1	1.58	
Treatment Failure	13	16.3	
Treatment failure having fast breathing	1	7.69	
Treatment failure having sub costal recessions	1	7.69	
Treatment Failure having both fast breathing and subcostal recessions	11	84.6	
Defaulted	4	5	

## DISCUSSION

Though amoxicillin efficacy was documented clearly before recommendations were revised by experts for pneumonia in IMNCI, but studies in many countries have shown that almost half of physicians in hospitals prescribe inappropriate antibiotics and behavior change interventions are required to improve prescribing habits. One of the effective methods is to have a defined antibiotic policy in hospitals which has shown to improve such practices<sup>18</sup>. Pediatricians prescribing behaviors have documented in studies to be influenced by parental expectations which may be one of the reasons for inappropriate prescribing<sup>19</sup>.

There should be rational use of antibiotics to reduce pneumonia-related mortality. WHO report shows that if we treat pneumonia properly with appropriate antibiotics, then we can save about 6 lac children from death each year<sup>7</sup>. There should be early diagnosis, proper antibiotics choice and monitoring in case of pneumonia management. Standard recommendations should be followed for desired results and continued periodical local efficacy studies are required to maintain confidence of practitioners. It is imperative that study results and standard protocols are disseminated to all prescribers in public and private to set up a common policy in all sectors for prevention of resistance in commonly used antibiotics.

General Practitioners are using antibiotics for viral upper respiratory tract infections, but there is no use of it. In the primary care Settings broad spectrum antibiotics are prescribed without any justification<sup>8</sup>. Most of the times parents don't complete the full course of the antibiotics and stop taking antibiotics once symptoms subside, this causes the emergence of resistant bacteria's in the community.

15-40% Childhood Pneumonia is caused by viruses that should not be treated with antibiotics<sup>9</sup>.

A study done in 2011 to see the different antibiotic use for pediatric infections including Pneumonia, it showed that Cefixime was prescribed to 10% children, Amoxicillin was prescribed to 10.7% children and Ciprofloxacin was prescribed to 4% children. Interestingly combination of multiple antibiotics were prescribed to 30%<sup>10</sup>

This study is done according to new classification of Pneumonia designed by WHO, in 2012. According to that there are 2 classifications of Pneumonia that is Pneumonia (Fast breathing and, or Sub costal Recessions) and Severe Pneumonia (Pneumonia with any general danger sign). The important thing in this study is that we chose children having Pneumonia, but having both fast breathing and Subcostal Recessions.

A similar study like our study was done in Pakistan in 2002. It was randomized controlled trial. A total of 725 children aged 2-59 months were treated with Oral Amoxicillin 50 mg/kg/day BD for 5 days for non-severe Pneumonia. Treatment failure was 16.1%, and it was more likely in infants who were ill for more than 3 days before treatment<sup>11</sup>. In our study we treated with Oral Amoxicillin 90mg/kg/day for 5 days, treatment failure rate was 16.3%.

Another randomized study was done in Pakistan in 2008. Oral Amoxicillin 90mg/kg/day BD was given to 1025 children for 5 days, for Pneumonia to children aged 2-59 months old. Treatment failure was 7.5%<sup>12</sup>. This treatment failure was much less as compared to our study (16.3%), this might be due to selection criteria of children, because in 2008 there was old WHO classification of Pneumonia that was only children with fast breathing were defined as Pneumonia, while we took children according to New classification that is having fast breathing as well as subcostal recessions.

A cluster randomized controlled trial was done in Matyari district of rural Sindh, Pakistan from 2008-2010. Oral Amoxicillin 90mg/kg/day BD for 5 days was given to children aged 2-59 months old for Pneumonia. Treatment failure was 8%<sup>13</sup>

Different studies done in India showed the similar results. A randomized controlled trial was done in India in 2015 in children, aged 3-59 months having Pneumonia. Total 1118 children were treated with Oral Amoxicillin, out of them 554 were treated in hospital and 564 were treated at home. Treatment failure rate was 11.5%<sup>14</sup>. A controlled clinical trial was done in India in children aged below 5 years of age, for the treatment of community acquired pneumonia. Total 2208 children were treated with Oral Amoxicillin and treatment failure was 13%<sup>15</sup>. In contrast to our study more common age of treatment failure was 3-11 months, while in our study it was >12 -59 months.

A similar study was done in different countries all over the world. A randomized multi-center study was done at tertiary care hospitals of eight different countries. All



8 were developing countries. 857 children aged 3-59 months with Pneumonia were treated with Oral Amoxicillin for 5 days. Treatment failure was 19%<sup>16</sup>. Treatment failure was equal in both groups, that is Treatment with Oral Amoxicillin and Injectable Ampicillin, while in our study we treated children only with Oral Amoxicillin.

## CONCLUSION

This study has a unique characteristic because it was done only in children having non severe pneumonia, but manifesting with both fast breathing and Chest indrawing. Treatment success in nearly 80% with oral Amoxicillin shows implementation of such cost effective policies can reduce mortality from pneumonia in primary health care.. Children having Bacterial Pneumonia with abnormal Chest Xray have no significant correlation with treatment failure. Children with Oxygen saturation < 95% were at high risk of treatment failure

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Outcome of Trial of Labour After Previous Single Caesarean Section

Shahana Yasmeen, Amna Faiz and Rabia Asif

## ABSTRACT

**Objectives:** The aim of this study was to determine the frequency of successful trial of labour after previous cesarean section.

**Study Design:** Descriptive study

**Place and Duration of Study:** This study was conducted at the Obstetrics and Gynecological Units 1, Nishtar Hospital, Multan from July 1 to December 31, 2016.

**Materials and Methods:** One hundred and ninety five patients who have a trial of labour after a C section were included. Data entered and was analyzed from the SPSS 17 version.

**Results:** One hundred and ninety-five patients were included. The baseline characteristics of these patients were as follows: 105 (54%) were mostly in the age group between 25 and 29 years of age. 52 (27%) casers were in age groups between 20-24 years and 38 (19%) patients in the age group between 30-33 years of age. The average age was  $25.75 \pm 2.80$  years. The average gestational age was  $38.15 \pm 0.70$  weeks. The 78 (40%) cases were in gestational age 38 weeks. 76 (39%) of patients were with 39 weeks of gestation. 42 (22%) patients were gestational age 37 weeks. The success of trial of labour showed in Table 3. 154 (79%) patients have a successful trial. Most of the patients 138(71%) had natural vaginal delivery, 41(21%) with delivery by C section.

**Conclusion:** This study shows that patients who were undergone by of labour after previous C section is safe due to non-relapse and have a success rate of 78%, which is encouraging. Therefore, it is said that vaginal delivery after cesarean delivery should be given to the selected patients as much as possible in the hospital with 24-hour facility to run the theater and blood transfusion services.

**Key Words:** Trial labor; vaginal delivery; cesarean section uterine rupture.

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## INTRODUCTION

The trial of labour on behalf of one of the most important and challenging obstetric practice.<sup>1</sup> A The trial of labour in patients with prior C section is a rational option if the patients are vigilantly chosen & monitored.<sup>2</sup> Many years of US dominance Practice is followed by Cragin, the famous saying: "A caesarean section, always caesarean section was first presented in that era of 1916.<sup>3</sup> The main caesarean section was carried out by classical longitudinal incision, prolonged, from the lower uterine fundus region. The classical caesarean section incision began to fall after the low transverse uterine incision in the mid-1920s by Kerr pioneered.

Fortunately, the risk of uterine rupture at low transverse caesarean section after delivery is about 10 times lower than that of post-classical caesarean delivery. Cesarean section is one of the mostly frequent surgical

interventions to keep the save of lives of mothers and newborns.<sup>4,5</sup>

Cesarean section rate has augmented radically in the world in the past three decades.<sup>6</sup> Although the total increase in cesarean section, still high perinatal mortality in the world.<sup>7</sup> Studies have shown that 30-80% of women have a low section of cesarean can achieve vaginal delivery when the scar tested is done.<sup>8</sup> provided scar and subsequent vaginal delivery can help to reduce cesarean delivery rates. However, the risk of uterine rupture and scar, trial of labour failure related to other diseases is still the main problem that many practitioners facing in their practices.<sup>9</sup> labor trials should be based on the correct selection of hospitals for patients to provide 24 hours of facilities for the operation theater and transfusion services.<sup>10</sup> The aim of this study was to determine the frequency of successful trial of labour after previous cesarean section.

## MATERIALS AND METHODS

This was descriptive case study that was carried out at obstetrics and gynecological units 1, Nishtar Hospital, Multan, from July 1 to December 31, 2016. One hundred and ninety five patients who have a trial of labour after a C section were included with a 95% confidence level, 6.5% of the errors and the expected percentage of vaginal deliveries as well as 75% of

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pregnant women who had a trial of labor had a cesarean section calculated. Using non-probability sampling technique a sample of 195 patients was taken. The inclusion criteria were previous a caesarean section, single person full term pregnancy pregnant women (> 37weeks), vertex presentations and no congenital anomaly Ultrasound examination, enough maternal pelvis size in clinical, labor and cervical dilatation of 2 cm and 1.5 cm of cervical length spontaneous episodes of abnormalities. Exclusion criteria were on ultrasound the placenta previa or intrauterine growth retardation. The informed consent was taken from all hundred and ninety-five pregnant women presenting through emergency and an outpatient department and fulfill the inclusion criteria. Their population profile is recorded in terms of age, pregnancy age and address.

The patient under the trial of the labour there should be a vigilant monitoring by partogram fetal heart rate monitoring with the availability of operating room, anesthesiologist and pediatrician. They are followed by delivery. Labor trial is abandoned if there is failure to progress; fetal distress and scar tenderness failure and repetition of cesarean section are done under this condition.

Data entered and was analyzed from the SPSS 17 version. Quantitative variables such as age and gestational age were presented as Mean±SD. Qualitative variables like the successful trial of labour production, vaginal delivery presented as frequency and percentage.

## RESULTS

One hundred and ninety-five patients were included. The baseline characteristics of these patients were as follows: 105 (54%) were mostly in the age group between 25 and 29 years of age. 52 (27%) cases were in age groups between 20-24 years and 38 (19%) patients in the age group between 30-33 years of age.(Table No 1) The average age was  $25.75 \pm 2.80$  years. The average gestational age was  $38.15 \pm 0.70$  weeks. The 78 (40%) cases were in gestational age 38 weeks. 76 (39%) of patients were with 39 weeks of gestation. 42 (22%) patients were gestational age 37 weeks. (Table No 2) The success of trial of labour showed in (Table No 3). 154 (79%) patients have a successful trial. Table 4 shows the type of delivery. Most of the patients 138(71%) had natural vaginal delivery, 41(21%) with delivery by C section. (Table No 4)

**Table No. 1: Age distribution of patients**

Age	No. of patients	Percentage
20-24	52	27
25-29	105	54
30-33	38	19

**Table No. 2: Incidence based on gestational age**

Gestational age (Weeks)	No. of patients	Percentage
37	42	22
38	78	40
39	76	39

**Table No. 3: Incidence of success of Trial of Labour**

Success of Trial of Labour	No. of patients	Percentage
Yes	154	79
No	41	21

**Table No. 4: Incidence based on Type of delivery**

Type of delivery	No. of patients	Percentage
SVD	138	71
C Section	41	21
Vacuum delivery	10	5
Forceps delivery	3	3

## DISCUSSION

This study shows that the average age of patients is 20-33 years from  $26.73 \pm 2.90$  years. A study showed that women who had undergone elective repetition of cesarean delivery were more likely to have less than 30 years of age.<sup>10</sup> the study showed an average gestational age of  $38.15 \pm 0.76$  weeks compared with other international Research. Forty (23%) patients had a gestational age of 37 weeks. Sixty-first nine (39%) Patients were in the 38 weeks of gestation age group. Sixty-one six (38%) cases were of gestational age 39 weeks. In the study, the average gestational age of delivery was <40 weeks.<sup>11</sup>

Another study reported that gestational age in 37 to 40 weeks gestational vaginal birth after caesarean delivery (VBAC) was 70.21% after less than 37 gestational weeks VBAC was 58.80% with the completed 40 weeks and above VBAC rate was 62.50%. Indicating that VBAC had a slight increase in failures those after 40 weeks.<sup>12,13</sup>

A full-term study was performed by Kamath et al selected neonates at 37, 38, 39, 40 and greater than or equal to 41 gestational weeks for neonatal outcomes. Because of the comparison of gestational age for neonatal outcomes rather than the expected delivery mode of this study, it is impossible to make any conclusions on the impact of gestational age women trying to apply trial of labour.<sup>14</sup> in another study reported by Saeed, labor induced in 14.3% of women and 65.7% of women went to spontaneous labor.<sup>15</sup> The vaginal delivery rate was 67.9%.In 75% delivery achieved by cesarean section delivery and 25% by natural childbirth. The overall cesarean section rate was 32.1%. The most common indications for repeated cesarean section were failed to make progress (44.4%)

fetal distress (27.7%) and failure induction (16.7%). No maternal or fetal death and labour trials was associated with the smallest maternal or fetal disease. The number of cesarean sections before vaginal delivery does not seem to affect the outcome. The success rate in this study (67.9%) was comparable to that of other countries.<sup>16</sup>

In the study by Langdon reported a significant reduction in trial of scar globally due to concern of safety, especially due to uterine rupture. The study reported by Martin, the patient had to receive counseling when the uterine rupture could occur at the beginning of the labor and the planning repeated cesarean section could not be guaranteed of safety. The VBAC drop was considered to be in many countries probably due to previous labor attempts in the trial and not because of the Change in the success rate reduced.

The United States National Health Statistics Center showed that in 1996 VBAC rate reached the largest 28.3%, then rate declined, only 12.7%. A study showed that the chance of successful VBAC was 72-76% .<sup>17</sup> Another study reported by Dunn, maternal satisfaction was more in post-vaginal delivery.<sup>18</sup> The discussion of uterine rupture should therefore should not discourage pregnant women from trying to vagina childbirth. 75% of people who successfully gave birth to vaginal delivery of women with low morbidity means that the overall women plan a vaginal delivery after cesarean section suffer only half of the morbidity of women receiving elective cesarean section.<sup>19</sup>

## CONCLUSION

This study shows that patients who were undergone by of labour after previous C section is safe due to non-relapse and have a success rate of 78%, which is encouraging. Therefore, it is said that vaginal delivery after cesarean delivery should be given to the selected patients as much as possible in the hospital with 24-hour facility to run the theater and blood transfusion services.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Experience of Open Hemorrhoidectomy without Antibiotic Prophylaxis at PUMHS Nawabshah

Gulshan Ali Memon, Habib Ur Rahman Khan Toor and Kashif Ali

## ABSTRACT

**Objectives:** To determine the effect of not using the prophylactic antibiotics in open Milligan & Morgan Hemorrhoidectomy at PUMHS Nawabshah

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was at PUMHS (Peoples University of Medical and Health Sciences Nawabshah) in Surgical Unit 1 from July 2014 to July 2016.

**Materials and Methods:** 200 cases with 3<sup>rd</sup> and 4<sup>th</sup> degree hemorrhoids were selected for this study. Patients having other associated an rectal diseases and systemic co-morbid problems were not selected. Data was recorded for demography. Selected cases were underwent open Milligan & Morgan Hemorrhoidectomy under spinal anesthesia. Post-operative complications like pain, bleeding, acute retention of urine, constipation, anal incontinence and infection was recorded during hospital stay and on weekly follow up upto six weeks. Data was analyzed by using SPSS-24.

**Results:** Among 200 cases 120 were male and 80 are female. Male to Female ratio was 3:2. Mean age was 41 years SD<sup>+</sup>11.4 and a range of (18-80). Mean operating time was 30 minutes. Postoperatively 10% had mild pain, 3% had moderate pain and 1% had severe pain in first 24 to 48 hours. Acute retention of urine was experienced by 8% of the cases post-operatively. Mild bleeding in the form of spotting was found in 13% of the cases while 1% had moderate bleeding that required re-packing. 6% of the cases developed temporary constipation. None of the cases developed incontinence. Post-operatively there was no any local (surgery site infection) or systemic infection was observed in all cases.

**Conclusion:** Surgical site infection remains as a nightmare for most of the surgeons and an injudicious use of prophylactic antibiotics is being practiced in this part of world. This study strongly advocates that open Hemorrhoidectomy can safely performed without any antibiotic prophylaxis.

**Key Words:** hemorrhoids, open Hemorrhoidectomy, antibiotic prophylaxis

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## INTRODUCTION

Anal vascular cushions are believed to have some role in anal continence. Hemorrhoids are defined as the symptomatic enlargement and distal displacement of the normal anal cushions.<sup>1</sup> As many patients do not seek medical advice for their symptoms, It is difficult to assess the true incidence of hemorrhoids accurately but It is estimated that approximately half of the population over 50 years of age have experienced hemorrhoid problems.<sup>2</sup> The principle etiological factor of hemorrhoidal disease is yet to establish despite several years of studies. For an appropriate evaluation and

management of hemorrhoidal diseases, it is essential for a clinician to have clear understanding of this disease as many patients with other anorectal problems are inappropriately attributed to hemorrhoids. The commonest presentation of hemorrhoids, rectal bleeding, may be associated with other diseases like ulcerative colitis, crohn's disease, colorectal carcinoma, angiodysplasia and diverticular disease.<sup>3</sup> To treat symptomatic hemorrhoids various modes of treatment have been introduced including photocoagulation, band ligation, injection sclerotherapy, heat coagulation and hemorrhoidectomy.<sup>4</sup> Surgical hemorrhoidectomy is the gold standard procedure for treating hemorrhoidal disease and is one of the most commonly performed anorectal surgical procedure.<sup>5</sup> For last more than hundred years various surgical procedures had been practiced but Milligan Morgan open hemorrhoidectomy and Ferguson's closed hemorrhoidectomy are the most accepted procedures.<sup>6,7</sup> Common post operative complications of Hemorrhoidectomy are pain, urinary retention, bleeding, anal fissure and anal stenosis. Other less complications include anal incontinence, fistula and

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sepsis. In order to prevent surgical site infections prophylactic use of antibiotics inhibits microbial proliferation. More recently, preoperative and postoperative antibiotics have been studied to determine their effect on post operative complications.<sup>8</sup> According to some studies there is no role of prophylactic antibiotics in open Hemorrhoidectomy.<sup>9</sup> Various studies reflect optimal prophylactic strategies, but still there is a need to focus on factors that might provide insights into ways of reducing the burden of surgical site infections in colorectal surgeries.<sup>10</sup> In order to find a more cost-effective use of antimicrobial prophylaxis in anoorectal surgery strategies should be developed locally.<sup>11</sup> This study was planned to determine the effect of not using antibiotics in open surgical Hemorrhoidectomy in this less privileged part of the country.

## MATERIALS AND METHODS

This is a descriptive study extending from July 2014 to July 2016 comprising 200 patients who underwent open Milligan and Morgan Hemorrhoidectomy at surgical unit 1 of Peoples University of medical and health sciences Nawabshah.

Pre operative demographic data, mode of admission, grade of hemorrhoids, hepatic viral status, co morbid diseases (chronic liver disease, hypertension, diabetes, ischemic heart diseases, COPD and etc) were evaluated. No age or gender discrimination was observed to select cases for Hemorrhoidectomy. Detailed history, clinical examination including digital rectal examination (DRE) and proctoscopy was done to establish the diagnosis and grading of hemorrhoids. Patients with 3<sup>rd</sup> and 4<sup>th</sup> degree hemorrhoids were considered for Hemorrhoidectomy. Those cases having other associated anoorectal diseases like anal fissure, fistulae in ano, per anal abscess, anal stenosis, ano rectal carcinoma, anal incontinence and acute thrombosed piles were not included in this study. Patients with co morbid diseases (chronic liver disease, hypertension, diabetes, ischemic heart diseases, COPD and etc) were also excluded. All patients were investigated for basic routine investigation like complete blood count, blood glucose, urea/creatinie, HBsAg & anti HCV, LFT. Patients above 40 years of age also had chest radiograph and cardiac assessment. Pre-operatively all patients underwent anesthetist assessment. A comprehensive counseling made with the patients and their close relatives and a written consent was taken. All patients were given klean enema a night before surgery. Consultants having the rank of professor, associate professor and assistant professor and senior registrar were the operating surgeons. All patients underwent spinal anesthesia. On the operating table all patients were assumed in lithotomy position and Miligan Morgan open Hemorrhoidectomy was done.

A lubricated ribbon gauze pack was kept at operated site in anal canal for hemostasis for 24 hours. All operated cases were managed in general ward. Postoperatively patients were kept nil per oral for twelve hours and intravenous fluids were given for 24 hours along with intravenous metacolon and ranitidine. Par entral analgesics nalbuhine and NSAID were used for 24 to 48 hours. No antibiotics was given to all patients any time pre and post operatively. Anal pack was removed after 24 hours and first sitz bath in warm water was given for local toilet. Post operative wound pain was assessed on mild, moderate and severe pain scale. Post operative hospital stay was recorded in hours. Retention of urine post op bleeding and abdominal pain was observed and managed.

Almost all patients were discharged in 24 to 48 hours. At discharge from hospital all patients were advised to take sitz baths twice a day, lactulose 30 ml 1 to 2 times a day, tronolane cream for local application and analgesics on demand for two weeks. On their weekly follow up wound pain, bleeding, constipation, diarrhea, surgical site infections were specifically noted and managed at least for 4 to 6 weeks. All patients were encouraged to start their routine daily activities as early as comfortable to them. Statistical package for social sciences (SPSS 24) was used for data analysis.

## RESULTS

200 patients were included in this study that underwent hemorrhoidectomy in surgical unit 1 PUMHS hospital Nawabshah from July 2014 to July 2016. Among those 120 patients were male and 80 were female making a ratio of 3:2. Mean age of the patients was 41 years, SD 11.4 and a range of (18-80).

**Table No.1: Age distribution**

S/no	Age in years	No of patients	Percentage %
1	11-20	6	3%
2	21-30	42	21%
3	31-40	50	25%
4	41-50	74	37%
5	51-60-	22	11.5%
6	61-70	3	1.5%
7	71-80	3	1.5%
<b>Total</b>		<b>200</b>	

Among them 6(3%) patients belong to 2<sup>nd</sup> decade, 42(21%) patients belong to 3<sup>rd</sup> decade, 50(25%) patients belong to 4<sup>th</sup> decade, 74(37%) patients belong to 5<sup>th</sup> decade, 22(11%) patients belong to 6<sup>th</sup> decade, 3(1.5%) patients belong to 7<sup>th</sup> decade and 3(1.5%) patient belong to 8<sup>th</sup> decade. Mean operating time was 30 minutes.

Among 200 cases 20(10%) patients experienced mild post operative pain, 6(3%) patients had moderate post operative pain, 2(1%) patients had severe pain and 172(86%) patients had no pain at all in first 24 to 48

hours after surgery . On weekly follow up 195(97.5%) patients had no pain, 4(2%) patients had mild pain and 1(0.5%) patients had moderate pain and none of them had severe post operative wound site pain at home. 172 patients(86%) had no post operative bleeding, 26 patients(13%) had a few spots on perineal packing while 2 patients(1%) had significant bleeding that required re-packing of the wound in the first 24 to 48 hours after surgery during their hospital stay. Mean hospital stay was 36 hours. 16 patients(8%) developed retention of urine on the day of surgery and 10 of them passed urine by conservative measures while 6 patients needed catheterization. After discharge from hospital none of the patients developed any local or systemic sepsis. 12 patients developed constipation during the course of follow up but they were managed conservatively. No evidence of anal incontinence was observed in any patient in this study.

## DISCUSSION

Hemorrhoid is a common clinical problem. Important manifestations of this disease are bleeding per rectum and something coming out of anus. Diagnosis of hemorrhoidal diseases is purely clinical and no specific investigation is required for confirmation. Detailed history and proctoscopy are considered sufficient for diagnosis of hemorrhoids. Clinical history defines the degrees of the hemorrhoids and proctoscopy confirms the presence of hemorrhoids. 1<sup>st</sup> degree hemorrhoids are usually managed conservatively by changing life style and diet modifications. 2<sup>nd</sup> degree hemorrhoids usually do not require hemorrhoidectomies and managed with less invasive procedures like injection sclerotherapy, rubber band ligation, photo coagulation, thermal coagulation and cryo surgery. 3<sup>rd</sup> and 4<sup>th</sup> degree hemorrhoids require surgical excision and open hemorrhoidectomy is a most commonly used cost effective surgical procedure.<sup>12</sup> The commonest postoperative complications of hemorrhoidectomy are pain, acute urinary retention and bleeding.<sup>13, 14</sup>

This study comprises 200 patients with male to female ratio of 3:2 that is not exactly comparable to national and international data.<sup>15,16</sup> A higher Male preponderance is still compare able to many studies but it might be reflecting the fact men are more likely to seek treatment while females are reluctant to disclose their hemorrhoids problem and r inclined to suffer through in the hope the hemorrhoids disappear. Mean age was 41 years that is comparable to khan MY *et al* and D Almeida *et al* reflecting the impression that hemorrhoids are more common in 4<sup>th</sup> and 5<sup>th</sup> decades.<sup>16,17,18</sup> post operative acute retention was found in 16(8%) patients that is comparable to Warin W(8%). Post operative pain was noted in patients as 10% had mild pain,3% had moderate pain and 1% had sever pain in first 24to 48 hours while on 1<sup>st</sup> follow up visits only 2% had mild pain and 1% had moderate pain that is

comparable to khan MY ET al.<sup>15</sup> In this study no any post operative wound infection was observed in all 200 patients who underwent open Hemorrhoidectomy and not given any antibiotic before and after surgery, this is also parallel to the other national and international studies.<sup>9,16</sup>

## CONCLUSION

Surgical site infection remains as a nightmare for most of the surgeons and an injudicious use of prophylactic antibiotics is being practiced in this part of world. This study strongly advocates that open Hemorrhoidectomy can safely be performed without any antibiotic prophylaxis

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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## Among Patients and Nurses at Nishtar Hospital Multan

Shazia Anjum<sup>1</sup>, Kanwal Javaid<sup>2</sup> and Muhammad Waqas Khan<sup>2</sup>

## ABSTRACT

**Objectives:** To determine knowledge about breast cancer, breast cancer screening practices and risk factors of breast cancer among nurses and patients attending Nishtar Hospital, Multan.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at OPD and Nurses, Indoor of Nishtar Hospital, Multan from July 2016 to November 2016

**Materials and Methods:** Total participants were 253 and the data was collected by Convenient Sampling Method using structured questionnaire which were self-administered.

**Results:** Total participants were 253, out of which 130 were nurses and 123 patients. 105(85%) pt. were married and 86(66.15%) nurses were unmarried. 86(69.9%) pt. and 115(88.5%) nurses had the H/O regular menstruation. 24(19.5%) pt. and 11(8.5%) nurses had positive H/O breast cancer. 33(26.8%) pt. and 13(10%) nurses use contraceptives. 76(67.7%) pt. and 124 (95.4%) nurses had knowledge of breast cancer out of which 43(35%) pt. and 104(80%) nurses have knowledge of signs and symptoms. Audiovisual was commonest source of information for patients 36(29.3%), while 100(76.92%) nurses got to know about it during their training. 42(34.1%) pt. and 112(86.2%) nurses have good knowledge about BSE. 46(35.38%) nurses often perform BSE. 54(43.9%) pt. and 115(88.5%) nurses had knowledge about CBE. 13(14.6%) pt. and 25(19.2%) nurses had CBE done. 10(8.1%) pt. and 21(16.2%) nurses ever had mammography and 101(82.1%) pt. and 115(86.9%) nurses considered it useful. Regarding risk factors of breast cancer, 86(69.9%) pt. and 112(86.2%) nurses considered positive family history, 31(25.2%) pt. and 51(39.2%) nurses considered early menarche and 34(43.3%) pt. and 83(63.8%) nurses considered contraceptives as risk factors for breast cancer.

**Conclusions:** It is concluded that majority of patients do not have adequate knowledge of breast cancer and its screening practices, and have many misconceptions regarding its risk factors. On the contrary, majority of nurses have proper Information of breast cancer, screening practices and its causative factors.

**Key Words:** Breast Cancer, Screening, Nurses, Patients

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## INTRODUCTION

Breast cancer comprises 22.9% of invasive cancers in women and 16% of all female cancers. In Pakistan 90,000 cases of breast cancer cases out of which are almost 40,000 deaths per year<sup>2</sup>. The primary risk factors for breast cancer are female sex, age, lack of childbearing or breastfeeding, higher hormone levels, race, economic status and dietary iodine deficiency. Survival rates in developed countries are very good. However, survival rates in developing countries are much poorer<sup>1</sup>. The most pragmatic solution to early detection lies in breast cancer education of women and use of screening practices by them. In year 2000, 67% of Korean American women had Clinical breast-examination done and 58% had mammography done<sup>3</sup>.

According to another research: In year 2007, 10% of health care professionals in Turkey had had mammography done at least once, rate of getting clinical breast examination done was 24.7% and rate of performing breast self-examination was 24.8%<sup>4</sup>. In 2003, the American Cancer Society recommended annual mammography beginning at age 40 years, annual CBE after the age of 40 years<sup>5</sup>.

The mainstay of breast cancer treatment is surgery when the tumor is localized, followed by chemotherapy, radiotherapy and adjuvant hormonal therapy (when indicated). Depending on the staging and type of the tumor Lumpectomy or Mastectomy can be done<sup>6</sup>. Breast cancer screening is done in an attempt to achieve earlier diagnosis with the assumption that early diagnosis will improve outcomes. Screening must be encouraged by physicians especially after 40<sup>7</sup>.

Sim HL et al in their paper reported their findings by conducting a self-administered questionnaire based survey on 1,000 Asian women. The scores were high for general knowledge and disease progression but poor for risk factors, screening, symptoms and treatment. Hence, it was concluded that knowledge affects

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practice. Public education is required to correct misconceptions and focus on women with poor knowledge<sup>8</sup>.

To determine the level of knowledge regarding breast cancer and to increase awareness about screening practices among a group of eighty women Shradha Ahuja and Nilay Chakrabarti carried out a cross sectional study. Though a major portion of the study population had heard about breast cancer, only a moderate fraction of the women were aware of the importance of the breast cancer screening techniques as a protective factor against the disease<sup>9</sup>.

To investigate breast cancer knowledge, attitudes, and use of breast cancer preventive screening among U.S. Latina and Mexican women Banegas MP et al conducted a cross-sectional study according to which although Mexican women had higher levels of knowledge than US Latinas but U.S. Latinas had significantly increased odds of having ever received a mammogram. Thus, breast cancer screening services should be made easily accessible to women along the US-Mexico border<sup>10</sup>.

Worldwide breast cancer is raising issue both in developed and developing countries. It can be prevented by maintaining healthy life style and use of screening practices. Early diagnosis reduces mortality and various screening practices help in early diagnosis.

## MATERIALS AND METHODS

This cross sectional study conducted in July 2016 to November 2016 among patients attending OPD and nurses of indoor of Nishtar Hospital, Multan included 250 patients attending OPD and nurses of indoor of Nishtar Hospital, Multan.

A pre-tested self-administered questionnaire was the tool for data collection for nurses and interview based questionnaire was used for the patients. Informed consent was obtained from the respondents. All data collected was made anonymous.

The questionnaire focused on basic knowledge and practices of breast cancer screening methods. Basic demographic variables such as age, occupation, educational level, monthly income, marital status, and parity, history of menstruation and smoking and use of contraception were included. The questionnaire contained questions regarding breast screening practices i.e breast self-examination, clinical breast examination, mammography and risk factors for breast cancer.

The data was entered into statistical package for the social sciences (SPSS), analyzed and the frequency and percentages of variables were obtained. A p value of < 0.05 was considered to be statistically significant.

## RESULTS

There were a total of 253 participants, out of which 130 were nurses working in the indoor of Nishtar Hospital,

Multan. and 123 were female patients from all outdoor departments of Nishtar Hospital, Multan. The mean age of nurses was 25.68 years and that of patients was 33.76 years.

The demographic profile of patients and nurses 109(88.6%) patients were house wives and only 3(2.3%) nurses were staff nurses. Majority of patients, 105(85%) were married while majority of nurses, 86(66.15%) were unmarried.

86(69.9%) patients and 115(88.5%) nurses had regular menstruation. The survey found that 24(19.5%) patients and 11(8.5%) nurses had positive breast cancer history. 33(26.8%) patients. 76(61.7%) patients and 124(95.4%) nurses had knowledge of cancer. Out of which, 43(35%) patients and 104(80%) nurses were aware of its sign and symptoms. 80(65%) patients and 54(41.5%) nurses had no knowledge of methods of screening while 76(58.46%) nurses had knowledge of all of the available methods. Audiovisual was the commonest source of information for the patients as told by 36(29.3%) of them while 100(76.92%) nurses read or heard about them during their training and practice.

Regarding BSE, approximately one third 42(34.1%) patients and more than two thirds of nurses 112(86.2%) had a good knowledge of Breast Self-Examination. Out of these, 33(18.7%) patients and 109(83.8%) nurses had an adequate knowledge of procedure of BSE. 97(78.8%) patients never performed BSE while 46(35.8%) nurses often performed it. Only 14 (11.4%) patients and 18 (13.8%) nurses ever noticed any abnormality in breast.

With respect to CBE, 54 (43.9) patients and 115 (88.5) nurses had knowledge of it. While majority of nurses had knowledge of CBE, not even one-third of them 25(19.2%) ever had it and an even lower percentage of patients 18(14.6%) ever had CBE in their life. Out of those who had CBE, only 15(4.1%) patients and 15(11.5%) nurses got it many times while 11(8.94%) patients and 19(14.6%) nurses got it for 1-2 times. The most common reason cited by the patients for not getting CBE done was that they did not feel any need of getting it, given by 103(98.1%) patients. As compared to the patients, majority of nurses who never got CBE done cited the reason of not feeling any change in their breasts 103(98.1%) nurses.

10(8.1%) patients and 21(16.2%) nurses ever had mammography done. Out of which, 8(80%) patients and 14(66.67%) nurses got it done on advice of a doctor. 86(76.1%) patients and 109(94.78%) nurses had not got mammography done ever in their life. The most common reason cited by them was that they felt no need for getting mammography done. Other reasons cited were lack of facility as said by 12 patients and 4 nurses and being never advised by doctor as retailed by 15(13.3) patients and 2(1.47) nurses. More than two-thirds of patients 101(82.1%) and nurses 113(86.9%) believed that mammography is a useful diagnostic

procedure for breast cancer. 27(22%) patients and 52(40%) nurses ever got encouragement by doctor for screening. While 110(89.4%) patients and 120(92.3%) nurses were interested in screening education.

A fair proportion of patients, 86(69.9%), and nurses, 112(86.2%), considered positive family history a risk factor for breast cancer. 38(30.9%) patients and 72(55.4%) nurses also considered late menopause a risk factor while only 31(25.2%) patients and 51(39.2%) nurses considered early menarche to be a risk factor. Less than half patients, 54(43.9%), and more than half nurses, 83(63.8%), think of contraceptive pills as a risk factor. Breast injury was considered a risk factor by approximately two-thirds of patients 84(68.3%) and majority of nurses 117(90%).

Figure 1 shows the comparison of use of breast cancer screening practices among patients and nurses and Figure 2 shows the percentages of knowledge of risk factors of breast cancer among patients and nurses of Nishtar Hospital, Multan.

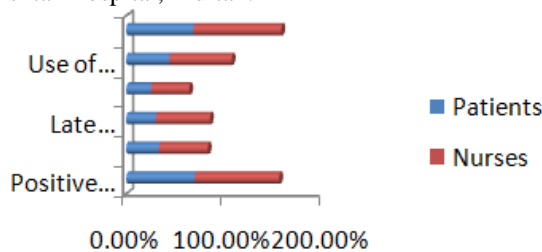


Figure No.1: Knowledge of risk factors among patients and nurses of Nishtar Hospital.



Figure No.2: Comparison of use of various breast cancer screening practices among patients and nurses of Nishtar Hospital.

## DISCUSSION

Lack of awareness about cancer can cause delay the presentation of cancer and also delay its diagnosis. The study is related to the frequency of breast cancer screening practices and the awareness about them among the patients and nurses at Nishtar Hospital, Multan. While According to Bilal maqsood et al study majority of patients had knowledge of breast cancer and different types of screening practices. However, none of the respondents could name more than two risk factors for breast cancer<sup>11</sup>.

According to the study, it was found out that literacy rate was one important factor ruling the amount of awareness among the selected population as a whole, the patients being less knowledgeable than the nurses. Majority of the nursing health professionals did not know about causative factors. Only a minority had knowledge about the screening techniques. A major fraction (about two-thirds of patients) did not know about the screening practices at all. A quantitative cross-sectional interview survey was conducted by Tam Truong Donnelly et al on 1,063 Arabic women. The study revealed higher knowledge of breast cancer among women while there were much lower levels of awareness of breast cancer screening activities. The most common reason for lack of participation was lack of knowledge regarding these activities<sup>12</sup>.

Among nurses, although the statistics were better as compared to the patients, they were still not satisfactory enough as must be among the health professionals. Nurses studying the medical education as part of their field and professional life should be more cognizant about the nursing health issues and the practices in general. They should have extremely clear information regarding the health subjects as they are expected to act as role models and educate public. Similarly it was also observed that lower socioeconomic group had lower scores of knowledge.

As regards the breast cancer screening techniques, the knowledge and use of Breast self-examination among patients was very poor. Nurses were obviously better informed on the subject. Clinical breast examination proves to be an important diagnostic method for early detection and cure of the breast cancer, sadly only a little more than a third of the patients had ever heard of the procedure, many having no idea of its importance. Nurses showed better level of knowledge regarding this. Nabila Kadaoui et al conducted a postal survey among 1400 general practitioners. For women aged 35 to 49 years majority of practitioners reported using practices deemed adequate, except for instructions in breast self-examination and referral for genetic counseling (the percentage of which was much less). For improvement of these practices actions must be taken upon physician's attitudes and skills<sup>13</sup>. The study by Maryam Ahmadian and Asnarul khadi Abu Samah show that behavioral factors like modesty against physical examination of body parts, cultural obstacles like prohibition to talk and lack of communication with the physician, psychosocial elements like faith, false beliefs, and demographic factors like income, education, social support and social class<sup>14</sup>.

Mammography is the only in screening that can detect cancer early and decrease mortality. Nevertheless, only a few among the patients knew about mammography and its usefulness. A Study by Akinloa, Kikelomo et al observed a small percentage had their mammography done in actual and majority of them were unaware about the specificity and sensitivity of the mammography<sup>15</sup>. In order to gather knowledge about mammographic screening practices among Chinese-Australian women, Kwok C et al conducted a descriptive cross-sectional study which revealed that around seventy four percent of these women had a recommendation of mammography twice a year. It was also found out that the women following their checkups and recommendations had a better attitude and a better understanding towards protecting themselves from breast cancer<sup>16</sup>.

The role of physicians was found to be lacking in this regard as most of the women from both study groups were alerted about the breast cancer and the screening practices through the media and the audio and visual awareness campaigns rather than their regular physicians or doctors. Palmer R, Sanson R, and co-workers study showed that physicians of Primary care have a major role in making patients aware of the breast screening techniques available and their opinion holds great value in providing information to people especially women<sup>17</sup>.

There is need of overcoming this mortality rate by increasing awareness among women which is very deficient at present. This lack of knowledge may be because the educational materials are too complex for their understanding or due to a lack of interest and learning on their part. Samina Khokhat et al conducted a study through administration of questionnaire to investigate the knowledge, attitude and preventive practices of women for breast cancer. According to this study although majority had an idea about issue under discussion but only a minority had thorough knowledge about it<sup>17</sup>.

The precaution is better than cure as is always said. There is need to practice caution in this particular situation and that would result in the saving of hundreds of precious lives only if women of our era and our country are made better equipped with knowledge and wakefulness to combat this rising issue.

## CONCLUSION

Women at large should be made aware of the screening techniques like breast self-examination. Clinical breast examination should be made a part of the general physical examination or regular checkups done by physicians as there is a lack of knowledge and inadequate

use of breast cancer screening practices among general public.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Drinking Water Quality Assessment and Related Diseases Burden at Tando Muhammad Khan

Shahab Akhter Kazi<sup>1</sup>, Aneela Atta Ur Rahman<sup>2</sup> and Shahzad Akhter Kazi<sup>1</sup>

## ABSTRACT

**Objectives:** Objective of the study was analyse the drinking water quality of TMK and found related disease load

**Study Design:** A prospective, descriptive study

**Place and Duration of Study:** This study was conducted at District Tando Muhammad Khan from 1<sup>st</sup> January to 31<sup>st</sup> January, 2017.

**Materials and Methods:** Water samples were collected from different water sources of the subject area and properly labelled in plastic bottles wrapped in aluminium foil and brought to water testing and surveillance laboratory packed in ice boxes for a physico- chemical and bacteriological analysis. The following methods shown in table 1 was used for water quality assessment.

**Results:** Results indicates that the water collected from different areas of TMK was not attained the quality parameters suggested by WHO standards for drinking water as the water showed high level of TDS and arsenic level consecutively was found positive in bacteriological examination.

**Conclusions:** It was sum up from study that contaminated water is the foundation of many human health linked issues.

**Key Words:** Diseases, Water Borne Illness, Physico-Chemical Analysis, Bacteriological Examination

**Citation of article:** Kazi SA, Rahman AA, Kazi SA. Drinking Water Quality assessment and Related Diseases Burden at Tando Muhammad Khan. Med Forum 2017;28(4):96-99.

## INTRODUCTION

Tando Muhammad Khan is the district in southern part of Sindh province and this district consists of three talukas with total population approximated is 619,96 as per 2011 figures. The water quality is highly affected by the shortage and multiple water usage and increase of water pollution which made frightening the situation globally as well as in Pakistan. The contaminated water creating many health related issues either directly by drinking or indirectly through using in agriculture yield. Pakistan being most water stressed country facing many water borne illness problems which consecutively let condition towards absolute water scarcity<sup>1</sup>. The ground water is used for drinking and irrigation purpose because the drought stress of surface water in some areas due to increasing population, climatic change, improper operational maintenance and water supply make the system impotent to run at required capacity therefore monitoring program is obligatory to save the resources of fresh water<sup>2,3,4,5</sup>.

Metal pipes and hand pumps has been used 66% in domestic drinking through which the quality of water is unable to maintain due to rusts passage and number of pathogen availability that can cause the 30% of illnesses and 40% of demises. Estimated of 5 millions of children lost their lives by drinking contaminated water followed by diarrhea<sup>6,7,8</sup>. Surprisingly water supplying agencies mainly focusing on the quantity supply of water whereas the water quality is being neglected. The lack of monitoring, surveillance, proper government's arrangements, legal framework for quality drinking water have aggravated the situation and contended to avenue this research study for public awareness.

## MATERIALS AND METHODS

This study was conducted at District Tando Muhammad Khan from 1<sup>st</sup> January to 31<sup>st</sup> January, 2017. Water samples were collected from different water sources of the subject area and properly labelled in plastic bottles wrapped in aluminium foil and brought to water testing and surveillance laboratory packed in ice boxes for a physico- chemical and bacteriological analysis. The following methods shown in table 1 was used for water quality assessment.

## RESULTS

The results reveled in table 2 that physical analysis of water samples shows the water aesthetically acceptable from consumer viewpoint. Color and Turbidity of water

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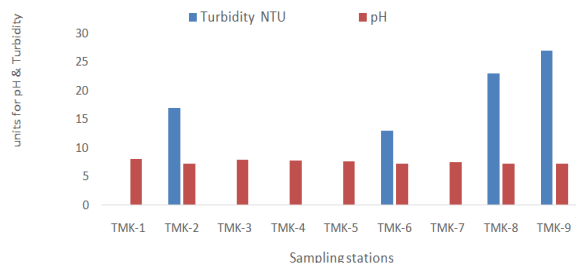
samples (Coded: TMK-2, TMK-6, TMK-8, TMK-9) is within the range 13-27 NTU, odor, color and turbidity of samples coded TMK-1, TMK-3, TMK-4, TMK-5, and TMK-7 are counted in the permissible limits of WHO, moreover the < 5 NTU due to the ground nature and depth of boring. Furthermore pH value was also recorded in standards range. The Electric conductance (EC), Salinity, TDS (Total Dissolved Salts) and Chlorides was above the recommended level for the ground water samples with coding TMK-1, TMK-3, TMK-4, TMK-5, and TMK-7 however the arsenic level of samples coded TMK-1, TMK-3, TMK-4, TMK-5, and TMK-7 was also noted high than WHO suggested limitations, moreover Presumptive coliform count per 100ml water method was used for bacteriological analysis, and water samples (TMK-2, TMK-6, TMK-8, TMK-9) contained unacceptable number of coliform bacteria, whereas no coliform growth was observed in ground water samples due to its saline nature consecutively the TDS values was above WHO set level. The table 3 and figure shows the percentage value of some common water borne diseases like Typhoid Fever, Shigellosis (Basillary Dysentery), Amoebiasis, Acute Poliomyelitis Viral Hepatitis (A & E), and Ascariasis, these diseases were diagnosed and recorded at District hospital administration, district Tando Muhammad Khan (TMK).

**Table No. 1: Water Quality Parameters and Methods used for Analysis**

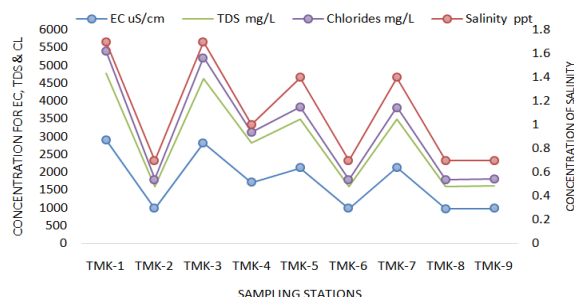
S. No:	Parameters	Test Method
1.	Odor	Smell Sensing organ
2.	Colour	Visual
3.	Turbidity	Turbidity Meter (PCCHECKIT, Germany),
4.	Electrical Conductivity (EC)	Multiparameter Water Quality meter (Model no: sanso-direct con 200) Germany
5.	Salinity,	
6.	Total Dissolved Salts (TDS)	
7.	pH	
8.	Chlorides	Titration method
9.	Arsenic	kit method MERCK the detection range 0.005mg/L to 0.5mg/L
10.	Bacteriological Examination	Presumptive coliform count per 100ml water

**Table No. 2: Physical – Chemical and Bacteriological Analysis**

Physical – Chemical and Bacteriological Analysis	Sample Station	TMK-1	TMK-2	TMK-3	TMK-4	TMK-5	TMK-6	TMK-7	TMK-8	TMK-9	WHO limits
	Source	MP	WS	MP	MP	HP	WS	HP	WS	WS	
Parameter											
Odor		OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
Color		CL	ST	CL	CL	CL	ST	CL	ST	ST	CL
Turbidity NTU		<5	17	<5	<5	<5	13	<5	23	27	5
EC uS/cm		2914	984	2822	1720	2130	983	2133	981	989	---
Salinity ppt		1.7	0.7	1.7	1.0	1.4	0.7	1.4	0.7	0.7	---
TDS mg/L		1864	629	1806	1100	1363	621	1357	625	632	500
pH		8.1	7.2	7.9	7.8	7.7	7.2	7.5	7.2	7.2	6.5-8.5
Chlorides mg/L		321	183	588	298	331	177	327	178	185	250
Arsenic mg/L		0.01	ND	0.01	0.025	0.025	ND	0.01	ND	ND	0.005
Bacteriological Examination		-ve	+ve	-ve	-ve	-ve	+ve	-ve	+ve	+ve	0



**Figure No. 1: pH and Turbidity of water samples of TMK**



**Figure No. 2: EC, TDS, Chloride and Salinity values of water samples of TMK**

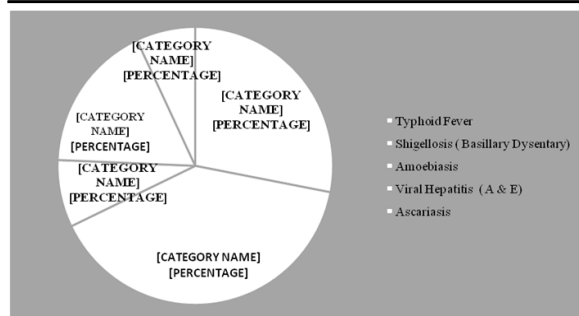


Figure No. 3: Waterborne disease burden at TMK

## DISCUSSION

All of the physical parameters of drinking water in current study was with standard limits indorsed by WHO and NSDWQ WHO guidelines and NSDWQ. Although the Turbidity, pH, conductivity, Salinity, TDS, was found responsible for low appealing quality of drinking water<sup>9,10,11</sup>. The acidic and basic nature of water depends on pH of water hence all samples was found in between 6.5 to 8.5 range commended by WHO (2006), the present results showing harmony with Carr and Neary, (2008)<sup>12</sup>, Memon et.al.(2016)<sup>13</sup>. The pollution by soluble salts denoted the electrical conductance (EC)<sup>14</sup>, and allusion figure by WHO is  $1500\mu\text{S cm}^{-2}$ <sup>15</sup>. The water that has grounds of some natural resources used for treatment like sewage, chemical and industrial wastes increases quantity of inorganic substances known as total dissolved solids (TDS) which make the water unfit for drinking. If available above the  $1000\text{mg/L}$  a WHO limit, the present results show hitherto published data<sup>8,16,17</sup>. The concentration of Arsenic (As) ranged between  $0.01$  to  $0.025\text{mg/L}$  in samples coded TMK-1, TMK-3, TMK-4, TMK-5, and TMK-7 is higher than the permissible limits of WHO, respectively. Bacteriological quality (coliform bacteria) by the MPN technique was detected as the coliform organism ferment lactose, consecutively gas produced after fermentation and acidic reaction occurs (shades of yellow colour). The positive samples showed presence and negative the absence of the coliform group of bacteria. The most probable number (MPN) was determined from the positive tests in a set of three replicates made at three different dilutions.

The data collected from district hospitals show no any proof to document that human health was made worsen from drinking of hard water as it is well known certainty that the hard water is unsuitable for domestic use due to its pH and alkalinity<sup>18</sup>. The people suffered from gallbladder, urinary stones, arthritis, cancer and arthopathies in the areas where drinking water is harder than  $500\text{ mg/L CaCO}_3$ . The higher TDS values also become the cause of persistent diarrhoea<sup>19,20</sup>.

## CONCLUSION

It was concluded from study that water a major source for sustaining wellbeing of human consequently if the water become contaminated with different contaminants like toxins, chemicals and wastes than this vital part of life becomes the slow poison for human life and originated roots of many ailments

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Drug Resistance Patterns of Acinetobacter Baumannii Infection in Intensive Care Unit of a Tertiary Care Hospital of Sindh

Inayatullah Memon<sup>1</sup>, Attaullah Memon<sup>2</sup> and Attiya Memon<sup>1</sup>

## ABSTRACT

**Objectives:** The present study evaluated the drug resistance patterns of Acinetobacter baumannii infection in Intensive care unit of a tertiary care hospital of Sindh.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at Indus Medical College Hospital, Tando Muhammad Khan, Sindh, Pakistan from June 2015 to November 2016.

**Materials and Methods:** Of 521 samples, the A. baumannii were detected in 95 samples. API 20 E kit (Biomérieux, USA) was used for the bacterial identification. Antibiotic susceptibility was checked by the Kirby-Bauer disk diffusion method (Oxoid, UK) and E-test (AB BIODISK, Sweden). E-test was used for the intermediate drug sensitivity or resistance was noted. Data was analyzed on GraphPad Prism software.

**Results:** Of 521 samples inoculated the A. baumannii was isolated from the 95 samples, this yielded a frequency of 18.23%. Drug resistance was noted for the amikacin, minocycline, tazocin, imipenem, meropenem, ceftazidim, cefixime, ceftriaxone and cefepime. A. baumannii showed no resistance for the Colistin.

**Conclusion:** The present study shows drug resistant A. baumannii in intensive care units of a tertiary care hospital. A. baumannii shows drug resistance against the aminoglycosides, tetracycline and cephalosporins.

**Key Words:** Acinetobacter baumannii, Drug resistance, Intensive care units Sindh

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## INTRODUCTION

Acinetobacter baumannii (A. baumannii) is a notorious microorganism known to cause infections in the intensive care units. It is a common cause of nosocomial and community infections. It is a gram negative obligate aerobic bacterium. A. baumannii is catalase positive, non-motile, non-fermenting and peroxidase negative cocco-bacilli. Approximately >30 species are recognized.<sup>1,2</sup> Route of transmission includes the burn and skin wounds, mucosal tears, urinary catheters and intravenous catheters.<sup>2,3</sup> Nosocomial infection by A. baumannii are contracted by fomites, resuscitation devices, infusion pumps, contaminated instruments, etc.<sup>4</sup> Worldwide nosocomial infections by A. baumannii now account for most of the morbidities and mortalities particularly in the intensive care unit settings.<sup>5,6</sup> A. baumannii may cause community acquired infections.<sup>1,5</sup>

A. baumannii may cause bacteremia, septicemia, urinary infections, infective endocarditis, and respiratory infections.<sup>7</sup> A. baumannii is specially geared with methods of virulence, such as the adhesions to mucosa, epithelia, skin colonization, iron chelation, and bio-film formation. Gelatinase and protease enzymes are also produced by the A. baumannii. These methods of virulence are essential for the pathogenicity of A. baumannii.<sup>8</sup> Iron is essential for the growth of A. baumannii similar to many of other microorganisms.<sup>5</sup> A. baumannii is responsible for life threatening serious infections usually ventilator associated pneumonia, skin and soft tissue infections, post surgical meningitis, etc.<sup>9,10</sup> Moreover, A. baumannii has primarily emerged as a nosocomial bacterium. Primary infections occur in the immunocompromised patients in hospital intensive care units (ICUs).<sup>11,12</sup> A. baumannii spread occurs from intensive care units to the medical wards by direct person to person contact of an infected patient, a staff member, a nurse and fomites. Such type bacterial contamination may result in the sequential infection outbreaks, ICU dispersal, endemicity and clonal spread between hospitals and cities.<sup>13,14</sup> The present study was conducted to evaluate the frequency and drug sensitivity and resistance patterns of A. Baumannii infection at our tertiary care hospital of Sindh.

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## MATERIALS AND METHODS

The present cross sectional study was conducted at the Indus Medical College Hospital, Tando Muhammad Khan, Sindh, Pakistan from June 2015 to November 2016. The hospital is equipped with modern facilities of Pathology laboratory. State of the Art facility of intensive care unit and blood testing are matchless. Our hospital caters both indoor and outdoor patients including surgical and medical emergencies. Pathology laboratory has blood sampling facilities and collection of bacterial isolates from ICU patients. The patients proved *A. baumannii* infection after blood culture was included in the study protocol. Samples accepted for the inoculation included the blood, urine, pus, intravenous catheters, urinary catheters, or any other body fluid. The samples were inoculated on the blood culture media. Of 721 samples, the *A. baumannii* were isolated from 95 blood samples. Criteria of Clinical and Laboratory Standards Institute (CLSI) were followed for the sample processing, isolation and identification of microorganism and drug sensitivity. Samples were inoculated on the MacConkey and Blood agar media (Oxoid Ltd., Cambridge, UK) for the bacterial growth. Bacterial isolates were stained with Gram's staining and identified by standard microbiological methods. API 20 E kit (Biomerieux, USA) was used for the purpose of bacterial isolate identification.<sup>15</sup> Bacterial drug sensitivity and resistance was run on the Phoenix BD Automated Microbiology system. MIC (minimum inhibitory concentration) of antibiotics was used on the Phoenix system and included; imipenem, meropenem, ceftazidim, cefixime, cefepime, ceftazidim, piperacillin/tazobactam and amikacin. Antibiotic susceptibility was checked by the Kirby-Bauer disk diffusion method (Oxoid, UK) and E-test (AB BIODISK, Sweden). E-test was used for the intermediate drug sensitivity or resistance was noted. All methods were in accordance to the CLSI criteria.<sup>16</sup> Reference bacterial strains were used to ensure the quality control. Written informed consent of patients or attendants was taken. Prior ethical permission was taken from the institute's research ethics committee. All the data kept in pre structured proforma. Confidentiality of personal data of patients was ensured. Statistical analysis was performed on GraphPad Prism online Software. Continuous and categorical variables were analyzed by the Student's t - test and Chi-square test. Data was analyzed at 95% Confidence interval ( $p \leq 0.05$ ).

## RESULTS

Mean  $\pm$  SD age of study subjects was  $50.5 \pm 13.8$  years. Of 95 subjects, 53 (55.7%) were male and 42 (44.21%) were female ( $p=0.012$ ) (table I). Of 521 samples inoculated the *A. baumannii* was isolated from the 95 samples, this yielded a frequency of 18.23%. MIC concentrations were categorized as

sensitive, intermediate sensitive and resistant for E-test and Disk diffusion technique as shown in table II. *A. baumannii* showed no resistance for the Colistin. Drug resistance was shown for the amikacin, minocycline, tazocin, imipenem, meropenem, ceftazidim, cefixime, ceftriaxone and cefepime. Bar graph 1 shows the drug sensitivity, intermediate sensitivity and resistance patterns.

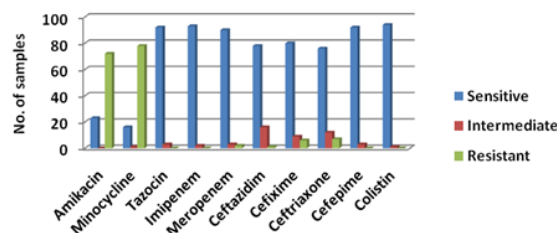
**Table No. I: Demographic characteristics of study subjects (n=95)**

	No.	%
ICU	100	100
Male	53	55.7
Female	42	44.21
Blood	95	100
Sputum	33	34.73
Urine	78	82.10
Catheters	67	70.52
Pleural fluids	09	9.47
Secretions	37	38.94

**Table No. 2: Drug sensitivity patterns of *A. baumannii* by E-test and disk diffusion technique (n=95)**

Antibiotics	Sensitive	Intermediate	Resistant
Amikacin	23(24.2%)	0(0%)	72(75.7%)
Minocycline	16(16.84%)	1(1.05%)	78(82.1%)
Tazocin	92(96.84%)	3(3.15%)	0(0%)
Imipenem	93(97.89%)	2(2.1%)	0(0%)
Meropenem	90(94.73%)	3(3.15%)	2(2.1%)
Ceftazidim	78(82.1%)	16(16.84%)	1(1.05%)
Cefixime	80(84.21%)	9(9.47%)	6(6.31%)
Ceftriaxone	76(80%)	12(12.63%)	7(7.36%)
Cefepime	92(96.84%)	3(3.15%)	0(0%)
Colistin	95(100%)	0(0%)	0(0%)

**Drug sensitivity and resistance patterns**



**Graph No.1: Drug sensitivity and resistance patterns**

## DISCUSSION

*Acinetobacter baumannii* has emerged globally as a target pathogen of critically sick patients in intensive care units.<sup>17</sup> The present study is the first of its design conducted at intensive care unit of Indus Medical College Hospital. We are the first reporting on the frequency and drug susceptibility patterns of *A.*

baumanii in the ICU patients at our tertiary care hospital. Of 521 samples inoculated the *A.baumannii* was isolated from the 95 samples, this yielded a frequency of 18.23%. *A.baumannii* showed no resistance for the Colistin. Drug resistance was noted for the amikacin, minocycline, tazocin, imipenem, meropenem, ceftazidim, cefixime, ceftriaxone and cefepime. The findings are in agreement with previous studies.<sup>17,18</sup> The frequency of 18.23% is comparable finding to a previous report of 16% per patient-year.<sup>19</sup> However, the true frequency and prevalence of *A. baumannii* is not known in Pakistan. The findings of present study are in consistent with previous reports.<sup>20,21</sup> Previous studies<sup>17,22,23</sup> have reported *A baumannii* bacteremia in 82.2% and 15.8% in children in intensive care unit. These findings are in keeping with the present study. The meropenem and imipenem resistance was found in 2.1% which is in agreement with previous studies,<sup>24,25</sup> they reported the *A. baumannii* have acquired carbapenems resistance. The findings are in support to the present study. Drug resistance was observed against the amikacin and Cephalosporins in present study which is in agreement with previous studies.<sup>24-26</sup> A recent study<sup>26</sup> showed grave observations on the resistance patterns of *A.baumannii*. This previous study<sup>26</sup> showed severe drug resistance against the imipenem, meropenem, cefepime and gentamicin. In present study *A. baumannii* showed drug resistance against meropenem but not the imipenem. The drug resistance of *A. baumannii* against imipenem and meropenem of present study is very low and inconsistent to a previous study<sup>27</sup> which reported high drug resistance *A. baumannii* against imipenem and meropenem. The same study<sup>27</sup> reported high drug resistance against ceftazidim, cefepime, amikacin, and tazocin. The finding of cephalosporin and amikacin of present study is in agreement with above study. A previous study<sup>28</sup> reported 100% susceptibility of *A. baumannii* to imipenem; the finding is consistent to present study (table II). They reported approximately 69% drug resistance for the ceftazidim and gentamicin<sup>28</sup> which is low compared to the present study. In the present study, the *A.baumannii* susceptible to imipenem, amikacin and ceftazidim were noted in was noted as 24%, 82% and 97% respectively. This shows high drug resistance against the aminoglycosides and Cephalosporins. Another previous study<sup>29</sup> noted 38.3% imipenem drug resistance which is very high and inconsistent to present study. A recent study<sup>30</sup> has reported high drug resistant strains of *A.baumannii* against the aminoglycosides and cephalosporins, the findings of present study are in support with above report. However, they<sup>30</sup> reported *A. baumannii* strain exhibited approximately 70% resistance against imipenem and meropenem, this finding is in contrast to present study. However, it is worth to report that the present study has reported on

very important health problem of drug resistant *A. baumannii* which needs to be visited from time to time as new drug resistant strains always emerge suddenly, this increases the mortality rates in the intensive care units. In conclusion, drug resistant *A. baumannii* infections are noted in intensive care units and emergence of multi drug resistance and extensively drug resistant strains is a major risk for patients. A restrictive use of antimicrobials is recommended with prior culture and sensitivity testing to prevent further drug resistance.

## CONCLUSION

The present study shows drug resistant *A. baumannii* in intensive care units of a tertiary care hospital. *A. baumannii* shows drug resistance against the aminoglycosides, tetracyclines and cephalosporins. *A. baumannii* needs further studies for drug susceptibility patterns to estimate the magnitude of problem. Antibiotic use should be strictly controlled and drugs be prescribed only after culture and sensitivity results are available

**Conflict of Interest :** The study has no conflict of interest to declare by any author.

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# Awareness of Sterilization at Dental Clinics in two Cities of Pakistan

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## ABSTRACT

**Objectives:** To observe sterilization standard in dental clinics of Hyderabad and Karachi.

**Study Design:** Comparative / Observational Study

**Place and Duration of Study:** This study was conducted at Hyderabad and Karachi from Feb 2016 to July 2016.

**Materials and Methods:** In this survey data on sterilization methods was collected from two big cities of Pakistan, (Karachi and Hyderabad), by questionnaire method. Three undergraduate students from Hyderabad and two undergraduate students from Karachi were assigned to personally collect data from practitioners to insure 100% reliability. Different variables of sterilization were compared between cities.

**Results:** Data shows autoclaving without disinfection as the favored method of sterilization; 86% in Karachi as compared to Hyderabad, which shows disinfection prior to autoclaving in 70.2% practitioners. Brushing was the preferred method for mechanical dislodgement of debris in both cities, Karachi 88% and Hyderabad 81%. 13.5% of practitioners of Hyderabad performed sterilization by themselves while in Karachi only 9.3% performed themselves. Preferred autoclaving temperature for both cities was 121°C, Karachi 54.48% and Hyderabad 62.16%. Maintaining sterilization by using pouch during autoclaving was found more extensively in Karachi 100% in contrast to Hyderabad 73%. Neglecting checking of sensitivity of autoclave was found to be in greater odds in Hyderabad 60% than Karachi 37.21%.

**Conclusions:** Steam autoclaving as primary method of sterilization. Importance of checking of autoclave sensitivity was over sighted in both cities but on different scale.

**Key Words:** Sterilization; Survey; Autoclave; Glutaraldehyde.

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## INTRODUCTION

Infection control programs in dental clinics are essential to prevent of infectious transmission among personnel and patients<sup>1</sup>. An infectious microorganism may be transferred from the patient to members of the dental team, but also vice versa<sup>2</sup>. The risk of transmission from an antigen-positive dentist to his patients is probably much smaller, and there is no evidence to restrict his clinical activities<sup>3</sup>. Microbes on dental instruments, from salivary contact can prolong their survival at room temperature<sup>4</sup>. According to Pakistan Medical Research Council HBs

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Ag was positive in 2.5% and anti HCV in 4.9%. Hence, overall positivity for both HBs Ag and HCV is 7.4%. The data indicate that almost 12 million people are positive for these viruses. Dental environment is favorable for transmission of these diseases if proper sterilization is not conducted Analyzed

also strong evidence of transmission of hepatitis B and hepatitis C necessitates maintaining strict sterilization protocol<sup>68</sup>. Steam autoclaving has been regarded as the most efficient method of sterilization in dental territory<sup>910</sup>

In order to prevent transmission of vulnerable microbes and their spores, effective means of sterilization is mandatory. Blood borne diseases like hepatitis B and hepatitis C are dominating in Pakistan, a weighted average of hepatitis B antigen prevalence among healthy adults (blood donors and non-donors) was 2.4% and for hepatitis C antibody was 3.0%(11); due to drug abuse and false surgical and dental practices<sup>68</sup>. There is a strong evidence of relationship in therapeutic injections and prevalence of hepatitis C in Pakistan<sup>12</sup> which suggest use of unsterile injections to illiterate population. In 1999, the World Health Organization (WHO) established the Safe Injection Global Network (SIGN), which advocates a range of interventions for the promotion of injection safety, as well as exhorting

healthcare workers to use a new needle and syringe for every injection<sup>13</sup>. High rates of health care workers are also infected with hepatitis B and C in Pakistan<sup>14</sup>, which further jeopardizes the condition. Most of the patients are coming for simple root canal treatment or extraction of tooth and taking life risking diseases with them as a gift from their consultant. Mechanical dislodgement and sterilization can be distinguished on the basis of function<sup>15</sup>. The task of mechanical dislodgement is to remove all kinds of visible contamination from substrate, which helps in providing accessibility of microbial inactivation methods to substrate surfaces<sup>16</sup>.

Adequate pre-sterilization cleaning is fundamental for sterilization success<sup>17</sup>. Inadequacies in pre sterilization cleaning of dental instruments render instruments to be contaminated and a viable source of cross infection<sup>18</sup>. Sterilization is complete destruction of all living microorganisms (fungi, viruses, bacteria) and their spores<sup>19,20</sup>. Moist heat, dry heat, ethylene oxide gas, hydrogen peroxide gas, plasma and liquid chemicals are the principal sterilizing agents used<sup>21</sup>. When chemicals are used for proper timings they are able to completely eliminate all microorganism and their spores and hence they are chemical sterilants<sup>22</sup>. These same germicides used for shorter exposure periods may also be part of the disinfection process<sup>23</sup>. Disinfection is complete destruction of all living microorganisms without their spores<sup>19,20</sup>. Prior cleaning and disinfection results in better precaution against prion contamination than without these prior protocols for heat sterilization. Sterilization methods also reduce the life of instruments<sup>24</sup>.

The purpose of this survey was to perform a comparative study to assess inter-city and intra-city variations and possible causes of inadequate sterilization as compared to international standardized sterilization guidelines.

## MATERIALS AND METHODS

A rough list of professional was collected from authors of previous surveys. Three students from LUMHS University Jamshoro, one student from Bahria University Karachi and one student from Dow international, were assigned for personally collecting information to insure 100% reliability. The purpose of study was explained to every practitioner; a written consent and testimony was taken at the end of questionnaire form. Variables of sterilization protocols were compiled in following questions:

1. What types of sterilization methods you use in your clinic?
2. Do you personally sterilize instruments or your assistant is assigned for this purpose?
3. Which method you use for mechanical dislodgement of debris from instruments?

4. Which chemical you use for disinfection of instruments?
5. At what temperature your autoclave operates?
6. How often do you check sensitivity of your autoclave?
7. Do you use pouches or directly place instruments in autoclave?

All collected data was parted according to city, categorized according to questions and then manually calculated.

## RESULTS

Questionnaire was distributed and collected by undergraduates from both cities. Total 43 questionnaire forms were collected from Karachi and 37 were collected from Hyderabad. Steam autoclaving was found to be preferred method of sterilization in both cities. Analyzed data shows autoclaving without disinfection as the favored method of sterilization; 86% in Karachi as compared to Hyderabad, which shows

**Table No.1: Results from both cities compared.**

Region	
Karachi	Hyderabad
Total number of surveyed: 43	Total number of surveyed: 37
<b>Methods of sterilization:</b>	
Autoclaving: 86%	Autoclaving: 29.7%
Autoclaving+Disinfection: 14%	Autoclaving+Disinfection: 70.27%
<b>Method of mechanical dislodgement:</b>	
Brushing: 88.37%	Brushing: 81%
Ultrasonic method: 4.65%	Ultrasonic method: 13.5%
None: 7%	None: 5.4%
<b>Who sterilize:</b>	
Dentist: 9.3%	Dentist: 13.5%
Assistant: 69.7%	Assistant: 54%
Both: 20.9%	Both: 32.4%
<b>Disinfectants:</b>	
Formaldehyde: 9.3%	Formaldehyde: 21.62%
Glutaraldehyde: 4.65%	Glutaraldehyde: 16.21%
	Chlorine compound: 21.62%
	Iodophor: 2.7%
	Other: 8.1%
<b>Autoclave temperatures:</b>	
121°C: 53.48%	121°C: 62.16%
125°C: 13.95%	125°C: 2.7%
132°C: 13.95%	132°C: 21.62%
134°C: 13.95%	134°C: 2.7%
138°C: 4.65%	138°C: 10.81%
<b>Use of pouch during sterilization:</b>	
With pouch: 100%	With pouch: 73%
Without pouch: 0%	Without pouch: 27%
<b>Frequency of checking autoclave sensitivity:</b>	
Never: 37.21%	Never: 60%
Once weekly: 23.25%	Once weekly: 19%
Once a month: 20.93%	Once a month: 8%
Every 6 months: 13.95%	Every 6 months: 13%
Once a year: 4.65%	Once a year: 0%

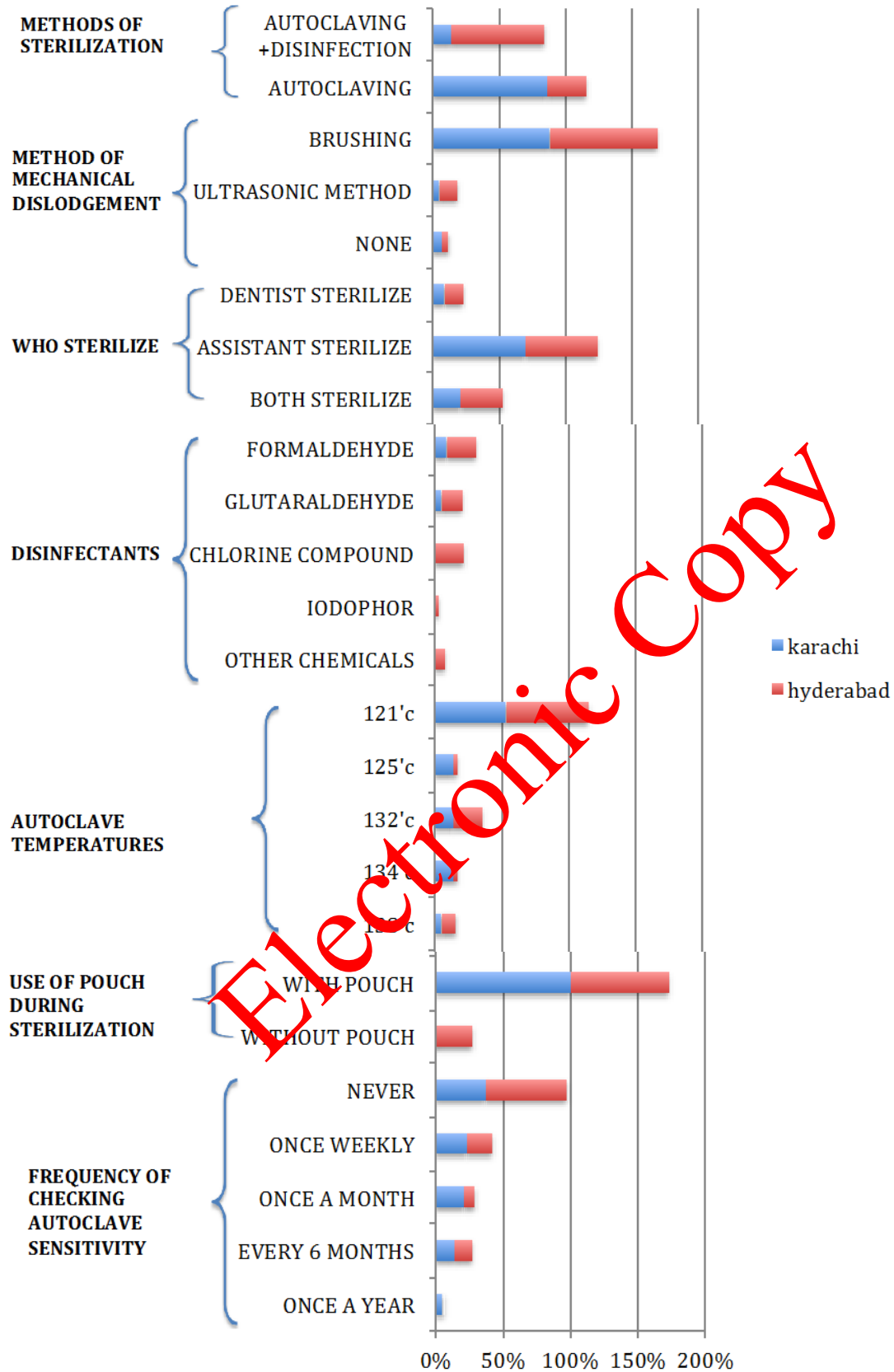


Figure No.1: Results in bar chart form



disinfection prior to autoclaving in 70.2% practitioners. Brushing was the preferred method for mechanical dislodgement of debris in both cities, Karachi 88% and Hyderabad 81%. 13.5% of practitioners of Hyderabad performed sterilization by themselves while in Karachi only 9.3% performed themselves. Wide diversity of disinfectants were found to be used in Hyderabad (formaldehyde, glutaraldehyde, chlorine compound, iodophor) as compared to Karachi (formaldehyde and glutaraldehyde). Preferred autoclaving temperature for both cities was 121°C, Karachi 53.48% and Hyderabad 62.16%. Maintaining sterilization by using pouch during autoclaving was found more extensively in Karachi 100% in contrast to Hyderabad 73%. Neglecting checking of sensitivity of autoclave was found to be in greater odds in Hyderabad 60% than Karachi 37.21%. Differences in sterilization methods between two cities are compared in figure and table.

## DISCUSSION

Karachi and Hyderabad two cities where mostly all patients are diverted from rural areas of Sindh to seek medical and dental health were assessed for intra city and inter city variations in sterilization protocols. Due to low literacy rate in Pakistan patients have no concept of sterilization in most rural areas of Sindh, Pakistan. Government has never crosschecked any private clinics for quality assurance and level of care being provided to patients. Only 200 qualified dentists are working in the rural areas of Pakistan that make up 70% of the country population. thus 30% populations have access to the qualified dentists.. Increased awareness about risks of transmission of infection through blood and saliva on dental instruments led to use of mechanical cleaning of before putting in autoclave. By using different chemical technique. In this study, 86 % sterilization autoclave with chemical sterilization 14% at Karachi compare to Hyderabad 29% and chemical sterilization 72% . which is almost same in previous studies Sofola and Savage 84.1%, Sote 92% and Omolara 79.2%.<sup>25</sup> . The use of chemical disinfectants was 14% in Karachi and Hyderabad 72% in this study, compared to local study in Karachi Pakistan The use of disinfectants was 89.4% Siddiqui et al 2014. in this study mechanical debridement by brushing method in both cities Karachi dental clinics 88% and Hyderabad dental clinics 81% .compare to other studies local and international did not mention about mechanical debridement in articles . although mention in different books. miller M Scully C 2015. In this study who is sterilize the instrument at dental clinic, dental surgeon and assistant in Hyderabad assistant doing more sterilization compare to Karachi. In international its performed by dental assistant. different chemical disinfectant used in both cities. most commonly used Formaldehyde: Glutaraldehyde. autoclave temperatures in both cities according to

international standard .in this study pouch used in sterilization process in Karachi 100% compare in Hyderabad 72% no study were find for pouch sterilization. Survey shows significant negligence frequency checking of autoclave used in dental clinic , as the alarming point to be dental practitioner its properly sterilized instruments.

## CONCLUSION

Survey shows steam autoclaving as primary method of sterilization. Brushing was preferred method of mechanical dislodgement of debris. Formaldehyde and glutaraldehyde were common disinfectants in both cities. Preferred autoclave temperature was 121°C. Use of pouch was neglected in Hyderabad. Importance of checking of autoclave sensitivity was over sighted in both cities but on different scale.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Emergency Obstetrical Hysterectomy; Determinants and Complications at Civil Hospital Bahawalpur

Hafiza Sana Shahzadi<sup>1</sup>, Asma Wazir<sup>1</sup> and Zarnain Khalid<sup>2</sup>

## ABSTRACT

**Objectives:** This study was conducted to determine the frequency of obstetric hysterectomy, morbidity and mortality associated with it.

**Study Design:** Descriptive study

**Place and Duration of Study:** This study was conducted at civil hospital Bahawalpur including the patients attending Gynae emergency, OPD and Indoor of Civil Hospital Bahawalpur from January 2016 to June 2016.

**Materials and Methods:** All emergency obstetric hysterectomies done for primary or secondary PPH were included in the study. Hysterectomies done for early pregnancy complications, like perforated uterus due to induced abortion, were excluded. Data regarding frequency of EOH, maternal age, parity, booking status, indications for hysterectomy, type of hysterectomy done and its complications, was collected by pre-designed Performa containing demographic data, risk factors, indications; complications, and SPSS V.21 used for analysis.

**Results:** Most of the women were in age group 26-30 years of age 11(68.75%), mostly were Multipara 55%. Atonic Uterus 6(37.5%) was the major indication for obstetrical hysterectomy followed by Adherent placenta 3(18.75%), Ruptured Uterus 2(12.5%), Septic Uterus 2(12.5%), and Uterine Inversion 1(6.25%).

Bladder Rapture 5(31.25%) was the major intra or post op complication followed by fever, infection 18.75% and repeat laparotomy 12.5%. DIC complication was 2(12.5%). Mortality was seen in 6.25% cases.

**Conclusions:** The incidence of obstetrical hysterectomy in our area is relatively high and may be due to a large number of cases handed over from rural areas. These patients have risk factors such as high parity, maternity leave and family planning services.

**Key Words:** Obstetric Hysterectomy, Postpartum Hemorrhage, Uterine Contraction

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## INTRODUCTION

Obstetrical hysterectomy is an emergency method for obstetric bleeding that indicates that when the procedure fails to control bleeding.<sup>1</sup> In the long run, this is related with severe blood loss, post-op morbidity and mortality. Loss of fertility may be destructive for patient. Uterine contraction failure (uterine atony), uterine rupture and placental abnormal adhesion are the most common indications for emergency obstetric hysterectomy. Recent studies have shown that placenta attachment on previously scar even in young females is the most common indication.<sup>2</sup>

Peripartum hysterectomy, hysterectomy, that was done at delivery time or immediate postpartum phase is one of the most serious complications of obstetrics, with significant maternal mortality and morbidity.<sup>3-6</sup>

Usually kept for condition where obstetric hemorrhage fail to response conservative treatment. peripartum hysterectomy is linked with severe blood loss, blood transfusion risk of intraoperative complications and significant postoperative morbidity. It is important to estimate the incidence of the perinatal hysterectomy, to obstetric practices, to assess risk and pregnancy complications.<sup>7-9</sup> However, these studies are unable to provide reliable national morbidity estimates because they are carried out in a small sample of a single institution. In addition, their findings may be subject to patient characteristics or hysterectomy in individual institutions of practice mode.

The management of Postpartum Hemorrhagic fails to Response Non-surgical measures then surgical procedures commonly used in the management.<sup>10</sup> Obstetric hysterectomy includes caesarean section and postpartum hysterectomy. The purpose of the initial cesarean section hysterectomy is to reduce bleeding, sepsis and mortality. Sepsis, bleeding and eclampcia are the main cause of death. The first operation was in North America by the by Horatio storer, then by Edvardo parro, pavia, in Italy in 1876 and by Lawson tail in UK.<sup>11</sup> Who suggested that the maternal mortality rate was only 5% compared with 95% caesarean and alone 3% Indications of obstetric hysterectomy

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continue to change over time. Knowledge of this operation and skills in its performance can save many people's lives

Numerous studies have examined the associated risk factors linked with perinatal hysterectomy. Often, these studies reported more than 10 fold higher perinatal hysterectomy for women who had previously delivery by cesarean sections in those who had not<sup>12</sup> found the most worthy of careful study, given that in the United States, cesarean delivery rates rose 10 times higher even at low risk women.<sup>13</sup> However, several studies examined the effects of the current pattern of previous cesarean sections. It is also reported that the risk factors for perinatal hysterectomy are multiple births, 5 of which the rate is also increasing

In Pakistan, due to the lack of health care facilities in rural areas and lack of awareness of family planning is the incidence much higher than the incidence of developed countries.

The aim of this study was to determine the frequency associated with obstetric hysterectomy, morbidity and mortality associated with this it.

**MATERIALS AND METHODS**

This descriptive study was carried out at civil hospital Bahawalpur including the patients attending Gynae emergency, OPD and Indoor of Civil Hospital Bahawalpur from January 2016 to June 2016. All emergency obstetric hysterectomies done for primary or secondary PPH were included in the study. Hysterectomies done for early pregnancy complications, like perforated uterus due to induced abortion, were excluded. Data regarding frequency of EOH, maternal age, parity, booking status, indications for hysterectomy, type of hysterectomy done and its complications, was collected by pre-designed Performa containing demographic data, risk factors, indications; complications, and SPSS V.21 used for analysis.

**RESULTS**

During our research duration, 5675 deliveries and 1489 C-section were performed, out of them 16 (.31%) cases underwent obstetrical hysterectomy.

Distribution by age, parity, indications and complications are presented in Tables 1, 2, 3 and Figure 1. Most of the women were in age group 26-30 years of age 11(68.75%) & mostly were Multipara 55%.Atonic Uterus 6(37.5%) was the major indication for obstetrical hysterectomy followed by Adherent placenta 3(18.75%), Ruptured Uterus 2(12.5%), Septic Uterus 2(12.5%),and Uterine Inversion 1(6.25%).

Bladder Rapture 5(31.25%) was the major intra or post op complication followed by fever, infection 18.75% and repeat laparotomy 12.5%.DIC complication was 2(12.5%).

Mortality was seen in 6.25% cases. All cases were with unbooked status.

**Table No. 1: Distribution of cases of emergency hysterectomy by age**

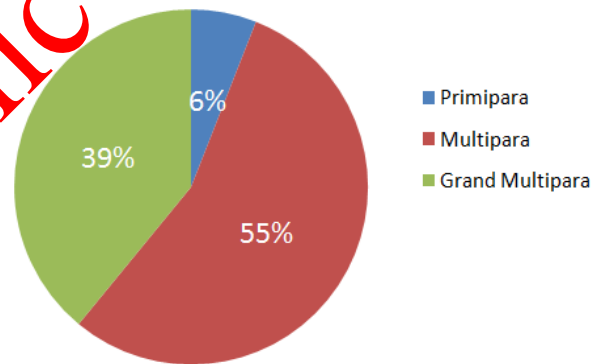
Age (Years)	No.	Percentage
20-25	2	12.5%
26-30	11	68.75%
31-35	2	12.5%
36-40	1	6.25%

**Table No. 2: Indication of emergency obstetrical hysterectomy**

Indication	No.	Percentage
Atonic Uterus	6	37.5%
Adherent placenta	3	18.75%
Ruptured Uterus	2	12.5%
Lacerations	2	12.5%
Septic Uterus	2	12.5%
Uterine Inversion	1	6.25%

**Table No. 3: Intra-operative and Post-operative Complication**

Complications	No.	Percentage
Bladder Rapture	5	31.25%
Fever	3	18.75%
Wound Infection	3	18.75%
Repeat Laparotomy	2	12.5%
DIC	2	12.5%
Mortality	1	6.25%



**Figure No.1: Distribution of cases of emergency hysterectomy by para**

**DISCUSSION**

Obstetric hysterectomy is an emergency procedure that has always been implemented to save women's lives when all other methods cannot save the uterus. In our study the incidence of acute hysterectomy was 0.31%. The higher incidence rate is compared with other national and international studies because our hospital covered the rural areas. Most of the people belong to low-income groups, and most of the deliveries by untrained Dais, and patients who are referred to the hospital are usually very serious. Most patients 68.75% belong to the young age group of 20-30 years, belong to multipara groups and grand multipara, comparable to a study in India<sup>14</sup> showing a comparable rate. It may be as a result of social and cultural view of early wedding and keep away from contraception.

The most common indication of acute hysterectomy is uterine atony 37.5%, placental pathological adhesions 18.75% and uterine rupture (12.5%).

In 18.75% patients; hysterectomy is due to placental pathological adhesions on the last scan, comparable to other studies conducted in Pakistan<sup>15-17</sup> Abnormal placenta may be associated with an increasing incidence of surgical delivery. Only one (6.25%) maternal mortality that is lesser to other studies in Pakistan.<sup>18</sup>

Most of the complications observed in the study were bladder injury, fever and wound infection. DIC and repeated laparotomy due to bleeding are less common, these same reports of other studies.<sup>19-22</sup> The incidence of complications can be avoided by early referral and effectively treatment of emergency obstetric cases management.

A variety of factors may increase the risk of peripartum hysterectomy associated with cesarean delivery. The procedure itself, the complications of childbirth or other factors leads to perform the cesarean delivery. However Kacmar et al<sup>23</sup> found that cesarean delivery after childbirth absolute indication of peripartum hysterectomy even with indication of cesarean delivery associated with increased risk placenta previa, or more Multiple cesarean delivery, or triplets or high-order multiple pregnancy were excluded

Cesarean delivery may be related with a higher risk of peripartum hysterectomy than vaginal delivery because the uterus is easier to remove. Cesarean delivery may increase the risk of peripartum hysterectomy, directly or indirectly through increased risk for peripartum hysterectomy i.e. (placenta previa, placenta accrete uterine rupture) in subsequent pregnancies.

## CONCLUSION

Emergency obstetric hysterectomy is a lifesaving procedure in our setting with low morbidity and mortality and high disability rates. It can be minimized by controlling the avoidance of factors such as high parity and lack of family planning and improvement of health care services in rural areas to provide health care services.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Frequency of Hyponatremia in Patients with Ischemic Stroke

Sultana Nazeer<sup>1</sup>, Ayesha Saddique<sup>1</sup>, Balawal Nazeer<sup>1</sup> and Shazia Hayat<sup>2</sup>

## ABSTRACT

**Objectives:** Hyponatremia leads to poor clinical outcomes in patients with ischemic stroke, so this study was conducted to evaluate current magnitude of the problem as there is no such study done in Pakistan on this topic.

**Study Design:** Descriptive study

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Nishtar Hospital, Multan from March 2016 to January 2017.

**Materials and Methods:** One hundred and twenty patients with ischemic stroke were recruited in this descriptive study. The study was conducted at nisthar hospital and duration of this study was three months. Serum Sodium level was checked in these patients and data was analyzed by SPSS – 22.

**Results:** Out of these 120 patients with ischemic stroke, 88 (73.3%) were male and 32 (26.7%) were female patients and male to female ratio was 2.75:1. Mean age of our study cases was  $45.23 \pm 14.87$  years. Of these 120 patients, 70 (58.3%) were from rural areas, 34 (28.3%) belonged to poor families, 64 (53.3%) were from middle income families and 22 (18.3%) belonged to rich families. Mean body mass index (BMI) was  $25.17 \pm 3.22$  kg/m<sup>2</sup> and obesity was noted in 50 (41.7%) patients. History of smoking was present in 66 (55%), diabetes in 52 (43.3%), hypertension in 72 (60%), dyslipidemia in 64 (53.3%) and family history of stroke in 34 (28.3%) patients. Mean serum sodium level was  $137.40 \pm 9.21$  nmol/L (range; 118 nmol/L to 157 nmol/L) and hyponatremia was noted in 48 (40%).

**Conclusions:** Hyponatremia is a common entity in patients with ischemic stroke as very high frequency was noted in our study. Clinicians treating such patients with ischemic stroke must check this parameter on routine basis to avoid future adverse clinical outcome and to improve prognosis of the disease. Hyponatremia was significantly associated with history of hypertension.

**Key Words:** Hyponatremia, ischemic stroke, sodium level.

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## INTRODUCTION

Stroke, a global health problem, is one of the leading causes of long-term disabilities among young survivors and 2<sup>nd</sup> leading cause of death in these patients all over the world.<sup>1-6</sup> Every year, estimated 10 million general population suffer its attack, 33 % of these patients die due to its complications and one third patients experience permanent disabilities, which has significant impact on suffering families and also for the society specially in low and middle income countries.<sup>7</sup>

According to WHO estimates stroke will remain 2<sup>nd</sup> leading cause of mortality after heart diseases in underdeveloped as well as developed countries for the year 2020.<sup>8</sup>

Strikingly patients in developing countries are estimated 10 years younger than that being in developed western countries which leads to prolonged disability in these young survivors.

Moreover more than 80 % stroke related deaths are reported from these underdeveloped countries.<sup>9</sup> Stroke may be represented by rapidly developing signs and symptoms of focal, loss of cerebral function, without any evident cause other than those of vascular origins and symptoms which last for more than 24 hours and/or leading to death.

**Ischemic Stroke** which occurs in 60 – 90 % of all stroke patients in Pakistan is a due to the obstructions within blood vessels which supply blood to the brain<sup>10</sup>. WHO had documented total mortality from stroke is over 75000 per year in Pakistan and large proportion of stroke patients are being admitted at secondary and tertiary level healthcare facilities. Of these stroke patients some may die in hospitals while large number of such patients are left with partial or total disabilities which may exert extra economical and social burden on the family and community<sup>11</sup>.

Hyponatremia is one of the common electrolyte disorders among hospitalized patients and it is generally indicator for a major underlying illness. However prognostic values of hyponatremia in patients with acute first-ever ischemic stroke are yet unclear. Hyponatremia is regarded as a risk factor of stroke, cardiovascular diseases, mental illnesses and chronic

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liver diseases. Even mild hyponatremia can be related with increased 1 month mortality rates after myocardial infarction (MI) and it has been recently observed that it may increase 3-years mortality after a stroke<sup>12,13</sup>. Previous studies have reported high frequencies of hyponatremia in literature<sup>12,13</sup>.

Hyponatremia among patients with ischemic stroke is related with increased morbidity and mortality but there is no such study in Pakistan where ischemic stroke is more common. This study has been proposed to document the frequency of hyponatremia among targeted population. The study results will generate useful database of our local population which will be compared with that of existing literature from different parts of the world. The study results will help to formulate guidelines for the clinicians to diagnose and treat hyponatremia, once its frequency in our population is ascertained which will help to decrease disease morbidity. This will help to improve quality of life of these patients as well as decreased hospital stays which will not only be helpful for suffering families but also for national health economy.

## MATERIALS AND METHODS

A total of 120 patients with ischemic stroke were registered in this study. This descriptive study was done at nishtar hospital Multan using non probability consecutive sampling technique. A predesigned questionnaire was used to record findings and informed consent was taken from all patients/attendants for participation. All the patients with ischemic stroke diagnosed as "CT scan brain plan shows hypodense area in specific vascular territory, density consistent with ischemic stroke i.e. 30 – 35" aged more than 20 years of either sex were recruited in our study. Patients with coronary artery disease, coagulopathy and bleeding disorders, tuberculous meningitis, viral/bacterial encephalitis, hemorrhagic stroke and multiple sclerosis were excluded from this study. Detailed history and examination was conducted and all relevant information such as diabetes (known diabetic patients taking oral/insulin therapy or those having fasting blood glucose levels more than 126 mg/dl), hypertension (having blood pressures more than 140/90 mmHg noticed twice one week apart), obesity (having BMI more than 27.5kg/m<sup>2</sup>, deranged lipid profile, history of smoking, family history of stroke in first degree blood relatives and serum Sodium levels were noted. Patients were considered hyponatremic, if serum Na<sup>+</sup> levels were <135 nmol/L. Data was entered and analyzed by computer program SPSS-22 to describe proportions for gender, diabetes, obesity, smoking, hypertension, residential status, socioeconomic status, family history, dyslipidemia and hyponatremia and to calculate mean and standard deviation for the age of patients and serum sodium levels. Chi – square test has

been applied to ascertain the role of various modifiable risk factors of ischemic stroke

## RESULTS

Our study comprised of a total of 120 patients with ischemic stroke. Out of these 120 patients with ischemic stroke, 88 (73.3%) were male and 32 (26.7%) were female patients and male to female ratio was 2.75:1. Mean age of our study cases was 45.23 ± 14.87 years (with minimum age was 23 years while maximum age was 86 years). Mean age of the male patients was 44.34 ± 14.21 years while that of female patients 47.69 ± 16.54 years (p = 0.278).

**Table No. 1: Cross – tabulation of hyponatremia with regards to gender. (n = 120)**

Gender	Hyponatremia		P - value
	Yes (n = 48)	No (n = 72)	
Male (n = 88)	54	54	0.676
Female (n = 32)	14	18	
<b>Total</b>	<b>120</b>		

**Table No. 2: Cross – tabulation of hyponatremia with regards to residential status. (n = 120)**

Residential status	Hyponatremia		P - value
	Yes (n = 48)	No (n = 72)	
Rural (n = 70)	28	42	1.000
Urban (n = 50)	20	30	
<b>Total</b>	<b>120</b>		

**Table No. 3: Cross – tabulation of hyponatremia with regards to obesity. (n = 120)**

Obesity	Hyponatremia		P - value
	Yes (n = 48)	No (n = 72)	
Yes (n = 50)	18	32	0.571
No (n = 70)	30	40	
<b>Total</b>	<b>120</b>		

**Table No. 4: Cross – tabulation of hyponatremia with regards to smoking. (n = 120)**

Smoking	Hyponatremia		P - value
	Yes (n = 48)	No (n = 72)	
Yes (n = 66)	30	36	0.195
No (n = 54)	18	36	
<b>Total</b>	<b>120</b>		

**Table No. 5: Cross – tabulation of hyponatremia with regards to diabetes. (n = 120)**

Diabetes	Hyponatremia		P - value
	Yes (n = 48)	No (n = 72)	
Yes (n = 52)	22	30	0.709
No (n = 68)	26	42	
<b>Total</b>	<b>120</b>		

**Table No. 6: Cross – tabulation of hyponatremia with regards to hypertension. (n = 120)**

Hypertension	Hyponatremia		P - value
	Yes (n = 48)	No (n = 72)	
Yes (n = 72)	38	34	0.001
No (n = 48)	10	38	
<b>Total</b>	<b>120</b>		

Of these 120 patients, 70 (58.3%) were from rural areas, 34 (28.3%) belonged to poor families, 64 (53.3%) were from middle income families and 22 (18.3%) belonged to rich families. Mean body mass index (BMI) was  $25.17 \pm 3.22 \text{ kg/m}^2$  and obesity was noted in 50 (41.7%) patients. History of smoking was present in 66 (55%), diabetes in 52 (43.3%), hypertension in 72 (60%), dyslipidemia in 64 (53.3%) and family history of stroke in 34 (28.3%) patients. Mean serum sodium level was  $137.40 \pm 9.21 \text{ nmol/L}$  (range; 118 nmol/L to 157 nmol/L) and hyponatremia was noted in 48 (40%).

## DISCUSSION

Stroke is a global health problem which has significant impact on the quality of life of suffering families as it exerts extra financial burden and psychological stress<sup>14-16</sup>. Our study comprised of a total of 120 patients with ischemic stroke. Out of these 120 patients with ischemic stroke, 88 (73.3%) were male and 32 (26.7%) were female patients and male to female ratio was 2.75:1. Different studies have documented male gender preponderance in patients with ischemic stroke. A study conducted by Saeed et al<sup>17</sup> also reported high male gender predominance with 61.1 % in patients with ischemic stroke which is similar to our findings. Javed et al<sup>18</sup> from Dera Gazi Khan also reported 61 % male patients showing male gender predominance which is same as that of our study results. Similarly Farooq et al<sup>19</sup> from Faisalabad has documented 54 % male patients with ischemic stroke which is in compliance with our study results. Sico et al<sup>20</sup> also reported 58 % male gender preponderance which is similar to our study results.

Mean age of our study cases was  $45.23 \pm 14.87$  years (with minimum age was 23 years while maximum age was 86 years). Mean age of the male patients was  $44.34 \pm 14.21$  years while that of female patients  $47.69 \pm 16.54$  years ( $p = 0.278$ ). Javed et al<sup>18</sup> from Dera Gazi Khan also reported  $50.89 \pm 5.87$  years which is close to our study results. A study conducted by Saeed et al<sup>17</sup> also reported  $64.4 \pm 11.5$  years mean age which is quite higher than that being reported in our study.

Of these 120 patients, 70 (58.3%) were from rural areas, 34 (28.3%) belonged to poor families, 64 (53.3%) were from middle income families and 22 (18.3%) belonged to rich families. Mean body mass index (BMI) was  $25.17 \pm 3.22 \text{ kg/m}^2$  and obesity was

noted in 50 (41.7%) patients. History of smoking was present in 66 (55%), diabetes in 52 (43.3%), hypertension in 72 (60%), dyslipidemia in 64 (53.3%) and family history of stroke in 34 (28.3%) patients. Javed et al<sup>18</sup> from Dera Gazi Khan also reported 34 % hypertension in patients with ischemic stroke. Farooq et al<sup>19</sup> from Faisalabad has documented diabetes in 35 %, hypertension in 58 % patients with ischemic stroke, these findings are in compliance with that of our study results. Sico et al<sup>20</sup> also reported diabetes in 33 % and hypertension in 72 % patients which is close to our study results. Mean serum sodium level was  $137.40 \pm 9.21 \text{ nmol/L}$  (range; 118 nmol/L to 157 nmol/L) and hyponatremia was noted in 48 (40%). A study conducted in Connecticut, USA<sup>12</sup> reported 16 % hyponatremia in ischemic stroke patients while in Taiwan it has been reported to be 11.6 %.

## CONCLUSION

Hyponatremia is a common entity in patients with ischemic stroke as very high frequency was noted in our study. Clinicians treating such patients with ischemic stroke must check this parameter on routine basis to avoid future adverse clinical outcome and to improve prognosis of the disease. Hyponatremia was significantly associated with history of hypertension.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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Electronic Copy

# A Comparative Analysis of E-book Use among Undergraduate Medical Students with Respect to their Gender

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## ABSTRACT

**Objectives:** To compare the purpose of e-book usage, searching preferences, and type of e-books preferences between the male and female undergraduate medical student.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted in the four Public Sector Medical Colleges in Southern Punjab, Pakistan from August 2016 to December 2016.

**Materials and Methods:** The population of this study comprised of the first-year enrolled undergraduate medical students of both genders (male and females) in four public sector medical colleges in Southern Punjab, Pakistan. The survey research method was used to collect the data from respondents. The questionnaire was divided into two parts; first part of the questionnaire contains questions related to demographic information of the respondents such as respondents' gender, age and name of college. The second part of the questionnaire comprised of questions such as; purpose of e-book usage, searching preferences, and type of e-books. Pre-determined alpha value is set at 0.05 for this study.

**Results:** The findings of this study concluded that the purpose of e-book use, preferences in searching, and types of e-book use is the same between the male and female students. They use e-books with the purpose of keeping their knowledge up-to-date, completing class assignment, and for exams preparations. They prefer to search e-books from general search engines (e.g., Google, Yahoo) and they prefer to use textbook as a type of e-books.

**Conclusions:** There is need to develop awareness about the use of e-books among undergraduate medical students by conducting orientation programs.

**Key Words:** E-book, use, preferences, medical students, south Punjab, medical libraries

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## INTRODUCTION

Technology has a tendency of changing things. Electronic publications are rapidly taking the place of printed materials in personal, professional, and educational collections.<sup>1</sup> Certainly no one expects the printed book to disappear overnight. But in reality, reading habits, information literacy trends and information seeking preferences are changing rapidly in a digital world.<sup>2</sup> Armstrong et al., defined E-book as: 'any piece of electronic text regardless of size or composition (a digital object), but excluding journal publications, made available electronically (or optically) for any device (handheld or desk-bound) that includes a screen'.<sup>3</sup>

One of the largest online book sale networks has recently reported that they are selling more electronic books than the printed version. They revealed that in the year of 2012, they have sold 114 E-books against each 100 printed books.<sup>4</sup> These statistics demonstrate changing habits of people in reading and widespread adoption of e-books. Therefore, since few years, medical libraries have started developing collections in digital forms.<sup>5,6</sup> Libraries attached with medical colleges are constantly expanding the collection of electronic books (e-books), its availability and access round the clock that has caused continuous decrease in circulation of printed books.<sup>7,8</sup> Both book publishers and readers have embraced the format of e-book at a larger scale. But librarians endeavor to learn; which book format, print or electronic adds the more value to the library collection, its budget and above all to readers.<sup>9,10</sup>

Publishers began offering E-book in the late 1990s and soon after articles on the prospects of e-books in academic libraries began appearing.<sup>11</sup> One of the major reasons reported in literature for developing e-books collection in libraries was the feasibility of distant users. On the other hand, a comparative study on e-book uses concluded a high percentage of use in off

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campus as compared to on campus.<sup>12</sup> One of the major and frequent barriers that have been discussed in literature was the discomfort of screen reading during the use of E-book. But medical students and clinicians commonly use e-book for ready reference. Therefore, screen reading is considered as less of a barrier in adoption of e-book. Many studies concluded that students and faculty members prefer to read only short section of e-book particularly for ready reference but they prefer print version for reading a complete book.<sup>13,14</sup> A comparative study conducted by Ugaz and Resnick<sup>9</sup> between the usages of printed and e-book version of the same title and concluded less circulation of printed version as compared to e-version. On the other hand, many studies concluded that it is hard to make a significant comparison because usage statistics measure different kind of access.<sup>15,16</sup>

Previously no comparative study has been carried out in Pakistan to explore the purpose of e-book usage, searching preferences, and type of e-books with respect to gender. Therefore, the present study was conducted with an objective to compare purpose of e-book usage, searching preferences, and type of e-books use with respect to gender among the first-year undergraduate medical students.

## MATERIALS AND METHODS

The study was conducted in four public sector medical colleges of Southern Punjab, Pakistan i.e., Nishtar Medical College, Multan, Dera Gazi Khan Medical College, Quaid-e-Azam Medical College, Bahawalpur, Sheik Zayed Medical College, Rahim Yar Khan. Each college had a professional librarian and a decent amount of e-books collection in library. The population of the study was first-year enrolled undergraduate medical students of both genders (male and female). A survey method of research was applied to gather the data for this study. Close-ended questionnaire was developed after reviewing the literature and accessing the situation of participating medical colleges, e-books collection in libraries, attitude of first-year undergraduate medical students toward e-books. The questionnaire was divided into two parts; first part of the questionnaire contains questions related to demographic information of the respondents such as respondents' gender, age and name of college. The second part of the questionnaire comprised of questions such as; purpose of e-book usage, searching preferences, and type of e-books. The questionnaire was discussed with librarians of the participating medical colleges. It was revised to incorporate recommended improvements. The questionnaire was distributed among undergraduate medical students by convenient sampling. Medical librarians of the participating medical colleges worked as study facilitators. The major role of facilitators was to lend support to the study within their medical college.

Data was analyzed statistically using Statistical Package for Social Sciences (SPSS v-20). In descriptive statistics, frequency of the categorical variables such as gender, college and age groups was calculated while comparative bar graphs between gender and source of E-books acquiring and satisfaction with the reading of E-books were drawn. In inferential statistics, to compare the E-books usage among undergraduate medical students with respect to their gender (male and female) were measured using independent sample t-test. Categorical variable gender was taken as independent variable and continuous variables such as purpose of e-book usage, searching preferences, and type of e-books were taken as dependent variables in this study. Pre-determined alpha value was set at 0.05 for this study.

## RESULTS

The questionnaire was distributed among 290 students of four different medical colleges, 206 questionnaires were returned and valid for this study with a response rate of 71%. Demographic information showed that 114(55.3%) were male and 92(44.7%) were female. Majority of the respondents 200(97.1%) aged between 15 and 20 years, while only 6(2.9%) were between 21 to 25 years. Majority of the respondents 74 (35.9%) were from Nishtar Medical College, Multan, 52(25.2%) were from Dera Gazi Khan Medical College, 45(21.8%) were from Quaid-e-Azam Medical College, Bahawalpur and 35(17%) were from Sheik Zayed Medical College, Rahim Yar Khan. Majority of the respondents 201 (97.5%) used e-books while 5(2.5%) have never used e-books in their life. Of the 5(2.5%) respondents, 4(1.9%) were male and 1(0.4%) was female who have never used E-books.

Table 1 shows that the majority of the respondents use e-books very often for the purpose of "class assignments" ( $4.05 \pm .917$ ), "up-to-date knowledge" ( $4.02 \pm .95$ ) and for "exams" ( $3.75 \pm 1.27$ ). On the other hand, they use e-books sometimes for the purpose of reading "treatment guidelines" ( $3.19 \pm 1.17$ ) and when "print version of the book is not available" ( $2.76 \pm 1.27$ ). Statistically no significant difference found between male and female respondents and their purpose of using e-books for keeping their knowledge up-to-date ( $4.07$  vs  $3.97$ ,  $P > 0.05$ ), "class assignments" ( $3.98$  vs  $4.14$ ,  $P > 0.05$ ), "exams" ( $3.73$  vs  $3.77$ ,  $P > 0.05$ ) and "print version is not available" ( $2.73$  vs  $2.80$ ,  $P > 0.05$ ). On the other hand, significant difference existed between male and female respondents and their purpose of using e-books for treatment guidelines ( $2.97$  vs  $3.46$ ,  $P < 0.05$ ).

The majority of the respondents always prefer to search e-books from "general search engines" (e.g. Google, Yahoo, etc.) ( $4.53 \pm .898$ ). On the other hand, they rarely search e-books from "university library catalogue" ( $2.07 \pm 1.371$ ), "publishers/vendors databases" ( $2.05 \pm 1.096$ ), and "higher education

commission (HEC) digital library” (1.54 ± 1.024). Statistically, no significant difference existed in the searching preferences of male and female respondents.

Both groups always prefer to search e-books from general search engines (4.54 vs 4.51, P > 0.05).

**Table No.1 Comparison of E-book Usage with respect to Gender**

	Male (n=114)		Female (n=92)		Mean Difference	Total (N=206)		P Value (2-Tailed)
	Mean	Standard Deviation	Mean	Standard Deviation		Mean	Standard Deviation	
<b>For What Purpose Do you Use E-books</b>								
Up-to-Date Knowledge	4.07	.993	3.97	.907	.103	4.02	.955	.444
Class Assignments	3.98	1.004	4.14	.793	-.159	4.05	.917	.217
For Exams	3.73	1.339	3.77	1.205	-.044	3.75	1.278	.808
For Treatment Guidelines	2.97	1.333	3.46	.870	-.483	3.19	1.172	.003**
Print Version Not Available	2.73	1.319	2.80	1.234	-.076	2.76	1.279	.672
<b>Where Do you Prefer to Search E-book</b>								
University Library Catalogue	1.99	1.411	2.16	1.320	-.172	2.07	1.371	.372
General Search Engines (e.g. Google, yahoo etc)	4.54	.822	4.51	.989	.033	4.53	.898	.794
Publishers/Venders Websites (e.g. ebrary or Springer link)	2.08	1.220	2.02	.926	.057	2.05	1.096	.711
Higher Education Commission (HEC) Digital Library	1.67	1.165	1.39	.798	.275	1.54	1.024	.055
<b>What Type of E-books Do You Prefer</b>								
Textbooks	3.72	1.069	3.53	1.40	.187	3.64	1.229	.280
Reference Books	3.39	1.616	3.83	1.096	-.440	3.58	1.421	.027*
Fictions	3.10	1.672	3.05	1.409	.042	3.08	1.557	.847
General Books	2.75	1.362	2.51	1.104	.235	2.64	1.256	.183
Drug Guides	2.32	1.319	2.76	1.073	-.445	2.51	1.233	.010*
Technical Books	2.43	1.433	2.61	1.326	-.179	2.51	1.385	.358
Research Monograph	1.82	1.069	2.47	1.288	-.652	2.11	1.213	.000**

Scale: 1=Never, 2=Rarely, 3=Sometimes, 4=Very Often, 5=Always

\*P < 0.05, \*\*P < 0.01

**Table No.2: A Comparative Analysis of the Purpose of E-book Usage, Preferences in Searching, Types, Formats and E-Reader and the Advantages and Disadvantages and the Future of E-books with Respect to Gender**

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)
<b>Purpose</b>	Male	114	17.4825	3.44934	.32306	-1.491	.137
	Female	92	18.1413	2.73994	.28566		
<b>Searching</b>	Male	114	10.2807	2.56080	.23984	.591	.555
	Female	92	10.0870	2.02540	.21116		
<b>Type</b>	Male	114	19.5088	5.21272	.48822	-1.853	.065
	Female	92	20.7609	4.28739	.44699		

\*P < 0.05, \*\*P < 0.01

The majority of the respondents prefer “textbooks” (3.64 ± 1.229) and “reference books” (3.58 ± 1.421) very often as type of e-book for studying. However, they sometimes prefer “fictions” (3.08 ± 1.557), “general books” (2.64 ± 1.256), “drug guides” (2.51 ± 1.233) and “technical books” (2.51 ± 1.385). But they rarely prefer “research monograph” (2.11 ± 1.213). Statistically significant difference found between the two groups of male and female respondents and their preferences in the type of e-books such as “reference books” (3.39 vs 3.83, P < 0.05), “drug guides” (2.32 vs 2.76, P < 0.05) and “research monograph” (1.82 vs 2.47, P < 0.05). On the other hand, no significant difference exists between the mean of two groups and the type of e-books preference such as “textbooks”

(3.72 vs 3.53, P > 0.05), “fictions” (3.10 vs 3.05, P > 0.05), “general books” (2.75 vs 2.51, P > 0.05) and “technical books” (2.43 vs 2.61, P > 0.05).

Table 2 shows the overall results of the comparison between two groups of male and female respondents and their purpose of using e-books as (17.48 vs 18.14, P > 0.05). Using Independent sample t-test we found the mean of the two groups is almost equal and the value of sig. (2-tailed) is .137, which is more than predetermined alpha value of this study 0.05. Therefore, the results concluded that the purpose of using e-books is the same between the male and female medical students. Similarly, no significant difference existed in the preferences of searching e-books (10.28 vs 10.08, P >

0.05), and type of e-books use (19.50 vs 20.76,  $P > 0.05$ ) between male and female respondents.

## DISCUSSION

The incorporation of e-books in medical academic libraries is valuable as they are remotely accessible, downloadable and available around the clock. E-books collection can lead to saving physical space in the library, prevention from damage and book lost, and smooth integration to Virtual Learning Environments (VLEs). The results of our study confirmed the findings of other studies that the undergraduate medical students use e-books mainly for the purpose of class assignments and to keep their knowledge up-to-date.<sup>13,17-19</sup> These findings are similar to the findings of landmark survey carried out in UK that concluded; the majority 61.8% of the students use e-books for the purpose of class assignments.<sup>14</sup> On the other hand, statistical analysis found no difference between male and female respondents and their purpose of using e-books, except for treatment guidelines, in which, female respondents found more likely to use treatment guidelines than male respondents. Similarly, a very small difference in the purpose of e-books usage between men and women found in a study conducted previously in UK.<sup>14</sup> The finding of this study also concluded that the majority of the students obtained e-books personally or on self bases rather than from library collection.

The findings of this study further concluded no significant difference in the searching preferences of e-books between male and female respondents. Both groups preferred to search e-books from general search engines (e.g. Google, yahoo etc.). These findings are similar with the findings of previous studies.<sup>19,20</sup> The present study concluded that undergraduate medical students prefer textbooks and reference books as type of e-books. Though, significant difference in the preference of reference books as a type of e-book found between male and female respondents. In which the preference of reference books was higher by female respondents than their counterpart male respondents. Similar findings also found previous studies, in which students reported textbooks and reference books as most preferred types of e-book.<sup>1,19,21-22</sup>

## CONCLUSION

The findings of this study concluded that the purpose of e-book use, preferences in searching, and types of e-book use is the same between the male and female students. They use e-books with the purpose of keeping their knowledge up-to-date, completing class assignment, and for exams preparations. They prefer to search e-books from general search engines (e.g., Google, Yahoo) and they prefer to use textbook as a type of e-books.

The study recommends that the use of e-books should be promoted among the students in medical colleges in order to promote the information access among the medical students. There is need to develop awareness about the use of e-books among undergraduate medical students by conducting orientation programs.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Knowledge about Legality of Induced Abortions in Rural Area of Wahga

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## ABSTRACT

**Objectives:** To identify prevalence of Ill-legality induced Abortions in ever-married women of reproductive age group residing.

**Study Design:** Descriptive / cross sectional study

**Place and Duration of Study:** This study was conducted at Diyal Village, Wahga Town Lahore from 1<sup>st</sup> April 2015 to 31<sup>st</sup> March 2016.

**Materials and Methods:** Women who had abortion during the last five years were enrolled for the study. A semi-structured questionnaire with open and close-ended questions was used to gather the information for abortions.

**Results:** Among the 746 houses in the village eighty six women experienced 402 pregnancies during their reproductive span. Among these 402 pregnancies, number of abortions was 127/402 (31.6%). Out of 127 abortions included per inclusion criterion 70/120 (58.3%) induced abortions were reported. While 50/120 (41.7%) were spontaneous. Looking into legality of abortions, 66/120 (55%) were illegal while 54/120 (45%) were legal abortions. Out of 70 induced abortions 66/70 (94.28%) were illegally induced while 4/70 (5.71%) were induced on legal grounds.

**Conclusions:** High number of Induced abortions due to Ill-legality status is demanding for increased attention of policy makers and planners regarding abortion laws.

**Key Words:** Legality, Prevalence, Induced abortions.

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## INTRODUCTION

An "abortus" is defined "as a fetus or embryo removed or expelled from the uterus during the first half of gestation - 20 weeks or less, or in the absence of accurate dating criteria, born weighing <500 g". Abortion caused purposely is known as induced abortion, or less frequently, induced miscarriage. Mostly this term is considered as induced abortions. Late termination of pregnancy is a process similar to abortion but performed at a stage when the fetus can possibly survive after delivery.<sup>1</sup> Globally countries with varying religious and moral values have different policies and practices related to abortion. But now as support for women's independence has enhanced globally, abortion is more seriously being considered and discussed for useful abortion policy's implementation. Continuous working across the globe

from time to time at various places. 20<sup>th</sup> century is the era when bans on abortion were cancelled in most of and uniform implementation of policies is required.<sup>3</sup> Abortion laws and their implementation has varied the western countries. This was achieved as a result of efforts made by social campaigners, women's rights groups and doctors. But it has faced a continuous resistance as the legality status of abortion in the west was regularly confronted by anti-abortion groups.<sup>4</sup> Globally huge variation observed in practice of abortion laws due to difference in religious values, social and cultural characteristics.<sup>5</sup> In countries where abortion is opposed, is based on the fact that an embryo or fetus is a human with a right to life and conducting an abortion is equivalent to murder.<sup>6,7</sup> At places where abortion is favored it is based on the fact that every woman has got a right to take decision about her body.<sup>8</sup> An abortion allowed on medical grounds for saving the life of a pregnant woman having medical problems, and continuation of pregnancy can end up in deterioration of health both physically and mentally then it is called therapeutic abortion.<sup>9</sup> Although controversial and sensitive issue due to religious values and legality status in Pakistan, still it was important considering the wellbeing of females. So the present study was designed to focus the abortions based on legality whether induced or spontaneous in a community setting. The findings of the present study could be the base for the future research for increasing awareness among females regarding abortion Laws in Pakistan.

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## MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in reproductive age group females with abortion during last five years in Diyal village near Wahga Town Lahore from 1<sup>st</sup> April 2015 to 31<sup>st</sup> March 2016. All 746 houses were surveyed and it was observed that 139 women had abortion during the last five years so they were enrolled but only 86 gave consent for sharing information. A semi-structured questionnaire with open and close-ended questions was used to gather the information for abortion. These women had 127 abortions out of which 120 abortions during the last five years were included. Data entry was done on SPSS version 20. Age groups, marital status education, income, total pregnancies, live births, still births, abortions and current pregnancies presented by frequencies and percentages. Total pregnancies, abortions, live births, still births, abortions were also presented by mean, minimum and maximum number also.

## RESULTS

**Table No.1: Socio-demographic information of women**

Variable	No.	%
<b>Education</b>		
Can't read or write her name in Urdu	15	17.4
Between 1-5 grade education	28	32.6
Between 6-10th grade education	25	29.1
>10th grade education	18	20.9
<b>Family Income</b>		
<10,000	16	18.6
10,000-25,000	38	44.2
>25,000	32	37.2
<b>Marital status</b>		
Husband lives with wife	73	84.9
Husband lives else were	5	5.8
Separated	6	7
Widow	1	1.2
Divorced	1	1.2
<b>Age</b>		
≤25	28	32.6
26-35	51	59.3
≥36	7	8.1

Among 86 females, 28 (32.6%) were <25 years and only 7 (8.1%) were of age 36 years or above. There were 18 (20.9%) with education above 10th standard, 15 (17.6%) completely illiterate and rest had education either 1-5th standard or 6-10th standard. Majority 38 (44.2%) belong to families with income 10–25 thousand, and 16 (17.6%) had family income less than 10 thousands. Most 73 (84.9%) were found between socio-demographic variables and different abortion varieties (Table 1). Total pregnancies experienced by 86 women were 402. Live births were 222 (55.22%),

still births 46 (11.44%), abortions 127 (31.59%) and 7(1.74%) were currently pregnant (Table 2). Live births/woman with abortion found to be 2.58, still births/woman with abortion is 0.53 and abortions/women with abortion found to be 1.48. The ratio of live births/abortions is 1.74, live births/still births 4.82 (Table 3). Out of 120 abortions included per inclusion criterion 70/120 (58.3%) induced abortions were reported. While 50/120 (41.7%) were spontaneous. Looking into legality of abortions, 66/120 (55%) were illegal while 54/120 (45%) were legal abortions. Out of 70 induced abortions 66/70 (94.28%) were illegally induced while 4/70 (5.71%) were induced on legal grounds (Table 4).

**Table No.2: Obstetric history of 86 women**

Pregnancies	No.	%
Live births	222	55.22
Still births	46	11.44
Abortions	127	31.6
Current pregnancy	7	1.74
Total	402	100

**Table No.3: Descriptive measures for the obstetric history**

	Total Pregnancies	Live Births	Still Births	Abortions
Mean	4.67	2.58	0.53	1.48
Minimum	1	0	0	1
Maximum	11	9	3	4

**Table No.4: Abortion status by legality**

	Ill-legal		Legal	
	n	%	n	%
Induced	66	100	4	7.4
Spontaneous	0	0	50	92.6
Total	66	100	54	100

## DISCUSSION

Eighty six women had 402 pregnancies. Among these 402 pregnancies, number of abortions was 127, which is 31.6% of the total much higher than 16.66% according to a review study stating, an estimated one pregnancy out of six ends in abortion<sup>10</sup> and 20% according to another study stating, an estimated one pregnancy out of five ends in abortion.<sup>11</sup> This high rate could be attributed to the availability of private tertiary care hospital close to this village. Out of 120 abortion cases included per study criterion, according to legality status 55% were ill-legal abortions. These results are surprising rather alarming for a community where abortion is legal on therapeutic basis otherwise considered criminal if its induced. In Pakistan abortion is legal only on therapeutic grounds but we still have high illegal abortion rate.<sup>12-14</sup> Globally almost 67% of abortions are performed in relatively legitimate



circumstances<sup>10</sup>, which is much higher than 45% legal abortion status of our present study.

## CONCLUSION

One of the most important Identified factor behind increased number of Induced abortions is Legality status, demanding for increased attention of policy makers and planners regarding Abortion Law and availability of services for abortions in Pakistan in spite of all restrictions about abortions.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Frequency of Hypomagnesemia in Children with Acute Diarrhea

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## ABSTRACT

**Objectives:** To see frequency of hypomagnesemia in children with acute diarrhea.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Peads OPD of Nishtar Hospital Multan from January 2015 to December 2016.

**Materials and Methods:** A total of 210 children with acute diarrhea were recruited. Serum magnesium levels of these children were checked and noted in the study proforma. All the data was entered on SPSS version 20 for analysis purpose.

**Results:** 110 (52.4%) were boys while 100 (47.6%) were girls. Mean age of these children was  $20.48 \pm 11.11$  months. Mean duration of disease was  $5.13 \pm 3.91$  days and 71.4% of these children presented within week of onset of diarrhea. Mean serum magnesium level was  $1.52 \pm 0.193$  mEq/dl and hypomagnesemia was present in 110 (52.4%) children.

**Conclusions:** Serum Mg level was low in our study as hypomagnesemia was highly prevalent in children with acute diarrhea. Hypomagnesemia was significantly common in boys, children under 2 years of age, consuming water from hand pumps and prolonged disease duration.

**Key Words:** Hypomagnesemia, acute diarrhea, children.

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## INTRODUCTION

Every child suffers with average three to four episode in first 2 years of life<sup>1-2</sup>. In children under 5 years of age, diarrhea is one the leading causes of preventable deaths all over the world but major burden is harbored by developing countries. Pediatric mortality due to diarrhea in the world is estimated to be around 1.87 million per year<sup>3-4</sup> and over 70 % of these children belong to developing countries which can be prevented by inexpensive treatment such as ORT, fluids and foods. According to the estimates of world Health Organization (WHO) more than 700 million episodes of diarrhea in children less than 5 years of age are reported from low and middle income countries.<sup>5</sup> Malnutrition, may further complicate the situation and change the treatment plan and also increases risks of contracting diarrhea in low and middle income countries which may lead to increase in disease burden along with extra financial stress on the suffering families in terms of medical costs, low productivity, poor quality of life, disease morbidity and mortality. Infectious microorganisms of diarrhea may include; bacterial pathogens such as E. coli, different viruses, protozoal

species and helminthes which are transmitted through oral-fecal route of transmission<sup>6,7</sup>. Among risk factors for pediatric diarrhea may include gender, age, geographical distribution, lack of access to safe drinking water, socio-economic status of the family, poor sanitation and hygiene and poor breastfeeding practices contribute to the burden of disease. This emphasizes towards well directed efforts to explore socio-demographic factors for policy makers to design certain preventive strategies to overcome magnitude of the problem.

Magnesium is second most common intracellular cation which is essentially required as a co-factor in more than 300 enzymatic reactions in our body<sup>8-9</sup>. These enzymatic reactions regulated different metabolic processes yet it is often a neglected parameter being overlooked by majority of the clinicians. Hypomagnesemia is commonly noted in hospitalized patients up to 12% and may be as frequency as 60% among critically ill patients or those in ICU, though often remains undiagnosed and untreated. Symptomatic Mg depletions from our bodies may be a results of gastrointestinal or renal losses<sup>10,11</sup>.

Owing to the importance of the Magnesium in our bodies which often remains underreported and limited availability of the data among these children we conducted this study to ascertain current magnitude of the problem. There is no such study to determine frequency of hypomagnesemia in acute diarrhea in children, done in Pakistan.

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**MATERIALS AND METHODS**

We recruited a total of 210 children (under 5 years of age) suffering from acute diarrhea in this cross-sectional study from the pediatric OPD of Nishtar Hospital Multan. Diarrhea was defined according to the WHO guidelines as “Passage of more than watery stools in 24 hours”. Children with persistent/chronic, bloody diarrhea and having acute renal failure were excluded from our study. Informed consent was taken from the parents of all these children before being registered in this study. After registration detailed clinical examination was conducted for these patients and 3 ml of venous blood sample was drawn and sent to the laboratory of the Nishtar Hospital Multan for serum Mg levels. Hypomagnesemia was defined as “Serum magnesium level <1.55 mEq/dL“. Parents were interviewed for socio-demographic distribution (residential status, source of drinking water, socioeconomic status, mother’s educational level and family system) and all the information was recorded in the pre – tested proforma for analysis. Statistical Package for Social Sciences (SPSS) version 20 was used for analysis purpose. Descriptive statistics were used to calculate mean and standard deviations and frequencies and percentages have been tabulated.

**RESULTS**

In this study we registered a total of 210 children with acute diarrhea. Of these 210 children, 110 (52.4%) were boys while 100 (47.6%) were girls. Mean age of these children was 20.48 ± 11.11 months (range 5 months to 54 months) while 140 (66.7%) were aged less than 2 years of age. Mean age of the boys was 17.93 ± 11.93 months while that girls was 23.26 ± 9.44 months (p = 0.000). Majority of our patients (71.4%) belonged to urban areas while 133 (63.3 %) belonged to poor families. Majority of the families of these children (47.6%) reported to consume water from hand pumps, from water supply was (42.9%) and only 20 (9.5%) reported drinking water from filtration plants. Majority of the mother of these children (76.2%) were illiterate and 61.9 % belonged to joint family system. Mean duration of disease was 5.13 ± 3.91 days and 71.4% of these children presented within week of onset of diarrhea. Mean serum magnesium level was 1.52± 0.193 mEq/dl and hypomagnesemia was present in 110 (52.4%) children.

**Table No. 1: Cross-tabulation of hypomagnesemia with regards to gender. (n = 210)**

Gender	Hypomagnesemia		P - value
	Yes (n =110)	No (n = 100)	
Boys (n = 110)	70	40	<b>0.001</b>
Girls (n=100)	40	60	
<b>Total</b>	<b>210</b>		

**Table No. 2: Cross-tabulation of hypomagnesemia with regards to age. (n = 210)**

Age groups	Hypomagnesemia		P - value
	Yes (n=110)	No (n = 100)	
Up to 2 Years (n = 140)	85	55	<b>0.048</b>
More than 2 Years (n =70)	25	45	
<b>Total</b>	<b>210</b>		

**Table No. 3: Cross-tabulation of hypomagnesemia with regards to disease duration. (n = 210)**

Disease duration	Hypomagnesemia		P - value
	Yes (n=110)	No (n = 100)	
Less than 7 days (n = 150)	57	93	<b>0.000</b>
More than 7 days (n =60)	53	07	
<b>Total</b>	<b>210</b>		

**Table No. 4: Cross-tabulation of hypomagnesemia with regards to source of drinking water. (n = 210)**

Source of drinking water	Hypomagnesemia		P - value
	Yes (n=110)	No (n = 100)	
Hand pump (n=160)	90	70	<b>0.000</b>
Water Supply (n = 20)	00	20	
Filtration plant (n = 30)	20	10	
<b>Total</b>	<b>210</b>		

**DISCUSSION**

Reducing preventable childhood deaths is one of the Millennium Development Goals (MDGs) and diarrhea still continues to among one of the leading causes of deaths all over the world particularly in developing countries.<sup>12-13</sup>. Among risk factors for pediatric diarrhea may include gender, age, geographical distribution, lack of access to safe drinking water, socio-economic status of the family, poor sanitation and hygiene and poor breastfeeding practices contribute to the burden of disease. Hypomagnesemia is commonly noted in hospitalized patients up to 12% and may be as frequency as 60% among critically ill patients or those in ICU, though often remains undiagnosed and untreated<sup>10, 11</sup>.

In this study we registered a total of 210 children with acute diarrhea. Of these 210 children, 110 (52.4%) were

boys while 100 (47.6%) were girls. Male gender predominance in children with acute diarrhea has previously been described in literature in many studies. Zahoor et al<sup>14</sup> reported 66 % male gender predominance which is same as that of our findings. However Ijaz et al<sup>15</sup> reported 1:1 male to female ratio which is different from our findings. Ezeonwu et al<sup>16</sup> from Nigeria has also reported 56 % male gender predominance which is in compliance with our study results.

Mean age of these children was  $20.48 \pm 11.11$  months (range 5 months to 54 months) while 140 (66.7%) were aged less than 2 years of age. Mean age of the boys was  $17.95 \pm 11.93$  months while that girls was  $23.26 \pm 9.44$  months ( $p = 0.000$ ). Zahoor et al<sup>14</sup> reported 93% children with acute diarrhea were aged less than 2 years which is in compliance with our findings. Another study by Bushra et al<sup>17</sup> also reported mean age of the patients with acute diarrhea was  $2.5 \pm 0.3$  years which is again showing similar trends as that of our study. Ijaz et al<sup>15</sup> reported 2.18 years mean age in children with acute diarrhea which is similar to our results. Kazemi et al<sup>18</sup> from Iran also reported  $18 \pm 2$  months mean age of children with acute diarrhea which is close to our study results.

Acute diarrhea in children is associated with poor sanitation facilities, poor socio-economic status and lack of access to safe drinking water. Similarly in our study, majority of our patients (71.4%) belonged to urban areas while 133 (63.3 %) belonged to poor families. Majority of the families of these children (47.6%) reported to consume water from hand pumps. from water supply was (42.9%) and only 20 (9.5%) reported drinking water from filtration plants. Majority of the mother of these children (76.2%) were illiterate and 61.9 % belonged to joint family system.

Mean duration of disease was  $5.13 \pm 3.91$  days and 71.4% of these children presented within a week of onset of diarrhea. Yilgawan et al<sup>19</sup> reported  $4 \pm 3.2$  days mean duration of disease, which is similar to our study results.

Mean serum magnesium level was  $1.52 \pm 0.193$  mEq/dl and hypomagnesemia was present in 110 (52.4%) children. Study conducted by Paul et al from Singapore<sup>20</sup> reported 47% children with acute diarrhea were diagnosed with hypomangnesemia which is close to that of our study results.

## CONCLUSION

Serum magnesium level was low in our study as hypomagnesemia was highly prevalent in children with acute diarrhea. Hypomagnesemia was significantly more common in boys, children under 2 years of age, consuming water from hand pumps and prolonged disease duration. Pediatricians treating these patients should include serum Mg levels in their routine investigation list which will help to improve disease

outcomes as well as help to decrease disease morbidity and mortality.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Health-Seeking Behavior and Socio-Demographic Profile of Childhood Respiratory Tract Infections in Hazara Division

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## ABSTRACT

**Objectives:** To determine the socio-demographic profile and health-seeking behavior of under-five patients suffering from childhood pneumonia.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Frontier Medical & Dental College, Abbottabad, from June, 2014 to May, 2015,

**Materials and Methods:** All under-five children suffering from acute respiratory tract infection were included in the study. They were diagnosed when there is a sudden onset of at least one of cough, coryza, shortness of breath or sore throat within last seven days along-with a clinician's diagnosis of infection. Patients with chronic respiratory illnesses were excluded from the study. Respondents were mothers or caretakers of sick children. A structured and pre-tested questionnaire was used to collect data. Questions were specifically asked about literacy and occupation, composition of household, history of respiratory tract infections in last one month, date of onset and duration of symptoms, distance to health facility and mode of transport used, type of treatment modality sought and the reason/s of choosing it.

**Results:** Fifty three percent of patients were female while 74% were less than one year of age. Most of the caregivers were either uneducated (26.6%) or had education upto primary level (23.1%). Similarly, most of them were factory workers, 50.7%, and laborers, 21.8%, while only 20.1% were businessman. Most of the study participants, (97%), consulted health care provider for treatment of their child while 3% preferred self medication. Out of these, 76% consulted private facility, 21% visited public facility. There were various reasons for preferring different modes of treatment. Free medicines and lower consultation fee were the main reason for visiting dispensers and public health facility while modern health facilities and doctor's reputation were the main reason for choosing private health facility.

**Conclusion:** Many factors affect the health seeking attitude of caregivers of sick children. Income, occupation and education level of these caregivers play a pivotal role in choosing health care facility. Private health providers, despite being expensive, were preferred mode of treatment in our study. Government should improve public health services including emergency services. Other measures should include education of masses and increased budgetary allocations to health department which will help reduce the economic impact of childhood respiratory illnesses.

**Key Words:** Health-seeking behavior, childhood, pneumonia, profile.

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## INTRODUCTION

Childhood acute respiratory tract infections (ARI) pose significant public health threat specifically in under-five children.<sup>1</sup> The estimated number of cases of childhood pneumonia was 120 million worldwide in 2010 and out

of these cases, 11.9 million cases of childhood pneumonia needed inpatient care and treatment. Additionally, majority of the deaths associated with childhood pneumonia occurred in developing countries.<sup>2</sup> Indonesia, Bangladesh, Nepal and India collectively account for 40% of ARI-related deaths globally. About 40% visits to a clinician's office and 30% hospital admissions are attributed to these infections.<sup>3</sup> Hence, these infections contribute to significant morbidity and mortality especially in developing countries.

The risk of developing pneumonia is highest among infants in first three months of their life. Pneumonia accounts for about 70- 75% of deaths in infants.<sup>4</sup> Many risk factors are believed to be associated with the development of childhood pneumonia. These risk factors include socioeconomic (low education of

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parents, low income), demographic (age, gender and birth spacing), nutritional (malnutrition, low birth weight and absence of breast feeding) and environmental (overcrowding, exposure to cigarette smoke and biomass fuel) risk factors.<sup>5,6</sup> It is believed that the risk of pneumonia is high in infants exposed to passive smoke as compared to the ones who are not exposed to cigarette smoke. Similarly, Indoor air pollution is believed to be one of the main factors associated with pneumonia related deaths. Male children are more susceptible to developing pneumonia as compared to female children as well as the toddlers.<sup>4</sup> Prevalence of these infections is affected by different and diverse factors. Therefore, we have conducted this study is to determine the socio-demographic profile and health-seeking behavior of under-five patients suffering from childhood pneumonia.

## MATERIALS AND METHODS

This cross-sectional study was conducted in Frontier Medical & Dental College, Abbottabad, from June, 2014 to May, 2015. All under-five children suffering from childhood pneumonia were included in the study which was diagnosed when there is a sudden onset of at least one of cough, coryza, shortness of breath or sore throat within last seven days along-with a clinician's diagnosis of infection. Patients with chronic respiratory illnesses were excluded from the study. Respondents were mothers or caretakers. Informed consent was taken. A structured and pre-tested questionnaire was used to collect data. Questions were specifically asked about literacy and occupation of parents, composition of household, history of respiratory tract infection in last one month, date of onset and duration of symptoms, distance to health facility and mode of transport used, type of treatment modality sought and the reason/s of choosing it. Data was entered and organized using statistical package for social sciences, (SPSS, version 19).

## RESULTS

Education level and occupation of father of sick children is given in Table 1. Most of them were either uneducated (26.6%) or had education upto primary level (23.1%). Only 4.5% were graduate or above. Similarly, 50.7% were factory workers, 21.8% were laborer and only 20.1% were businessman.

Characteristics of study population and of those children who were suffering from respiratory tract infection were given in Table 2 and Table 3. Fifty three percent of patients were female showing that there was a high preponderance of female gender. Similarly, most of the patients, 74%, were less than one year of age.

Most of the study participants, (97%), consulted health care provider for treatment of their sick child and 3% preferred self medication. Out of these, 76% consulted

private facility, 21% consulted public facility, (Table 4).

**Table 1. Education and occupation profile, (n=229)**

Variable	Number	Percentage
<b>Father's education level</b>		
Uneducated	61	26.6%
Primary	53	23.1%
Middle	49	21.4%
Matric	30	13.1%
Intermediate	25	10.9%
Bachelor	08	3.5%
Master	03	1.3%
Total	229	100%
<b>Father's occupation</b>		
Factory workers	116	50.7%
Laborer	50	21.8%
Business	46	20.1%
Farmer	15	6.6%
Unemployed	02	0.9%
Total	229	100%

**Table No.2. Characteristics of under-five children, (n=229)**

Characteristic	Number	Percentage
<b>Gender</b>		
Male	109	47%
Female	120	53%
Total	229	100%
<b>Age-groups (in months)</b>		
1 – 24 months	171	74%
25 – 48	58	26%
Total	229	100%

**Table No.3: Characteristics of ARI, (n=229)**

Variable	Number	Percentage
<b>Duration of symptoms of ARI</b>		
1-3 days	118	51.5%
4-7 Days	89	39.0%
8-10 Days	22	9.6%
Total	229	100%
<b>Frequency of ARI episodes in last month</b>		
1-3 times	218	95.2%
4-7 times	11	4.8%
Total	229	100%

There were various reasons for preferring different modes of treatment. Free medicines and lower consultation fee were the main reason for visiting dispensers and public health facility while modern health facilities and doctor's reputation were the main reason for choosing pediatrician, (Table 5).

Majority of the patients were taken to health facility was by foot. Other modes of transport used were motorcycle, rickshaw, wagon and bicycle respectively, (Table 6).

**Table No.4: Health care facility/provider consulted, (n=229)**

Variable	Number	Percentage
Private health facility	174	76%
i. Dispensers	103	45%
ii. Pediatrician	71	31%
Public health facility	48	21%
i. Dispensary	30	13.1%
ii. Hospital	18	7.9%
Self-medication	07	03%
i. Medical store	04	1.74%
ii. Home remedy	03	1.36%
Total	229	100%

**Table No.5: Reason of choosing different health care providers, (n=229)**

Reason	Number	Percentage
<b>Dispensers</b>		
Free medicines	35	15.29%
Low user fee	30	13.11%
Feel satisfaction	22	9.61%
Close to home	16	6.99%
Total	103	45%
<b>Pediatrician</b>		
All facilities available	22	31%
Doctor is famous	17	23.94%
Feel satisfaction	15	21.12%
Quick service	12	16.90%
Good attitude	05	7.04%
Total	71	31%
<b>Public doctor</b>		
Free medicines	19	8.30%
Low user fee	15	6.55%
Feel satisfaction	14	6.55%
Total	48	21.00%

**Table No.6: Mode of transport sought to reach health facility, (n=229)**

Mode of transport	Number	Percentage
Pedestrian	138	60.2%
Motorcycle	6	27%
Rickshaw	18	7.9%
Wagon	11	4.8%
Bicycle	01	0.43%
Total	229	100%

## DISCUSSION

Respiratory tract infections are among one of the chief causes of mortality in under-five children and are responsible for one fifth of childhood deaths.<sup>6, 7</sup> There are numerous risk factors associated with the development of these infections. Our study has shown that the majority of our study respondents was either illiterate, (26.6%), or had education up to primary level, (23.1%). Similarly, most of them, (72.5%), were workers or laborers and only 20.1% was businessman.

Rehman et al have reported that 43% of their study participants were illiterate while 37% had their education up to primary level.<sup>8</sup> The higher rate of illiteracy which was reported by Rehman et al could be due to the fact that they have conducted their study in already deprived and underprivileged slums of Islamabad. Prajapati et al have reported that 33% of father of sick children in Ahmedabad, India, were illiterate and 44.6% of them were laborer.<sup>9</sup> Similarly, Peasah et al have reported that 24% of their study subjects have their education upto primary level in northern India.<sup>1</sup>

Most of our study participants, (76%), had chosen private health care provider either a dispenser or a pediatrician, for the treatment of their sick child. The main reason for visiting dispensers was free medicines, lower consultation fee and satisfaction with their treatment while modern facilities and doctor's reputation were the main reason for choosing a pediatrician. Public health facility, either a public dispensary or a public hospital, was consulted by 21% of study participants while 3% had preferred self-medication. The chief reason for visiting these facilities were free medicines and patient satisfaction. Our results corroborated with that of other studies. Rehman et al, in their study conducted in slums of Islamabad, have reported that 70% of their study participants consulted private health facility, 29% consulted public health facility and 01% used alternate sources. Empathetic attitude and satisfaction with the treatment were main reasons for visiting a private facility.<sup>8</sup> In another study conducted by Dongre et al in peri-urban areas of Wardha city, India, have shown that 73.1% of their subjects had chosen private health facility while 29.1% preferred government health facility for the treatment of their sick child.<sup>10</sup> It is evident that majority of caregivers preferred private facility. This could be due to the fact that private facilities are considered to be of superior and premium quality as compared to public hospitals.<sup>11</sup>

## CONCLUSION

Many factors affect the health seeking attitude of caregivers of sick children. Income, occupation and education level of the caregivers play a pivotal role in choosing health care facility. Private health providers, despite being expensive, were preferred mode of treatment in our study. Government should improve public health services including emergency services. Other measures should include education of masses and increased budgetary allocations to health department which will help reduce the economic impact of childhood respiratory illnesses.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.



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# Obstructive Jaundice; A Diagnostic Challenge

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## ABSTRACT

**Objectives:** To ascertain causes of surgical jaundice and investigation modalities required for the diagnosis in our patients.

**Study Design:** Retrospective analysis for etiologies and investigation modalities.

**Place and Duration of Study:** This study was conducted at the Department of Surgery, Allama Iqbal Memorial Teaching Hospital of Government Khawaja Muhammad Safdar Medical College, Sialkot from June 2013 to February 2016.

**Materials and Methods:** Patients who were admitted having obstructive jaundice due to any etiology were enrolled for this study. Ninety-two patients who fulfilled inclusion criteria, patients of all age groups from any gender were included. Patients presenting in outpatients department and after being investigations were admitted for further investigations and treatment. Patients who refused admission for further investigations and surgery were excluded. Data collected using a proforma and analysis done with SPSS v 22 program.

**Results:** Out of 132 patients reporting in surgical outpatients, 112 patients were admitted for investigations and management of obstructive jaundice. Females patients were more in number than males with a ratio of 1:1.3. Subjects having malignant lesions were elderly than those of nonmalignant cases. Pancreatic head carcinoma being at the top in cancers and choledocholithiasis being the leading cause in benign group. The sonographic scan of the abdomen was the basic imaging performed in every patient which showed dilatation of biliary ducts both intra and extra-hepatic level, ductal stones or tumours in 55.20%, 71.90%, 18.10% and 69.6% of the patients respectively. Computed Tomographic scan of the abdomen was done to stage and assess resectability in malignant cases and strictures. Magnetic resonance imaging was carried in 23 cases. A total of 92 (100%) patients got operated and the rest of 6 (5.2%) admitted patients who were not fit for surgery or anesthesia. The rate of morbidity remained 22.4%, leading was infective complications.

**Conclusions:** The early diagnosis has prime importance in the outcome in obstructive jaundice patients: ultrasonography a baseline imaging being done in every patient and even repeated in the same patients. Other investigations like PTC, ERCP, CT scan and MRCP are to be done for definite diagnosis and respectability of malignant causes. Blood chemistry has done repeatedly to monitor the progress of the disease and follow-up. Malignant lesions are in lead as compared to the benign reasons.

**Key Words:** Choledocholithiasis, Klatskin Tumour, Cholangiocarcinoma, Obstructive jaundice, Percutaneous transhepatic cholangiography, Endoscopic Retrograde cholangiopancreatography,

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## INTRODUCTION

Obstructive jaundice is one of the challenging diagnosis, to make in developing countries. It requires resources and skill to manage these patients. Obstructive jaundice is one of the common surgical encounters, in a surgery ward.

There is considerable morbidity and mortality related with the different etiologies; and investigations and therapeutic modalities cost is high regardless of its benign or malignant nature<sup>1,2</sup>. The early diagnosis carries much importance particularly in malignant causes, for surgical resection is only option in early stages. Obstructive jaundice is caused by diverse causes of benign and malignant origin. As etiological factors vary from center to center as well as to different individuals; so it is necessary to ascertain the exact etiology of the disease; because serious pathologies like Secondary Biliary Cirrhosis, may ensue if obstruction is not relieved<sup>3,4</sup>. A range of invasive and minimal invasive diagnostic modalities are carried for diagnosis and to ascertain the cause of obstructive jaundice. Grave complications like cholangitis and pancreatitis are associated with some invasive investigations and costly imaging modalities like computerized tomographic or CT scan, Percutaneous transhepatic

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cholangio-pancreatico-graphy i.e.PTC, ERCP endoscopic retrograde cholangiopancreatography and MRCP i.e. magnetic resonance cholangio-pancreatography; and these may not be at hand in many hospitals of 3rd world

i.e. developing countries, and so ultrasonography becomes basic diagnostic modality at hand<sup>5,6</sup>. The definitive management of obstructive jaundice also poses a great challenge to the Surgeons working in developing countries. Delay in presentation along with lack of modern investigations are among the main hurdles in management. Surgical procedures in obstructive jaundice carries higher risk of operative and postoperative morbidity in comparison that in surgery in non-jaundiced patients<sup>7,8</sup>. Common postoperative complications are sepsis (e.g Anastomotic Leakage, cholangitis, and abscess formation), bleeding, renal compromise (hepatorenal syndrome) and delayed wound healing. Non-availability of advanced technology tools and therapeutic facilities are key factors which determine the outcome of treatment of obstructive jaundice in our settings<sup>9,10</sup>.

There is also lack of awareness and knowledge about diagnostic and therapeutic procedures for obstructive jaundice in our society. We planned this study to share our experience in the managing obstructive jaundice, highlighting the etiologies encountered and the different modes of investigations in order to get an acceptable treatment outcome regarding morbidity and mortality in our patients at Allama Iqbal Memorial Teaching Hospital affiliated with Khawaja Muhammad Safdar Medical College, Sialkot.

## MATERIALS AND METHODS

We enlisted all the patients presenting with obstructive jaundice and were admitted to the surgical wards. Informed consent for inclusion in our study was obtained and the patients were randomly included. Those confirmed on investigations not having surgical causes of jaundice were excluded. A comprehensive history of the patients was taken, examination, laboratory tests including Liver Function tests for bilirubin level, alkaline phosphatase level, ALT & AST were carried. Other investigations as Haemoglobin, WBC count, Packed RBC volume, Prothrombin Time, serum creatinine and albumin were also done. Abdominal Ultrasound was the main diagnostic imaging done in all patients to look for the abnormality of intra and extra-hepatic biliary channels, the common bile duct, and the presence of obstructive factors like gallstones, tumors, lymph nodes, worms or any abdominal mass. Advanced diagnostic imaging such as CT scan abdomen, ERCP, PTC, and MRCP was done in selected patients.

Assessment at three stages preoperatively, intraoperatively and postoperatively, and the findings were recorded in Proforma. Variables that were recorded included patients' biodata, duration of

jaundice, the cause of obstructive jaundice, laboratory findings, ultrasonographic findings, treatment modalities, intraoperative findings, postoperative complications, the length of hospital stay and mortality. Pre-operative preparations included maintaining good hydration and administration of antibiotics, intravenous dextrose (10%) solution and Vitamin K injections. In anemic patients, blood transfusion was also carried out. Immediately before surgery; intravenous Mannitol was infused in all the patients. preoperative biliary drainage (PBD) was introduced as means of reversing the pathophysiological disturbance seen in jaundiced patients and has been advocated before curative tumor resection The type of surgery carried out depend upon the cause and the findings at the time of the procedure. Patients were followed up for minimum 3 months after discharge or until death.

This was a descriptive prospective study which was conducted at Department of Surgery, Allama Iqbal Memorial Teaching Hospital which has a bed capacity of 500. Approximately 5 million population is dependent on this hospital for health care. This hospital is affiliated with Khawaja Muhammad Safdar Medical College, Sialkot. The study included patients from June 2013 to August 2016. Data were collected using a performa and analyzed using SPSS v 22. Results were reported as percentages for categorical variables.

## RESULTS

**Table No.1: General Data**

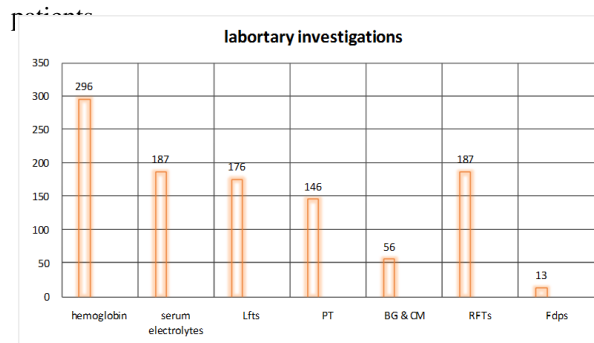
Total no of patients in Study	92	100%
Age	0-65 years	Mean age 45.23 years
Gender	M:F	33:59 ( 1: 78)
Benign causes	24	(26.09)
Malignant causes	68	(73.91%)

**Table No.2: shows the investigation modalities.**

Investigations .n=354 (100%)		
Ultrasonography	156	44.06%
CT SCAN	78	22.03%
Magnetic Resonance Cholangiopancreatography	23	6.49%
Percutaneous TranshepaticCholangiopancreatography	13	3.67%
Preoperative biliary drainage	9	2.54%
Endoscopic Retrograde Cholangiopancreatography	25	7.06%
Exploratory Laparotomy	38	10.73%
T tube cholangiography	12	3.38%

Graph I shows number or investigations as haemoglobin. Serum electrolytes, LFTs (liver function tests), PT (prothrombin time), Blood grouping and cross match (BG & CM), Renal function tests and FDPs

(fibrin degradation products), CA 19-9 was done in 7



Graph No.I: Laboratory investigations done in patients.

Table No.3: Clinical presentation in no of patients

Right upper abdominal pain	78	84.78%
Clay coloured stools	82	89.13%
Weight loss	69	75%
Pruritis	53	57.60%
Scratch marks	41	44.56%
Palpable abdominal mass	32	34.78%

Table No.4: causes of obstructive jaundice n=92 (100%)

Biliary ductal stones	15	16.30%
Carcinoma Head of Pancreas	28	30.43%
Cholangiocarcinoma-Klatskintumour Middle part	9	9.78%
Distal/ampulla of Vater	5	5.43%
Carcinoma Gall Bladder	5	5.43%
Post Cholecystectomy(open/lap) Benign Stricture	7	7.60%
Miscellaneous (lymph nodes, worms, cysts)	9	9.78%
	14	15.21%

## DISCUSSION

Obstructive jaundice is a challenge in developing countries like Pakistan where the presentation and difficulty in approach to modern tools as of diagnostic (e.g. CT scan, PTC, ERCP, and MRCP) and therapeutic facilities are the main problems. This study was conducted in our local set up to describe the management of this disease; this problem not previously studied at our center.

Most of the patients in our study had malignant obstructive jaundice which is in comparison with other studies by Ahmad et al<sup>11</sup>, Ghaffar et al<sup>12</sup>, Kassa et al<sup>13</sup>, and Van der Gaag et al<sup>14</sup>, Sharma & Ahuja<sup>15</sup> reported carcinoma of the gall bladder as the most common cause of malignant obstructive jaundice.

Also, Ascariases Lumbricoides to be associated with disease of biliary tract causes in obstruction, as in the study by Van der Gaag<sup>14</sup>. We experienced only 1 patient with such infestation.

Bekele et al.<sup>16</sup> in Ethiopia who reported benign obstructive jaundice (Biliary ductal stones) as the most

common cause of obstructive jaundice. In our study, the modality which causes the most in the aspect of malignancy is the carcinoma of the head of the pancreas while Biliary ductal stones were the commonest benign cause. Similar observation was also noted by others Ghaffar et al<sup>12</sup>, and Kassa et al<sup>13</sup>.

In this study, benign and malignant obstructive jaundice were more common in females than in males, which is in acquiescence with the results of Ghaffar et al<sup>12</sup>, Kassa et al<sup>13</sup> and Ahmad et al<sup>11</sup>. Female preponderance in both the benign and malignant obstructive jaundice is explained as to the high prevalence of gallstones that is a risk factor for many benign and malignant conditions causing biliary obstruction, Ahmad et al<sup>11</sup>, and Ambreen et al<sup>17</sup>.

Most of the patients with benign obstructive jaundice in our study were in younger age group while malignant causes were in elder age group. It comparable to studies by Mehrdad et al<sup>18</sup>, Kassa et al<sup>13</sup> and Van der Gaag et al<sup>19</sup>.

Clinical presentations of our patients as shown in table V are quite comparable to the presentations of the patients in the studies by Syed et al<sup>20</sup>, Ghaffar et al<sup>12</sup>, Kassa et al<sup>13</sup>, and Van der Gaag<sup>19</sup>.

In one study by Cheema et al.<sup>21</sup>, the values of bilirubin and alkaline phosphatase were found to be higher in the malignant cases; same was our findings.

In places where advanced diagnostic imaging (e.g. CT scan, ERCP, PTC, and MRCP) are available, still, we have to conform to exploratory laparotomies for reaching a diagnosis which otherwise was unclear or not reached on investigations.

In our study, the most of the patients with malignant obstructive jaundice treated with palliative surgery i.e. bypass surgery, whereas the patients with benign obstructive jaundice were dealt with curative surgery. Similar treatment pattern was also reported by Mohammed et al<sup>22</sup>.

We routinely used T-Tube placement after exploration of common bile duct in all the patients undergoing Choledocholithiasis; while in studies by Briggs and Peterson<sup>23</sup> and in by Bekele<sup>16</sup>, Gurusmay and Samraj<sup>24</sup>, and Leida<sup>25</sup>, it is recommended that T-tube placement may be avoided. Several factors including elder age group, duration of jaundice, malignant cases, high levels of bilirubin and presence postoperative complications (e.g. sepsis, coagulopathy, hepatic coma and renal failure) have been reported in the literature to be associated with high mortality rate in these patients.

## CONCLUSION

Obstructive jaundice is a common surgical problem in our setting and has the dilemma of expensive modern diagnostic and therapeutic tools. It presents more in females and malignant causes being more prevalent. Benign jaundice affects more patients of young age

while malignant found to be more in elder age group. Carcinoma of the head of the pancreas is the commonest malignant cause of jaundice whereas stones in the bile duct the commonest benign etiology. The diagnostic workup has a major role and is a costly affair being shared by the radiology and pathology departments.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Weight of the Heart and Diameter and the Thickness of the Walls of Aorta, A Comparative Study

Ghulam Mujtaba<sup>1</sup>, Muhammad Irfan Ashraf<sup>2</sup> and Santosh Kumar<sup>3</sup>

## ABSTRACT

**Objectives:** To analyze cadaveric based data of weight of heart, diameter and thickness of the walls of aorta in our population

**Study Design:** Descriptive / cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Anatomy and Pathology, Dow Medical College, DUHS, Karachi from 2008 – 2012.

**Materials and Methods:** The hearts of one hundred cadavers (both male and female) were obtained from the morgue of Civil Hospital and other morgues of the Karachi. The hearts were removed in the usual necropsy procedure. Male and female cadaveric hearts were divided into six groups which were constituted ranging in age from 20 to 79 years i.e. Group A: 20-29 (Vicenarian group), Group B: 30-39 (Tricenarian group), Group C: 40-49 (Quadrangarian group), Group D: 50-59 (Quinquagenarian group), Group E: 60-69 (Sexagenarian group) and Group F: 70-79 (Septuagenarian group). Young and otherwise healthy individuals (died due to road traffic accident, Gunshot injury, Suicide or Homicide) were included in the study. The cadaver whose cause of death was known to be cardiac was not included in the study.

**Results:** The mean weight of the heart is 286.14 grams  $\pm$  3.23 and between male and female the P-value is (P<0.00) which is significant. Average aortic diameters are 2.77 cm,  $\pm$  .027 and between male and female the P-value is (P<0.01) which is significant. Average aortic wall thickness is 1.0 mm  $\pm$  0.16 with significant male and female p-value (P<0.01).

**Conclusion:** Our study provided the measurement in the cadavers with regards to weight of heart and aortic diameter and the thickness of the wall of aorta. It is also concluded that results obtained show significant difference between male and female hearts with regards to these parameters.

**Key Words:** Descriptive cross sectional study, cadavers, significant p-value.

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## INTRODUCTION

Knowledge of the morphometry of heart, including weight and size of heart, diameter of great vessels, and size of chambers, variant anatomy and anomalies of coronary circulations are vital component in the management of congenital and acquired heart diseases. Increasingly complex cardiac repair demands enhanced understanding of the basic to improve the operative outcome

By definition according to American Heritage Medical Dictionary, morphometry is "Measurement of the form of organism or their parts".

It is simply stated "the process or technique of measuring the external form of an object-morphometry."<sup>1</sup>

According to Dictionary of Cell and Molecular Biology 2008, morphometry is "The method that involves the measurement of shape". Varieties of methods which exist to enable to examine structure for example, the distribution of objects in a section of cell and then to use this to predict the shapes and distribution of these objects in three dimension.

The identification of structural changes in the human tissue or organs can be observed by using different morphometric measurement and the different ways to study human tissue and to measure it either in living condition, at biopsy or of dissected tissue are, ultrasonographic morphometric studies, CT Scan morphometric studies, MRI Scan based measurement, Variner caliper for the measurement of dissected tissues, Microscopic morphometric studies.

Progress has been made in the last few decades in the management of cardiovascular diseases. The known uncorrectable lesions have nowadays become amenable to corrections as more and more new surgical and interventional techniques are being introduced.

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In different parts of the world studies have been conducted on the heart in relation to age and sex, in which variations of different parameters like thickness of pericardium, origin of great vessels, number and thickness of cusps and anomalies of coronary arteries are observed.<sup>2-5</sup> These parameters are not extensively studied in Pakistan and present study is, therefore aimed to analyze morphometric features of some of above parameters i.e. heart e.g. weight of the heart, diameter and circumference of aorta, which may increase our knowledge regarding these parameters.

**MATERIALS AND METHODS**

This descriptive cross sectional study on human hearts in the Anatomy was carried at the Department of Anatomy with the collaboration of the Department of Pathology, Dow Medical College, Dow University of Health Sciences Karachi, for the duration of four years i.e. 2008 to 2012.

The hearts of one hundred male and female cadavers were obtained from the morgue of Civil Hospital and other morgues of the Karachi. The hearts were removed in the usual necropsy procedure. Six groups were constituted ranging in age from 20 to 79 years and were further divided into male and female groups according to senescence distribution.

- Group A was with age ranging from 20 – 29 years (Vicenarian group).
- Group B was with age ranging from 30 – 39 years (Tricenarian group).
- Group C was with age ranging from 40 – 49 years (Quadrangarian group).
- Group D was with age ranging from 50-59 years (Quinquagenarian group).
- Group E was with age ranging from 60-69 years (sexagenarian group).
- Group F was with age ranging from 70 – 79 years (Septuagenarian group).

**Inclusion criteria:** Autopsies performed to ascertain cause of death in medico-legal cases were included as unselected series.

Young and otherwise healthy individuals (died due to road traffic accident, Gunshot injury, Suicide or Homicide) were included in the study.

**Exclusion criteria:** The cadaver whose cause of death was known to be cardiac was not included in the study. The known cause of death of other associated morbities was also excluded.

**Procedure:** All bodies were received within four days of death by medico legal officers. The anterior mediastinum was exposed by removing the anterior thoracic wall. The first seven ribs were cut on either side close to the midaxillary line and manubrium was divided just below the sternoclavicular joint. The lungs were mobilized and resected at their roots and the pericardial sac was opened to expose the heart. The

great vessels were cut close to their roots to free the heart from the thoracic cavity.

An external examination was carried out for each heart, following which the four chambers and coronary arteries were dissected.

Each heart was washed out thoroughly and left to air-dry in the dissecting room for one hour before it was weighted using an electric scale with one gram precision.

The internal diameter of the ascending aorta was measured using the critical calipers, 1cm above the superior margin of the aortic sinus and inspected for atheroma or aneurysm.

Statistical analysis was done on SPSS; version 16 and results were compiled by using student’s ‘t’-test.

**RESULTS**

**Weight of Heart:** Average weight of heart in Vicenarian group was 269.00 gm, while mean weight in nine males was 299.67 gm ± 15.44 and the mean weight of eleven females is 243.91 gm ± 11.85 and P-value (P<0.00) is significant.

Average weight of heart in Tricenarian group was 278.72 gm, while mean weight in thirteen males is 299.31 gm ± 16.26 and the mean weight of nine females is 249 gm ± 15.18 and P-value (P<0.00) is significant.

**Table 1: shows diameter of aorta (cm)**

Diameter of Aorta (cm)						
Age Groups	Over all Mean	Sex	N	Mean	Std. Deviation	P-value
Age Group 20-29 (Vicenarian group)	2.65	M	9	2.84	0.15	0.00
		F	11	2.50	0.13	
Age Group 30-39 (Tricenarian group)	2.67	M	13	2.75	0.26	0.00
		F	9	2.57	0.17	
Age Group 40-49 (Quadrangarian group)	2.65	M	6	2.87	0.05	0.00
		F	9	2.51	0.11	
Age Group 50-59	2.91	M	10	3.04	0.08	0.00
		F	16	2.83	0.09	
Age Group 60-69	2.87	M	5	2.96	0.11	.057
		F	6	2.80	0.13	
Age Group 70-79	3.11	M	5	3.12	0.13	0.275
		F	1	3.10	.	

Average weight of heart in Quadrangarian group was, 281.80 gm, while mean weight in six males is 313 gm ± 16.12 and the mean weight of nine females is 261 gm ± 8.06 and P-value (P<0.00) is significant (Graph No. 1).

Average weight of heart in Quinquagenarian group was,288.96 gm, while mean weight in ten males is 309.1 gm ± 17.69 and the mean weight of sixteen females is 276.38 gm ± 16.15 and P-value (P<0.00) is significant. Average weight of heart in sexagenarian group was, 302.27 gm, while mean weight in five males is 321.2 gm ± 3.70 and the mean weight of six females is 286.5 gm ± 7.34 and P-value (P<0.00) is significant.

Average weight of heart in Septuagenarian group was,339.50 gm, while mean weight in five males is 349.4 gm ± 42.90 and the weight of single females is 286.5 gmP-value (P<0.05) is significant.

**Diameter of aorta:** The average diameter of aorta in Vicenarian group was,2.65 cm, while mean diameter in nine males is 2.84 cm ± 0.15 and the diameter in eleven females is 2.50 cm ± 0.13 (Table - 1).

The average diameter of aorta in Tricenarian group was, 2.75 cm, while mean diameter in thirteen males is 2.75 cm ± 0.26 and the diameter in nine females is 2.57 cm ± 0.17 (Table - 1).

**Table-2: shows diameter of aorta (cm).**

Wall thickness of Aorta (mm)						
Age Group	Over all Mean	Sex	N	Mean	Std. Deviation	p-value
Age Group 20-29 (Vicenarian group)	1.01	M	9	1.10	0.226	0.1
		F	11	0.95	0.142	
Age Group 30-39 (Tricenarian group)	1.06	M	13	1.12	0.153	0.073
		F	9	0.98	0.171	
Age Group 40-49 (Quadrangarian group).	1.04	M	6	1.16	0.136	0.008
		F	9	0.97	0.10	
Age Group 50-59	1.08	M	10	1.05	0.116	0.005
		F	6	1.02	0.139	
Age Group 60-69	1.13	M	5	1.22	0.130	0.091
		F	6	1.07	0.137	
Age Group 70-79	1.25	M	5	1.26	0.089	0.573
		F	1	1.2	.	

The average diameter of aorta in Quadrangarian group was, 2.65 cm while mean diameter in six males is 2.87cm ± 0.05 and the diameter in nine females is 2.51 cm ± 0.11(Table - 1).

The average diameter of aorta in Quinquagenarian group was, 2.91 cm while mean diameter in ten males is 3.04 cm ± 0.08 and the diameter in sixteen females is 2.83 cm ± 0.09 (Table - 1).

The average diameter of aorta in sexagenarian group was,2.87 cm while mean diameter in five males is 2.96 cm ± 0.11 and the diameter in six females is 2.80 cm ± 0.13 (Table - 1).

The average diameter of aorta in Septuagenarian group was, 3.11 cm, while mean diameter in five males is 3.12 cm ± 0.13 and the diameter in single females is 3.10 cm (Table - 1).

**Thickness of aortic wall:**The average wall thickness of aorta inVicenarian group was,1.01 mm while mean wall thickness in nine males is 1.10 mm ± 0.226 and the diameter in eleven females is 0.95 mm ± 0.142 with P-value of 0.1.(Table - 2).

The average wall thickness of aortain Tricenarian group was 1.06 mm while mean wall thickness in thirteen males is 1.12 mm ± 0.15 and the diameter in nine females is 0.98 mm ± 0.171 with P-value of 0.07. (Table - 2).

The average wall thickness of aorta in Quadrangarian group was,1.04 mm while mean wall thickness in six males is 1.16 mm ± 0.13 and the diameter in nine females is 0.97 mm ± 0.10 with P-value of 0.008. (Table - 2).

The average wall thickness of aorta in Quinquagenarian group was, 1.08 mm while mean wall thickness in ten males is 1.18 mm ± 0.116 and the diameter in sixteen females is 1.02 mm ± 0.139 with P-value of 0.005. (Table - 2).

The average wall thickness of aorta in sexagenarian group was, 1.13 mm while mean wall thickness in five males is 1.22 mm ± 0.13 and the diameter in six females is 1.07 mm ± 0.137 with P-value of 0.009. (Table - 2).

The average wall thickness of aorta in Septuagenarian group was, 1.25 mm while mean wall thickness in five males is 1.26 mm ± 0.08 and the diameter in single females is 1.2 mm ± 0.137, P-value of 0.57.(Table 2).

## DISCUSSION

**Weight of heart:** The weight of the heart has a great significance. In this study the mean weight of heart (in grams) is 286.14 ± 25.58. The average weight of male hearts was 306.48 ± 29.16. The female hearts was on an average 261.62 ± 22.00 and P-value is <0.01 in this study. This is a significant difference. The difference in the weight of heart in male and female reflects the fact that males are well built and their body structure supports this fact.

The body structure of females is quite different from males. Their physical working is also quite different. So the observation is quite natural and valid.The age factor did not have any significant influence after the puberty, as there is no significant increase in weight of the hearts in our study, in any age groups.

A study which was conducted in Thai population to correlate the weight of internal organs between males and females of normal population found that the ratio of



normal heart weight in male and female was 291/246. This suggests that the weight of heart was increased in male in relation to increasing age as compared to female population. This fact is supporting our study but further exploration is required.<sup>6,7</sup>

**Diameter of aorta:** The diameter of aorta is dependent on work load of the heart. In the present study the mean diameter of aorta (in cm) is  $2.76 \pm 0.19$ . The male and female mean is  $2.67 \pm 2.85$  respectively with p-value  $<0.01$ . It is quite significant. This reflects the physical working variations in two genders. American heart association has been continuously debating on aortic diameter, stiffness. All these were increased with age. Studies on autopsies showed that there was a clear-cut increase in the aortic surface area with increased age.<sup>8,9</sup> Cross sectional studies on aortic diameter conducted by angiography shows lesser but definite increase in the aortic diameter with increasing age. These studies also concluded that gender difference was due to the small body weight of females as compared to males.<sup>10,11</sup>

The progress in age influences physical working of any human. The human activity is at its peak in around fifty years of age. It declines after that peak. In our study the ascending aortic diameter is increasing with age. It was at its peak at 50-59 age group. The retirement had a clear influence. It is reflected in our study. Gender specific and age adjusted normal values for aortic diameters are necessary to differentiate pathologic atherosclerotic changes in the ascending aorta. This establishes age and sex as a powerful predictor of subclinical atherosclerotic disease.<sup>12-15</sup>

**The aortic wall thickness** continues to increase till fifty years of age group. This may reflect the fact that human activity is at its maximum around fifty years of age, and it is more in males than in females. In our study, men had greater average and maximal wall thickness than women. This is in correlation with morbidity and mortality. An excess of coronary death rates among men in all age groups has been documented.<sup>16,17</sup>

## CONCLUSION

Our study provided the measurement in the cadavers with regards to weight of heart and aortic diameter and the thickness of the wall of aorta. It is also concluded that results obtained show significant difference between male and female hearts with regards to these parameters.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Morphometric Study of the Valves of Heart, A Cadaveric, Comparative Study in Karachi

Muhammad Irfan Ashraf<sup>1</sup>, Ghulam Mujtaba<sup>2</sup> and Santosh Kumar<sup>3</sup>

## ABSTRACT

**Objective:** Analyze cadaveric based data of valves of heart and compare data between male and females of Karachi

**Study Design:** Descriptive / cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Anatomy, Dow Medical College, DUHS, Karachi from 2008 to 2012

**Materials and Methods:** The hearts of one hundred cadavers (both male and female) were obtained from the morgue of Civil Hospital and other morgues of the Karachi. The hearts were removed in the usual necropsy procedure. Male and female cadaveric hearts were divided into six groups which were constituted ranging in age from 20 to 79 years i.e. Group A: 20-29, Group B: 30-39, Group C: 40-49, Group D: 50-59, Group E: 60-69 and Group F: 70-79. Young and otherwise healthy individuals (died due to road traffic accident, Gunshot injury, Suicide or Homicide) were included in the study. The cadaver whose cause of death was known to be cardiac was not included in the study

**Results:** The mean circumference of tricuspid valve showed a significant p-value ( $P < 0.05$ ) except age Group F. Mean circumference of mitral valve showed a significant p-value ( $P < 0.05$ ) in all groups. Mean circumference of pulmonary valve showed a significant p-value ( $P < 0.05$ ) in age Groups A and age Group C. Mean circumference of aortic valves showed a significant p-value ( $P < 0.05$ ) in all age groups except age Group E.

**Conclusion:** The mean circumference of valves are heart in both sexes have significant differences in most of groups in tricuspid, mitral valve and aortic valves but in case of pulmonary valves age Group A and C showed significant difference

**Key Words:** Valves of heart, p-value, cadavers

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## INTRODUCTION

Morphometry is "Measurement of the form of organism or their parts". It is simply stated "the process or technique of measuring the external form of an object"<sup>1</sup> According to Dictionary of Cell and Molecular Biology 2008, morphometry is "The method that involves the measurement of shape."<sup>2</sup> The study of the tricuspid valve plays an important role for the interventional cardiology. The atrioventricular valves are formed in part from the myocardium, and in part from mesenchymal elements like the endocardial cushions<sup>2,3</sup>.

The knowledge of normal and variant anatomical types of tricuspid valve helps in repair and prosthesis replacement<sup>2</sup>

The opening of the pulmonary artery is circular, and is situated at the summit of the conus arteriosus, close to the ventricular septum. It is placed above and to the left of the atrioventricular opening, and is guarded by the pulmonary semilunar valves. One of the most common lesion with which pulmonary artery variation is associated, is Tetralogy of Fallot.<sup>4</sup>

Now a day's open-heart operations for the correction of mitral incompetence and stenosed valves commonly take place, but still some details of the structural anatomy of these valves are not widely known so there is a need for standardization. The studies conducted on the open heart surgical procedure as well as on cadaveric heart described the dimension of valves and papillary muscles and chordae tendineae were observed. The detailed dimensional data were standardized regarding the measurement of mitral Valve<sup>5</sup>.

The aortic root is the direct continuation of the left ventricular outflow tract. It is situated to the right and posterior, to the sub pulmonary infundibulum, with its posterior margin wedged between the orifice of the mitral valve and the muscular ventricular septum.<sup>6</sup> It

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extends from the basal attachment of the aortic valvular leaflets within the left ventricle to their peripheral attachment at the level of the sinutubular junction<sup>6</sup>.

In different parts of the world studies have been conducted on the heart in relation to age and sex, in which variations of different parameters like thickness of pericardium, origin of great vessels, circumference of atrioventricular valves, number and thickness of cusps and anomalies of coronary arteries are observed.<sup>6-10</sup> These parameters are not extensively studied in Pakistan and present study is, therefore aimed to analyze morphometric features of the circumference of atrioventricular valves heart.

## MATERIALS AND METHODS

This descriptive cross sectional study on human hearts in the Anatomy was carried at the Department of Anatomy with the collaboration of the Department of Pathology, Dow Medical College, Dow University of Health Sciences Karachi, for the duration of four years i.e. 2008 to 2012.

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An external examination was carried out for each heart, following which the four chambers and coronary arteries were dissected.

Each heart was washed out thoroughly and left to air-dry in the dissecting room for one hour before it was weighted using an electric scale with one gram precision. The circumference of the atrioventricular, pulmonary and aortic valves was measured using the critical calipers.

Statistical analysis was done on SPSS; version 16 and results were compiled by using student's 't'-test.

## RESULTS

**Right atrioventricular valve (Tricuspid):** The average circumference of right atrioventricular valve in age group A, B, C, D, E and F Groups along with p-value is shown in fig.1

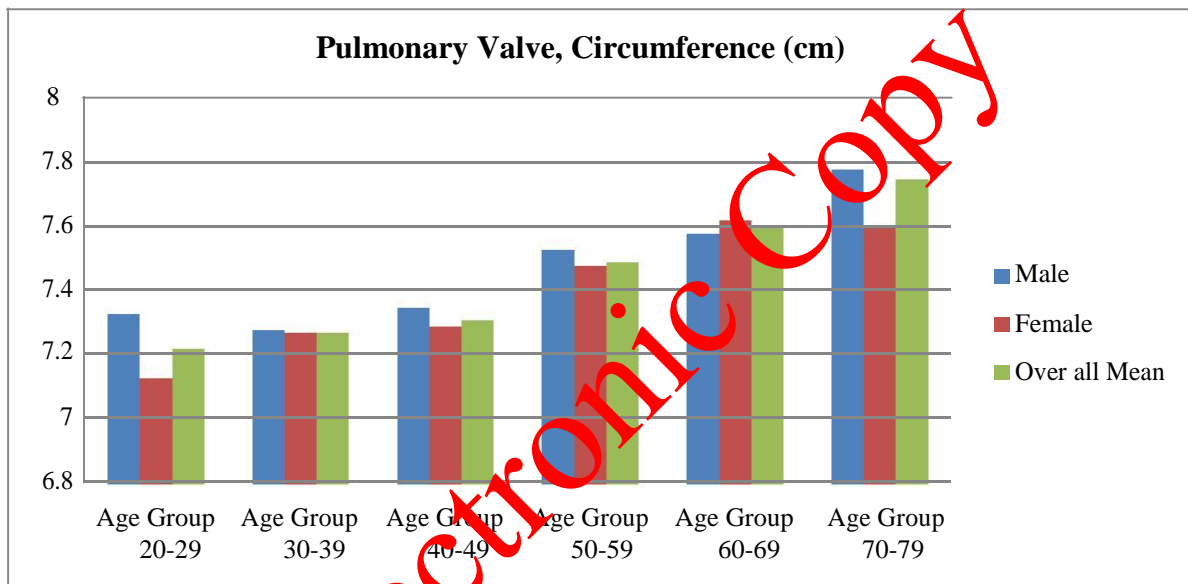
**Left atrioventricular valve (Mitral):** The average circumference of left atrioventricular (Mitral) valve in age group A, B, C, D, E and F Groups along with p-value is shown in fig.2

**Table No-1. Right A/V Valve, Circumference (cm)**

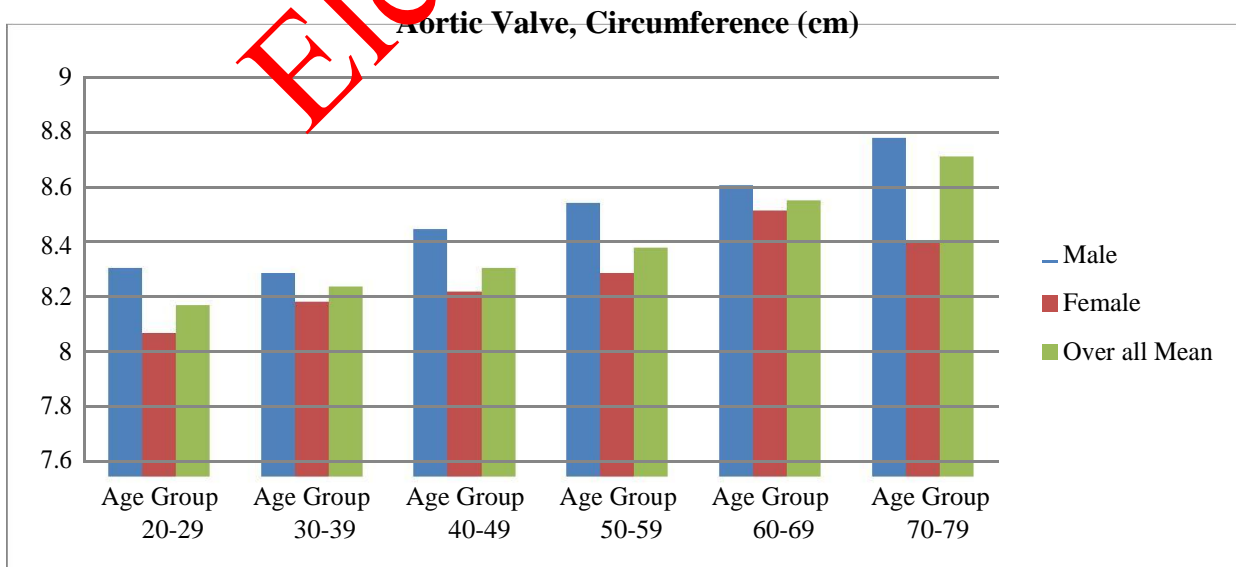
Right A/V Valve, Circumference (cm)						
	Over all Mean	Sex	N	Mean	Std. Deviation	p-value
Age Group 20-29	9.82	M	9	10.36	0.40	0.000
		F	11	9.39	0.24	
Age Group 30-39	10.08	M	13	10.37	0.31	0.000
		F	9	9.67	0.32	
Age Group 40-49	10.13	M	6	10.62	0.37	0.0001
		F	9	9.81	0.25	
Age Group 50-59	10.08	M	10	10.60	0.31	0.000
		F	16	9.76	0.33	.
Age Group 60-69	10.33	M	5	10.74	0.35	0.001
		F	6	10.00	0.17	
Age Group 70-79	10.81	M	5	10.98	0.44	0.111
		F	1	10.00	.	.

**Table No.2. Mitral Valve Circumference (cm)**

Mitral Valve Circumference (cm)						
	Over all Mean	sex	N	Mean	Std. Deviation	p-value
Age Group 20-29	8.70	M	9	9.34	0.34	0.00
		F	11	8.18	0.15	
Age Group 30-39	9.07	M	13	9.51	0.30	0.00
		F	9	8.44	0.28	
Age Group 40-49	8.99	M	6	9.65	0.29	0.00
		F	9	8.56	0.24	
Age Group 50-59	8.96	M	10	9.47	0.39	0.00
		F	16	8.65	0.18	
Age Group 60-69	9.09	M	5	9.54	0.42	0.001
		F	6	8.72	0.12	
Age Group 70-79	9.91	M	5	10.16	0.22	0.004
		F	1	8.7	.	.



**Graph No.1: Pulmonary valve circumference (cm)**



**Graph-2. Aortic Valve Circumference (cm)**

**Pulmonary valve:** The average circumference of pulmonary valve in age group 20-29 is 7.22 cm while mean circumference of pulmonary valve in nine males is 7.33 cm  $\pm$  0.15 and in eleven females is 7.13 cm  $\pm$  0.19 with P-value of 0.017 as shown in Graph 1.

The average circumference of pulmonary valve in age group 30-39 is 7.27 cm while mean circumference of pulmonary valve in thirteen males is 7.28 cm  $\pm$  0.14 and the mean circumference in nine females is 7.27 cm  $\pm$  0.17 with P-value of 0.878 as shown in Graph 1.

The average circumference of pulmonary valve in age group 40-49 is 7.31 cm while mean circumference of pulmonary valve in six males is 7.35 cm  $\pm$  0.16 and the mean circumference in nine females is 7.29 cm  $\pm$  0.14 with P-value of 0.447 as shown in Graph 1.

The average circumference of pulmonary valve in age group 50-59 is 7.49 cm while mean circumference of pulmonary valve in ten males is 7.53 cm  $\pm$  0.14 and the mean circumference in sixteen females is 7.48 cm  $\pm$  0.23 with P-value of 0.508 as shown in Graph 1.

The average circumference of pulmonary valve in age group 60-69 is 7.60 cm while mean circumference of pulmonary valve in five males is 7.58 cm  $\pm$  0.13 and the mean circumference in six females is 7.62 cm  $\pm$  0.10 with P-value of 0.607 as shown in Graph 1.

The average circumference of pulmonary valve in age group 70-79 is 7.75 cm while mean circumference of pulmonary valve in five males is 7.78 cm  $\pm$  0.27 and the mean circumference in single females is 7.6 cm with P-value of 0.573 as shown in Graph 1.

**Aortic valve:** The average circumference of aorta valve in age group 20-29 is 8.26 cm while mean circumference of aortic valve in nine males is 8.4 cm  $\pm$  0.15 and in eleven females is 8.15 cm  $\pm$  0.15 with P-value of 0.001 as shown in Graph 2.

The average circumference of aortic valve in age group 30-39 is 8.33 cm while mean circumference of aortic valve in thirteen males is 8.38 cm  $\pm$  0.13 and in nine females is 8.27 cm  $\pm$  0.14 with P-value 0.061 as shown in Graph 2.

The average circumference of aortic valve in age group 40-49 is 8.40 cm while mean circumference of aortic valve in six males is 8.55 cm  $\pm$  0.12 and in nine females is 8.31 cm  $\pm$  0.20 with P-value of 0.02 as shown in Graph 2.

The average circumference of aorta in age group 50-59 is 8.48 cm while mean circumference of aortic valve in ten males is 8.65 cm  $\pm$  0.20 and in sixteen females is 8.38 cm  $\pm$  0.16 with P-value of 0.001 as shown in Graph 2.

The average circumference of aortic valve in age group 60-69 is 8.66 cm while mean circumference of aortic valve in five males is 8.72 cm  $\pm$  0.18 and the mean circumference of aortic valve in six females is 8.62 cm  $\pm$  0.18 with P-value of 0.372 as shown in Graph 2.

The average circumference of aorta in age group 70-79 is 8.83 cm while mean circumference of aorta in five

males is 8.9 cm  $\pm$  0.10 and in single females is 8.50 cm with P-value of 0.022 as shown in Graph 2.

## DISCUSSION

In recent studies, there has been a lot of emphasis on the importance of morphometry of tricuspid valve. The valve shows considerable variation. The morphometry of tricuspid valve has significant clinical importance for cardiovascular surgeons, and the data in our subcontinent is quite limited. The circumference of tricuspid valve in our study was 10.123 cm. It is increasing with advancing age. In an Indian study by Skwarek a significant increase was observed both in men and women and hence knowledge of the morphology and morphometry of the tricuspid valve helps to differentiate between functional and organic tricuspid pathology.<sup>11</sup> Such data may also be helpful to cardiac surgeons treating patients with tricuspid valve abnormality.

Silver et al reported tricuspid circumference 114 mm in males and 108 mm in females. In our study it is coming to be 101.23 cm and on lower side in females.<sup>12</sup>

In another study on 96 human hearts by Skwarek M *et al*, the circumference of tricuspid valve ranged from 107.28  $\pm$  16.76 mm to 120.9  $\pm$  20.95 mm in men and from 104.64  $\pm$  16.76 mm to 110.75  $\pm$  14.38 mm in women. It is in correlation with our study. The authors from the subcontinent have concluded that the circumference is comparatively much smaller in this area as compared with the Western data.<sup>13</sup> Short height and smaller size of the body structure in this region as compared to the western<sup>14, 15</sup> population might be the probable reason for this difference.

In a study conducted by R.Kalyani, M.J.Theij on 100 formalin fixed hearts, of persons between eight to eighty five years, significant increase in tricuspid valve measurements were observed with advancing age both in men and women.<sup>15</sup>

The mitral valve has a significant importance for clinicians and is altered by various disease states. In our study the mean circumference was 9.002 cm. In a study by Gunnal it is 9.12 cm and diameter is 2.22 cm. It is in close correlation with our study.<sup>16</sup> In another study the circumference was 8.248 cm.<sup>17</sup>

## CONCLUSION

This study provided the measurement in the cadavers with regards to valves of heart.

The mean circumference of valves are heart in both sexes have significant differences in most of groups in tricuspid, mitral valve and aortic valves but in case of pulmonary valves, age Group A and C showed significant difference.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# To Determine the Frequency of Risk Factors of Blindness in Blind People Living in Muhammad Bin Qasim Blind Welfare Organization, Multan

Ifrah Ata Hashmi<sup>1</sup>, Salman Yousaf<sup>2</sup>, Farukh Nawaz<sup>3</sup> and Muhammad Sharjeel Bin Hashmi<sup>3</sup>

## ABSTRACT

**Objectives:** To determine the frequency of risk factors of blindness in patients and To provide them awareness about prevention of risk factor.

**Study Design:** Observational / Cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Community Medicine, NMC, Multan from October 2016 to December 2016.

**Materials and Methods:** A total of 46 blind persons were included in the study with their informed consent. A questionnaire was designed and data was collected and analyzed using SPSS.

**Results:** A total of 46 subjects were included in the study. Most of them, 24 (52.17%) were blind at birth. Of the remaining 22 (47.82%), 5 (10.8%) were victims of trauma and rest 17 (36.95%) had history of curable or preventable diseases as cataract (4.3%), glaucoma (6.5%) etc.

**Conclusion:** This study estimates the risk factors for blindness in the setting of the selected blind centre. A significant majority of subjects were blind at birth and were with poor socio-economic background. Awareness on blindness need to be further expanded to uneducated people, particularly to those from rural areas.

**Key Words:** Blindness, Risk factors, Blind People.

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## INTRODUCTION

Blindness, loss of vision, is a condition of major public health importance. Blind people confront a number of visual challenges every single day, from reading the label on a frozen dinner to figuring out if they are at the right bus stop. Unfortunately, 39 million of the world population is currently blind<sup>1</sup>. While 2 million peoples are added to this list annually. The condition is even more pathetic in a developing country like Pakistan. In a population of about 22.1 million in Pakistan, about 2 million of the people are blind while 0.18 million people are new registrations annually. Globally, the leading cause of blindness is cataract followed by uncorrected refractive error. 85% of all visual impairment globally is avoidable. In Pakistan, accordingly to the Pakistan National Blindness and Impairment survey<sup>2</sup>, the leading cause of blindness in adults more than 30 years of age is cataract.

While globally 39.1% of all blindness is attributable to cataract, in Pakistan the burden of blindness due to cataract is significantly larger at 51.5% 85.4% of blindness is avoidable in Pakistan. On the other side of story is the developed world like USA where the major causes of blindness are unavoidable factors like macular degeneration, myopic degeneration, UV light exposure, outcome of obese lifestyle like diabetic retinopathy and cases of excessive use of steroid. Second most leading cause of blindness in Pakistan is corneal opacity. It accounts of 12.6% of total estimate. 4.5 million people of the world are the sufferers of Glaucoma. However about 0.08 million (3.9%) are effected in Pakistan. After cataract Glaucoma was the next most treatable cause of blindness.

Other risk factors includes Vitamin A deficiency causing night blindness, uncorrected refractive error (0.23 million), endemic trachoma, age related macular degeneration (8.7%) and metabolic disorder. Congenital cases of childhood blindness estimates about 0.7 per thousand children in Pakistan. Another problem to deal with is sudden blindness in which, certain type of vision changes of medical emergency, where delay can lead to loss of sight. E.g. eye injury, transient ischemic attack, stroke and allergy to medication.

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## MATERIALS AND METHODS

The study was Department of Community Medicine, NMC, Multan from October 2016 to December 2016. There were 46 patients living at Muhammad Bin Qasim Blind Welfare Organization, Chowk Kumharan Wala, Multan.

**Sampling Technique:** Non probability purposive technique was used in this cross-sectional study. Blind patients completely blind persons who were living in the welfare centre. Person with either intact vision or impaired vision were excluded from this study. SPSS version 15 was used for analysis.

## RESULTS

A total of 46 blind patients were enumerated, all of whom were included in this study. Among them 65.21% were male and 34.78% were female. Of the 46 subjects observed, 24(52.17%) presented with blindness at birth and the remaining 22 (47.82%) developed blindness later in their life. Of the latter 22 subjects, 5 were victims of trauma (entry of foreign particles into eye, accidents, wounds during fights etc.) and the rest had diseases that could have been prevented or cured.

**Table No.1: Frequency Distribution of Age of Blind People.**

Age	Number	(%)
Less than 10 Years	11	23.9
11 years to 15 years	24	52.2
16 years to 20 years	8	17.4
21 years to 25 years	3	6.5
Total	N = 46	100

**Table No.2: Frequency Distribution of Gender of Blind People.**

Gender	Number	(%)
Male	30	65.2
Female	16	34.8
Total	N = 46	100

**Table No.3: Frequency of Risk Factor of Blindness.**

Risk factors	Number of blind people	(%)
By Birth	24	52.2
Trauma	5	10.9
Untreated refractive error	4	8.7
Measles	4	8.7
Glaucoma	3	6.5
Night blindness	3	6.5
Cataract	2	4.3
Rubella	1	2.2
TOTAL	N = 46	100

**Table No.4: Frequency Distribution of Blindness In The Families of Blind People.**

	Number	(%)
Yes	31	67.4
No	15	32.6
Total	N = 46	100

**Table No.5: Frequency Distribution of Blind People on the Basis of Socioeconomic Status**

Income (in PKR)	Number	(%)
Less than 10 thousands	28	60.9
10 thousands-20 thousands	14	30.4
More than 20 thousands	4	8.7
Total	N = 46	100

**Table No.6: Frequency Distribution of Medical Checkup / Treatment of Blind People in Hospital**

	Number	(%)
Once a month	2	6.5
Once in 6 months	4	8.7
Once in a year	4	4.3
Only when problem arises	37	80.5
Total	N = 46	100

These included 4 cases of untreated refractive error, 4 of measles, 3 of glaucoma, 3 of vitamin A deficiency night blindness, 2 of cataract and 1 of rubella. 6 subjects out of the total sample were not vaccinated which rubella. 31 out of 46(67.39%) subjects had significant family history (a sibling, a cousin, parent or sibling of parent who was also blind). Among other medically relevant details observed was, history of trauma / disease in mothers (esp. during the pregnancy). Of the subjects, 16 subjects were born to mothers with hypertension, 8 to mothers with diabetes, mothers of 4 were victims of accidents during pregnancy and 18 had no significant history in this regard. 40 out of 46 were born by SVD and 6 by C-sections. 32 were born in homes and only 14 in health units or hospitals. 32 patients had tried allopathic treatment, 7 had tried both allopathic and homeopathic treatment, 2 had tried only homeopathic and peer / taweez whereas 5 of them had made no efforts to treat their blindness. Only 3 get regular monthly checkups at hospitals, 4 get checked once every 6 months, 2 once a year whereas the remaining 37 only visit doctors when they get ill. 21 out of 46 subjects were from urban areas whereas as 25 (54.34%) of them were from rural areas with lack of education, awareness and next to no health facilities. 16 of them had completely uneducated parents, 15 of them had parents with secondary level education, 6 with primary level and only 9 had parents who studied beyond Matriculation. This presents as a significant



point when it comes to awareness of parents for the well-being of their children during pregnancy and after birth. The results show this is to be underlying cause in several of the 22 cases with preventable or curable causes of blindness. The income of the families is also an important factor in the healthy upbringing of children and the maintenance of health of their mothers during pregnancy. 28 of the 46 patients had monthly household incomes of less than 10,000 PKR due to which families were probably unable to afford health facilities or a clean healthy environment and nutritious diet.

## DISCUSSION

The research conducted by us figured out that most of the cause were present at birth and men were comparatively more affected. Other less frequent risk factors<sup>3</sup> involved were trauma and foreign particles in eyes, glaucoma, night blindness, and cataract. Neonatal conjunctivitis though one of the major worldwide cause was not found in our study. Compared to the research carried out by The Scripps Research Institute<sup>4</sup>, United States, involving entire population of United States the number of blind females was more compared to that of males. Moreover "Age" a modifiable risk factor was the culprit. Ageing<sup>5</sup> associated problems like refractive errors, macular degeneration were pointed out. Likewise metabolic disorder like Diabetes<sup>6</sup> causing cataract was also one of the major cause.

The paper vision 2020<sup>7</sup> published by WHO figured out that the 82% of all blind people are 50 years of age or older. Although the prevalence of blindness among children is about 10 times lower than that among adults. Studies consistently figured out in every region of the world and of all ages females have a significantly higher risk for being visually impaired than males, mostly because of higher life expectancy and poor access to resources. According to study, prevalence of uncorrected refractive errors is an emerging cause of blindness in school children especially in South-East Asia<sup>8</sup>.

## CONCLUSION

Blindness is one of the major problem our society is encountering, considering the number of blind population in Pakistan and the stigma associated with it. Our study pointed to the fact that most of the subjects were from the rural areas, born to a family with poor socio-economic condition. It also put light on the poor antenatal care, counseling and nutritional supplements our mothers are provided with. As a result children who are 1/3<sup>rd</sup> our present and whole of our future are the sufferers. Although our study was carried out in a very small sample size of 46, it did reflect the relative

decrease in blindness compared to what it was a decade ago. It also suggests blindness (esp. Night blindness) due to nutritional (Vit. A) deficiency is now a less important risk factors. To summarize, they all suggest improvement in eye-care. It is very encouraging. However, journey doesn't stop here. We need to identify priorities to reduce blindness and to mobilize human and financial resources wisely to ensure all our people receive comprehensive eye care.

The study was done on blind patients attending Muhammad Bin Qasim Blind Centre, therefore results can't be applied to the whole community. Some subjects were not able to answer the questions related to their birth history and maternal health. Age group was limited and Some of the subjects were unaware of their immunization status.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Efficacy of Oral Chloroquine in Uncomplicated Vivax Malaria in children

Efficacy of  
Chloroquine in Vivax  
Malaria in children

Salma Shaikh, Shazia Memon and Chetan Das

## ABSTRACT

**Objectives:** To assess the efficacy of Chloroquine in treatment of uncomplicated vivax malaria.

**Study Design:** Observational study

**Place and Duration of Study:** This study was conducted at the Pediatric Outpatient Department, LUMHS, Jamshoro, Sindh from March to December 2016.

**Materials and Methods:** All the patients from 6 months to 15 years presented with febrile illness with no any cause for fever and not severely malnourished were screened for malaria by doing slide microscopy. We had included 100 children confirmed on microscopy as cases of vivax malaria as our sample for complete follow up protocol upto 42 days for scheduled slide microscopy (3,7,14,21,& 42). They were treated with oral chloroquine in outpatient department, under supervision of research officer for first three days and follow up continued for 42 days to assess clinical and parasitological response. Our Primary Outcome was Adequate Clinical and Parasitological Response (ACPR) while our Secondary Outcomes were early treatment failure and late parasitological failure.

**Results:** From 100 mono-infected patients with Plasmodium vivax, 92 cases responded to chloroquine by day 3, while 8 cases cleared parasitemia by day 7. By day 7 response to treatment was 100%. 5 were lost to follow up on day 14 and 3 cases on day 21.

**Conclusion:** CQ remains safe and effective therapy for uncomplicated Vivax Malaria, such studies on larger scale should be continued for early detection of resistance.

**Key Words:** Vivax Malaria, Chloroquine Efficacy, Uncomplicated Malaria, Children.

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## INTRODUCTION

Malaria is one of major health problems in Pakistan where 19% of all malaria cases of EMRO region occurs and Plasmodium Vivax is responsible for 8% of cases.<sup>1</sup> Vivax malaria requires more attention not only for being the predominant species and its association with anemia and poor pregnancy outcomes but also has now been documented to cause severe malaria and deaths in many countries including Pakistan.<sup>2</sup> Chloroquine remains drug of choice for Vivax malaria, but resistance has been reported from Asia, south America and eastern Africa.<sup>3</sup> Globally 2.48 billion people are at risk of Vivax infection with almost 67% cases occurring in south east Asia<sup>1</sup>. Plasmodium vivax is responsible for nearly 80 million cases every year mainly in Asia, western pacific, middle east and Americas<sup>4</sup>.

One of the strategies to control malaria is timely provision of effective anti-malarials to infected individuals. Resistance to anti-malarials is a major challenge for effective malaria control. There is a need for routine monitoring of efficacy of the antimalarial drugs every two years in all malaria endemic countries. ACT is recommended treatment for Falciparum by our national malaria control program but Chloroquine remains drug of choice for Vivax Malaria. Though vivax in most countries is sensitive to chloroquine but resistance has been reported from Asia, south America and eastern Africa.<sup>5</sup> Therefore, monitoring the dynamics of anti-malarial drug resistance could help detect emerging resistant strains early. Vivax has many important biological differences from P. falciparum, like the development of dormant liver stages and the emergence of gametocytes before the onset of clinical symptoms which result in recurrences and greater transmission risk<sup>5</sup>. Chloroquine has good oral absorption with bioavailability of 80 to 90%, it has a long terminal elimination time of one to two months. Studies from Pakistan have showed good response to chloroquine and it remains a safe and cost effective treatment but we need to conduct such studies periodically as recommended by WHO<sup>1</sup> to assess the efficacy and safety of different anti-malarial drugs to provide scientific evidence to physicians and to guide national malaria control program for future treatment policies.

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This prospective, observational follow up study assessed the therapeutic efficacy of CQ, which remained a drug of choice for the treatment of P.vivax mono-infection. So purpose of this study was to assess the effectiveness of the chloroquine in children with P-vivax malaria.

## MATERIALS AND METHODS

This observational study was conducted from March to Dec 2016 at pediatric out-patient department LUMHS. Inclusion criteria of our study were the children from 6month to 15 years presented with fever and positive for Plasmodium vivax, able to swallow oral medication; and willingness to comply with the protocol for the duration of the study. Patients with severe malnutrition and clinical feature of severe complicated malaria and those who have taken ant malarial in last 8 weeks, having mixed infection with P. falciparum.

All the patients who fulfilled the inclusion criteria (from 6 months to 15 years with fever or history of fever for 48 hours) were examined thoroughly and M.P was done by preparing thick and thin films and reported by 2 separate trained technicians. Total 100 confirmed cases of vivax malaria were enrolled for complete follow up protocol of scheduled slide microscopy upto day 42 as Our estimated sample size. It was calculated based on the WHO revised protocol for anti-malarial drug efficacy surveillance<sup>1</sup> and prevalence of around 5% treatment failure rate reported in different studies of Pakistan<sup>5</sup> with 95% confidence level, 5% margin of error and 25% contingency (expected loss to follow-up rate). Our sampling technique was Non-probability purposive. Informed consent was taken from parents. They were assured that their identity will be kept confidential.

They were treated with oral chloroquine in outpatient department 25mg/kg over 3 days (on day 0 (10 mg base/kg body weight), day1 (10 mg base/kg body weight), and day2 (5 mg base/kg body weight). Drug administration was done under observation of research officer daily and all the patients were observed for 30 minutes for vomiting. When vomiting took place, the patient was treated with a same full dose of drug.

The follow-up included a fixed schedule on (day 1, 2, 3, 7, 14, 21, and 28 and 42 days). Assessment and monitoring of parasitological and clinical outcome was made for each patient until day 42. Day 0 was defined as the day on which the case was enrolled and received the first dose of CQ. The study subjects were asked to come back to health center immediately showed any signs of danger (as unable to drink or breastfed (if child), vomiting, presenting with convulsions, lethargic or unconscious, unable to sit or stand, difficult breathing). Auxiliary temperature, body weight and clinical conditions were recorded during the follow up period. Patients were labeled as lost to follow-up whenever they did not come to the clinic as scheduled.

Our Primary Outcome was Adequate Clinical and Parasitological Response (ACPR) while our Secondary Outcomes were fever clearance and gametocyte clearance

## RESULTS

During this study around 3822 patients presenting with fever were screened for malaria infection by doing slide microscopy test (male 2145/female 1660). Around 267 were positive for malaria. Regarding the species 226 patients were positive for vivax infection. Frequency of species with their age and gender distribution is given in table 1 and 2.

**Table No.1. Frequency of plasmodium species**

Species	<5	>5	Total	%
Vivax	116	110	226	84.4
Falciparum	17	15	32	12.2
Mixed	3	6	9	3.4
Total	136	131	267	100

**Table No. 2: Age And Gender Distribution Among MP Positive Cases**

Age group	<5		>5		Total
	Male	Female	Male	Female	
Vivax	66	50	58	52	226
Falciparum	9	8	8	7	32
Mixed	2	1	3	3	9
Total	77	59	69	62	267

Regarding the parasite clearance time from 100 mono-infected patients with Plasmodium vivax, 92 cases responded to chloroquine by day 3, while remaining 8 cases were cleared by day 7. By day 7 response to treatment was 100% as given in table #3.

**Table No. 3: Time frame for the clearance of parasites.**

Day of enrollment	MP Positive	MP Negative	Percentage %
Day-0	100		
Day-1	40	60	60%
Day-3	8	92	92%
Day-7	00	100	100%

**Table No.4: Outcome of 92 patients who completed 42 days follow up**

Outcome	No. of patients	Percentage
Number of enrolled patients	92	
Early treatment failure	0	
Late clinical failure	0	
Late parasitological failure	2	2.1%
Adequate clinical and parasitological response	90	97.9%

The lost to follow up rate in our study was 8% (5 cases on day 14 and 2 cases on day 21) while the adequate clinical and parasitological response rate and relapse rate were 97.9% and 2.1% respectively. The result of 92 patients who completed 42 days follow up is shown in Table # 4.

## DISCUSSION

This observational prospective study was conducted from March to December 2016, to assess the effectiveness of oral chloroquine in children from 6 month to 15 years of age. This study has shown vivax as the most prevalent species as shown in other studies as well<sup>10</sup> Clinical drug efficacy against *P.vivax* is difficult to interpret due to inability to differentiate reliably between relapse, recrudescence, or re-infection. Primary outcome was ACPR which shows 97.9% response, which is similar to other studies nationally<sup>8</sup> and internationally where chloroquine sensitive vivax prevails.<sup>9</sup>

The secondary outcome of our study were fever clearance time and parasite clearance time. This study shows a fast clearance rate of both parasitemia and fever following CQ mono therapy. Around 68% patients presented with fever, more than 80% became fever free within 36–48hrs and 100% by day 3. Regarding the parasite clearance rate in 60% patients the MP was negative on day1 while 92% on day 3 and 100% by day7. Some studies have shown higher failure rates in children and suggested to increase dose from 25mg/kg to 30mg/kg to maintain therapeutic levels on weight basis.<sup>12</sup> We did not measure drug levels but clinical response on 25mg/kg was seen in almost 98% in our population. Only 2/100 children vomited but tolerated repeated dose after 30 minutes on first day of treatment, no adverse events were reported on follow up.

Timely effective treatment to control infection and reduce transmission is one of the main steps in 3T strategy of malaria control program.<sup>10</sup> Though testing for malaria is recommended in all countries by WHO through microscopy or RDT, both are not available in many of our public health facilities. Appropriate treatment can only be prescribed after confirming species as ACT is given for falciparum and Chloroquine for vivax in Pakistan according our national guidelines.<sup>11</sup> According to experts a unified treatment policy for malaria of gives significant individual, public health, and operational benefits in regions co-endemic for *P. falciparum* and *P. vivax*, and this approach has been adopted by some countries where vivax is sensitive to chloroquine.<sup>13</sup>

This study shows clinical efficacy of CQ in routine outpatient setting, the limitations of study are lack of confirmation by PCR, plasma drug levels or study of gene polymorphism which are available in few centers in Pakistan. The policy makers are urged to establish

such facilities at least at provincial level for future operational research on other antimalarials effective against vivax, along with drug quality control mechanism to control Plasmodium vivax malaria by effective treatment and to contain resistance.

Few studies conducted in Ethiopia so far indicated an alarming levels of CQR. In the current study, a three-dose regimen of CQ was safe and well tolerated anti-malarial drug. In our study no adverse effects were noted except 2% has developed vomiting. In other studies adverse effects of CQ and more than one adverse effect per individuals were rarely reported.

CQ efficacy studies have shown good results in most local studies in the range of 80-90% .... to ... (ref), but some recent case reports and study on molecular genetic analysis of strains of *P. vivax* from Pakistan have shown possibility of chloroquine resistance in future.

In view of our findings, the risk of treatment failure to three-dose regimen of CQ therapy for vivax malaria is low. A significant improvement in clinical and parasitologic parameters was as well as minimal adverse events were recorded. However, given conflicting reports indicating alarming levels of treatment failures from other sites, there remains a need to monitor the emergence of chloroquine-resistant vivax malaria across the nation to obtain an adequate representation in different ecological and epidemiological settings.

## CONCLUSION

CQ remains safe and effective therapy for uncomplicated Vivax malaria, such studies on larger scale should be continued for early detection of resistance. It is suggested that HEC, PMDC and PMRC in collaboration should make operational research on National issues like Nutrition, Tuberculosis and Malaria mandatory for research degrees like PHD in medical Universities by providing funds and technical support to produce reliable local scientific data for guiding national policies. It is also recommended strongly that government should provide RDT in open market on subsidised rates to encourage all practitioners to confirm malaria diagnosis before prescribing treatment.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Use of Laser Hair Removal after Pilonidal Surgery

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Muhammad Sabir<sup>2</sup> and A. Hamid<sup>3</sup>

## ABSTRACT

**Objectives:** To study the role of laser hair removal after pilonidal surgery.

**Study Design:** Prospective / Experimental study.

**Place and Duration of Study:** This study was conducted at Idris Teaching Hospital Sialkot. July 2014 to July 2016.

**Materials and Methods:** This study included sixty patients in the department of surgery at Idris Teaching Hospital Sialkot during July 2014 to July 2016. In all cases of pilonidal surgery the laser hair removal was used to remove the hair on buttocks, perianal region, and lower back of the patients. The performa was designed to record age, sex, history of the pilonidal sinus disease, date of surgery, surgery type, number of laser treatments. The numbers of laser hair removal treatments were from 2 to 5 and performed at the intervals of 6 to 8 week. Laser hair removal performed after healing from pilonidal surgery. The follow up of all the patients was also recorded. The consent of every patient was taken before pilonidal surgery and laser treatment. The data was analyzed for results by SPSS version 10.

**Results:** In our study it was found that the maximum (45%) 27 cases of pilonidal sinus disease were between the age of 18 – 23 years and minimum (1.6%) 01 case at the age of 39 and above. The study showed (93.3%) 56 cases were male and (6.7%) 04 cases were female. It means the incidence of pilonidal sinus disease was maximum in male as compared to female. The socio economic status distribution was much higher (42-50%) 25-30 cases in high and middle socio economic class as compared to low socio economic class (8.3%) 05 cases. Maximum (90%) 54 patients of pilonidal sinus disease were from urban area as compared to rural area (10%) 06 patients. The surgery of pilonidal sinus disease was conducted within 24 hours after admission of the patients. All the patients were discharged from the hospital within 24-48 hours. The return to work time was 1-2 weeks in all of 60 patients and healing time was 3-5 weeks. The recurrence was (14%) 09 cases in primary closure and (10%) 06 cases was after secondary healing.

**Conclusion:** We advise the use of laser hair removal after pilonidal surgery. As this decreases the chance of recurrence.

**Key Words:** Excision, Laser Hair Removal, Pilonidal sinus disease, Recurrence, Primary and Secondary healing.

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## INTRODUCTION

Pilonidal sinus disease, ranging from the routine cyst with abscess to extensive chronic infection and sinus formation. The sinus arises in the hair follicles in the gluteal or natal cleft. There is incidence 26 per 100,000 people. Men affecting twice more than women<sup>1</sup>. The sinus discharging wounds cause pain and affect the quality of life. The treatment require the finishing of the sinus tract, complete healing of the overlying skin and prevention of recurrence.

There is a conservative treatment to an extensive surgical excision. The surgical treatment result in healing of 58% of cases within 10 weeks, but recurrence occurs varying from 11% to 14%<sup>2</sup>.

Lasers have been used for hair removal since 1996. This is a permanent method of hair reduction. There is 60–80% reduction in hair growth at 6 months reported by numerous studies<sup>3-5</sup>. Multiple laser hair removal treatments increase the hair-free period between treatments, and also decrease the percentage of hair re-growth<sup>6</sup>. There are no scars and other complication with laser hair removal<sup>7-8</sup>.

It is thought that in initiating the abscess, excessive hair growth in the natal cleft is a major factor. It is also found that hair are often found trapped in the base of pilonidal wounds<sup>9</sup>.

The aim of our study was to see the role of laser hair removal after pilonidal surgery prospectively.

## MATERIALS AND METHODS

This prospective experimental study included sixty patients in the department of surgery at Idris Teaching

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Hospital Sialkot during July 2014 to July 2016. In all cases of pilonidal surgery the laser hair removal was used to remove the hair on buttocks, perianal region, and lower back of the patients.

The performa was designed to record age, sex, history of the pilonidal sinus disease, date of surgery, surgery type, number of laser treatments. The numbers of laser hair removal treatments were from 2 to 5 and performed at the intervals of 6 to 8 week. Laser hair removal performed after healing from pilonidal surgery. The follow up of all the patients was also recorded. The consent of every patient was taken before pilonidal surgery and laser treatment. The data was analyzed for results by SPSS version 10.

**RESULTS**

In our study it was found that the maximum (45%) 27 cases of pilonidal sinus disease were between the age of 18 – 23 years and minimum (1.6%) 01 case at the age of 39 and above as shown in table no 1. The study showed (93.3%) 56 cases were male and (6.7%) 04 cases were female as shown in table no 2. It means the incidence of pilonidal sinus disease was maximum in male as compared to female. The socio economic status distribution was much higher (42-50%) 25-30 cases in high and middle socio economic class as compared to low socio economic class (8.3%) 05 cases as shown in table no 3. Maximum (90%) 54 patients of pilonidal sinus disease were from urban area as compared to rural area (10%) 06 patients as shown in table no 4.

**Table No 1: Age Distribution in use of Laser In Pilonidal Surgery**

Sr No	Age (Years)	Cases	Percentage %
1	18-23	27	45%
2	24-28	13	21.70%
3	29-33	12	20%
4	34-38	7	11.70%
5	39 & Above	1	1.60%
Total		60	100%

**Table No 2: Sex distribution in use of Laser in Pilonidal Surgery**

Sr No.	Sex	Cases	Percentage %
1	Male	56	93.30%
2	Female	4	6.70%
Total		60	100%

**Table No 3: Socio economic Status distribution in Laser use in Pilonidal Surgery**

Sr No.	Socio-Economic Status	Cases	Percentage %
1	High	30	50%
2	Middle	25	41.70%
3	Low	5	8.30%
Total		60	100%

The surgery of pilonidal sinus disease was conducted within 24 hours after admission of the patients. All the patients were discharged from the hospital within 24-48 hours. The return to work time was 1-2 weeks in all of 60 patients and healing time was 3-5 weeks. The recurrence was (14%) 08 cases in primary closure and (10%) 06 cases was after secondary healing as shown in table no 5.

**Table No 4: Area distribution in use of Laser In Pilonidal Surgery**

Sr No.	Area	Cases	Percentage %
1	Urban	54	90%
2	Rural	6	10%
Total		60	100%

**Table No 5: Healing Time, return to work time and recurrence rate in Pilonidal Surgery with use of Laser**

Sr#		Cases	%age
1	Healing Time	60	100%
	3-5 Weeks	Cases	Percentage %
2	Return to work time	60	100%
	1-2 Weeks	Primary Closure	Secondary Healing
3	Recurrence Rate	14%	10%

**DISCUSSION**

Pilonidal sinus disease may be small pilonidal cysts or sinuses to chronic disease with multiple sinus tracts. The aim of the treatment of pilonidal disease is excising and healing with a low rate of recurrence. There should be minimum patient inconvenience and morbidity after the pilonidal surgery. In pilonidal sinus disease men are affected twice as women (10), but in our study more than (90%) men are the patients of this disease. The pilonidal sinus disease is the result of a foreign body response to entrapped hair (13). In pilonidal sinus disease, permanent hair removal in the gluteal area decreases the risk of recurrence (14-15).

In some studies, the recurrence rate of pilonidal sinus varies depending on the method of treatment (10-14, 16-18). In our study, recurrence rate was 10-14% which may be due to the long-term laser hair removal after pilonidal surgery. It was reported by Benedetto and Lewis in their studies that the recurrence rate was reduced by laser hair removal after pilonidal surgery (13). It was also observed by Conroy et al. (20) that recurrence rate was reduced by use of laser hair removal after pilonidal surgery. It was seen by Schulze and colleagues (21) that recurrence was very much reduced by use of laser hair removal after pilonidal surgery. It showed that the use of laser hair removal is advise able in all cases of pilonidal surgery.

In our study the socio economic status distribution was much higher (42-50%) 25-30 cases in high and middle socio economic class as compared to low socio economic class (8.3%) 05 cases. Maximum (90%) 54 patients of pilonidal sinus disease were from urban area

as compared to rural area (10%) 06 patients. The surgery of pilonidal sinus disease was conducted within 24 hours after admission of the patients. All the patients were discharged from the hospital within 24-48 hours. The return to work time was 1-2 weeks in all of 60 patients and healing time was 3-5 weeks. The recurrence was (14%) 08 cases in primary closure and (10%) 06 cases was after secondary healing.

## CONCLUSION

We advise the use of laser hair removal after pilonidal surgery. As this decreases the chance of recurrence.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Awareness and Knowledge about Contraceptive Practices and Emergency Contraception in Paramedical Staff Working in a Tertiary Care Hospital of Karachi, Pakistan

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## ABSTRACT

**Objectives:** The study was revolving on means to explore comprehensions regarding different contraceptive methods including emergency contraception among primary health care providers (HCP) {Registered Staff Nurse (RN), Lady Health Visitor (LHV) and Midwives (MW)} in tertiary care hospital of Karachi.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Department of from Physiology / Community Health Sciences, Shaheed Mohtarma Benazir Bhutto Medical College, Lyari, Karachi from Dec. 2015 to June 2016

**Materials and Methods:** Female employees in the reproductive age group either with marital or non marital status were interviewed. A survey performa containing both open and close type questions was utilized.

**Results:** 258 females assented for the participation. All the female participants were educated and bulk (97.2%) had a metropolitan background. Out of 190 married females, 154 (81.1%) used various birth control methods; among them (73.3%) were on and off users. fifty participants undergone termination of pregnancy, out of which 46 had natural and 34 had persuaded intentional termination of pregnancy. Amidst the accessible contraceptive techniques, condom was the popular method in 89 (57.8%) after which Copper T in 38 women (24.7%). Regarding hormonal contraceptives the use was very low, which is only 2.6%. Newspaper and television were the widespread source of public awareness in 149 subjects (57.7%). Only 29 females (11.2%) were sentient and three females utilized emergency contraception once in their life.

**Conclusion:** A large number of educated working HCP has awareness and knowledge about use of contraception; conversely, the knowledge about use of emergency contraception was very low.

**Key Words:** Contraception; health care providers; emergency contraception

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## INTRODUCTION

Soaring fertility and brisk population escalation have an impact on the overall socio-economic development of the country in general along with maternal and child health in particular.

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Maternal and child mortality are two of the chief health care indicators, challenging healthcare organizations, especially in developing countries. The majority of maternal deaths are the direct result of complications come across during pregnancy or arising from their unsafe terminations.<sup>1</sup> The World Health Organization (WHO) reported that unwanted, mistimed and unintended pregnancies are the most common cause of maternal mortality in developing countries.<sup>2</sup> The Pakistani demographic and health survey (DHS 2000) identified that one in four deaths among Pakistani females in the period 1994–2000 was due to a pregnancy or pregnancy related cause. One of the reasons for this is the lack of skilled healthcare personnel attending births.<sup>3</sup> In 2005 Syed et al reported that only 36% of births in Pakistan were attended by an appropriately skilled person; however, he also reported that up to 100, 000 maternal deaths could be avoided each year if women who did not want a child used effective contraception<sup>4</sup>.

According to Tabassum et al in 2010, that the females frequently display considerable change in attitude over

time, but they do not always reveal corresponding changes in contraception habits.<sup>6</sup>

Mehnaz et al reported that in 80% educated families after the birth of their first child they start utilizing different family planning methods, while in more than 50% of the uneducated families avoid contraception after the delivery of their third and fourth baby. Therefore it can be said that education plays an imperative role in spacing.<sup>7</sup>

The Family planning department, Ministry of Health, Government of Pakistan has launched E-pills and E72 in the Family Planning Program, which are meant to be used within 72 hours after unprotected coitus. These measures are taken in order to achieve birth control situation of the country.<sup>8</sup>

It is the demand of recent times that such studies should be conducted that will help us understand the factors contributing in family planning, their acceptance and applications by married couples.

This study was undertaken with the single line objective to assess the level of awareness, attitude and current practice of different type of family planning methods by the educated working women of reproductive age group, to find out association, if any, between their family planning Practices and different socio demographic variables and also to elicit reasons precluding couple to practice family planning method.

## MATERIALS AND METHODS

This study was conducted during December 2015 till June 2016. This was a cross-sectional study conducted with females from the following categories:

1. Staff nurses.
2. Lady Health Visitor
3. Midwives

The above mentioned categories of female HCP's, working in Shaheed Mohtarma Benazir Bhutto Medical College and Sindh Government Lyari General Hospital in Karachi. All of the subjects have done 03 to 06 months training course in Family Planning Methods after finishing secondary education. Female employees between the age of 18 to 35 who are either married or unmarried were included in the study. Out of the 284 employees 258 women agreed to participate in the study while 26 (9.2%) refused.

A pilot tested performa which covered socioeconomic and reproductive status of the participants was used.

The investigators informed the staff personally. The participants actively participated in the study via filling the questionnaire in their respective duty areas between 9 a.m. till 3 p.m. and the filled performa was delivered by hand to the investigators after filling. Informed consent was taken. Study was approved by the institutional review board and ethics committee of Shaheed Mohtarma Benazir Bhutto Medical College, Karachi. On the basis of information collected, data was

analyzed. Statistical analysis was done using SPSS 20 software (SPSS Inc., Chicago, IL, USA).

## RESULTS

The demographic status of participants is in Table 1.  $24.2 \pm 6.9$  was the average epoch of the participants and  $18.6 \pm 4.9$  was the average age of marriage in the participants.

All female participants were educated, 75 (31.3%) were alumnae's and 31 (9.3%) were higher alumnae qualifications 251 (97.2%) participants were from metropolitan locale, 169 (65.5%) were of combined kin system and 89 (34.4%) from independent kin system. All the participants have two or less than two progeny. 34 married participants went through provoked abortions.

**Table No.1: Demographic characteristics of the study population (n = 258)**

<b>Age :</b>	
a. 20-25years	160 (62)
b. 26-30 years	51 (19.7)
c. 31-35 years	36 (13.9)
d. >35 years	11 (4.2)
<b>Educational Status:</b>	
a. High School	22 (9.3)
b. High School with Vocational Training	140 (54.2)
c. Graduates	81 (31.3)
d. Postgraduates	15 (5)
<b>Marital Status:</b>	
a. Married	190 (73.6)
b. Unmarried	68 (26.3)
<b>Professional Status:</b>	
a. RN	61 (23.6)
b. LHV	151 (58.5)
c. MW	46 (17.8)
<b>Type of family:</b>	
a. Nuclear family	89 (34.4)
b. Joint family	169 (65.5)
<b>Children:</b>	
a. None	47 (24.7)
b. One	54 (28.4)
c. Two	89 (46.8)
<b>Number of abortions n = 80:</b>	
a. Spontaneous	34 (42.5)
b. Induced	46 (57.5)

All parentheses are in percentages

Participants had information regarding contraception. In the current study there were 190 married participants, 113 (73.3%) participants are proficient contraceptive users. 41 (26.6%) used contraception customary while 154 (81.1%) were lopsided regarding contraception. 68 bachelor subjects were sentient regarding contraception without sexual activation. Spacing methods specifically withdrawal and condoms were the most popular methods among the participants. Sterilization was most

acceptable procedure only in three (1.9%) participants. 57.8% used condom while 38 (24.6%) followed by withdrawal methods. (Table 2)

57.7% participants informed that they used television and newspapers as the main source of public awareness regarding contraception. 82.4% clued up that they were sentient of recompenses and drawbacks regarding contraceptive techniques. 54.5% participants informed that both partners took the decision regarding the method of contraception.

**Table No.2: Contraceptive practices**

<b>Contraceptive Use:</b> a. User(n=190 married females) b. Nonuser	a. 154 (81.1) b. 36 (18.9)
<b>Method of contraception used: (n = 154)</b> a. Condom b. Copper T c. Withdrawal method d. Rhythm method i. Oral pills ii. Tubal ligation	a. 89 (57.8) b. 18 (8.4) c. 33 (24.6) d. 7 (4.5) i.4 (2.6) ii.3 (1.9)
<b>Medical advice before using contraceptive method: (n = 154)</b> a. Advice taken b. Advice not taken	a. 46 (29.8) b. 108 (70.1)
<b>Source of knowledge: (n = 154)</b> a. Media b. Medical Literature c. Friends d. Partner e. Family	a. 70 (27.1) b. 24 (9.3) c. 149 (57.7) d. 8 (3.1) e. 7 (2.7)
<b>Satisfied/dissatisfied with method used: (n = 154)</b> a. Satisfied b. Dissatisfied	a. 127 (82.4) b. 27 (17.5)
<b>Aware of advantages and disadvantages of method used: (n = 154)</b> a. Yes b. No	a. 114 (74%) b. 40(25.9%)
<b>Deciding member for use of particular method:(n = 154)</b> a. Both husband and wife b. Husband c. Self d. Doctor e. Friend	a. 84 (54.5) b. 5 (3.2) c. 23 (14.9) d. 1 (0.6) e. 41 (26.6)

All parentheses are in percentages.

29 (11.2%) participants of the study were sentient regarding contraception used within 72 hours of unprotected coitus, 19 out of 29 registered staff nurses. Three participating females have practiced urgent situation contraception. As the information was given regarding emergency contraception 61% showed interest (Table 3). Registered staff nurses has

satisfactory information regarding 72 hour contraception as compared to other participants as analyzed on chi squared analysis (P=0.29).

**Table No.3: Awareness of emergency contraception**

<b>Knowledge about emergency contraception: (n=258)</b> a) Yes b) No	a) 29 (11.2) b) 229 (88.7)
<b>Method of emergency contraception used: (n=258)</b> a) Oral pills	a) 3/29 (10.3)
<b>If aware, in future would like to use emergency contraception: (n=258)</b> a) Yes b) No c) No reply	a) 44 (17) b) 5 (1.9) c) 209 (81)

All parentheses are in percentages

## DISCUSSION

Spacing techniques and understanding regarding 72 hour Epill was analyzed in learned females, proficiently skilled like RN, LHV and MW etc. The sample population in this study is a good representation of the erudite females in health care system; the study showed that 81.1% of educated married women practiced contraception, which is quite high in comparison to the contraceptive prevalence rate of 48.2% indicated in the report of health department, government of Sindh.<sup>[9]</sup> 78% participants used spacing and withdrawal techniques, while 1.9% used sterilization. This is in agreement with the findings of Usmani et al.<sup>[2]</sup> 2.6% of women used steroid based contraception which is in total disagreement with the findings of Mathew et al which presented the findings of United States, where oral contraceptive pills was popular annuli able spacing procedure.<sup>[10]</sup> In ICMR study on estimating contraceptive choices showed that only 6% of females preferred for OCP over other contraceptives.<sup>[11]</sup> Farah et al reported that after initial two deliveries females preferred OCP, these findings are opposite to our findings.<sup>2</sup>

Ansari et al reported that main stream information regarding choice of spacing technique was extracted from friends and television; this is consistent with our findings. As per health department study 68% families took decision regarding method of contraception, this is in accordance with our findings.<sup>11</sup>

In Pakistan knowledge regarding ECP and HCP is almost missing.<sup>12</sup> In association, a study of United States revealed that 36% participants stated that ECP is a better means to avoid unwanted pregnancies.<sup>[13]</sup> A study done by Aneblom et al<sup>14</sup> and a survey done by Stuart et al<sup>15</sup> showed that ECP was the most favorite technique of protection after unprotected sex. In the current study the understanding regarding ECP was

11.2%, which is more than the findings of Ansari et al,<sup>[12]</sup> this may be due to the reason that the participants of the study integrated only HCP.

One of the most important information from this study was that 31% of participants were concerned to use ECP, if accessible on squat price.

## CONCLUSION

To summarize, it can be stated that a high number of females in our study population used contraception. Spacing and withdrawal methods of contraception were more commonly practiced; Electronic and printed information in local language and with pictures were the most significant means of knowledge regarding contraception. Knowledge of ECP was stumpy and here is a vital requirement to endorse it.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Clinical Presentation and Management of Tracheobronchial Foreign Body Aspiration in Children: Our Experience

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## ABSTRACT

**Objective:** To evaluate the clinical presentation and management of tracheobronchial foreign body aspiration in children.

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was conducted at the Otorhinolaryngology and Head & Surgery Department Sandeman (Provincial) Hospital, Quetta, from April, 2014 to September, 2016.

**Materials and Methods:** This study included 113 paediatric patients of both gender with tracheobronchial foreign body aspiration. All patients underwent rigid bronchoscopy under general anaesthesia. Patient characteristics, history clinical and bronchoscopic findings were noted and results were analyzed statistically.

**Results:** The mean age of the patients was  $4.03 \pm 2.91$  years and male to female ratio was 1.97:1. Majority of the patients (53.98%) were between 1 and 3 years. Cough was the commonest symptom (50.44%) and decreased air entry was commonest sign and was present in 15.93% cases. Air tripping was the most common chest X-ray finding (29.25%). Right bronchus was the most common sight of foreign body lodgement (59.29%), followed by left bronchus (32.74%). Watermelon seed was the commonest foreign body retrieved (8.89%). There was no mortality in this series.

**Conclusion:** Foreign body aspiration is a common respiratory emergency in young children. Rigid bronchoscopy is an effective procedure for removal of tracheobronchial foreign bodies.

**Key Words:** Tracheobronchial tree, Foreign body, Aspiration, Bronchoscopy, Children

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## INTRODUCTION

Aspiration of foreign body is a common life threatening emergency in pediatric age group and accounts for an important proportion of accidental deaths in children less than 3 years of age.<sup>1</sup> It accounts for an important cause of morbidity and mortality. Children around the age of 3 years are particularly susceptible.<sup>2</sup> A high index of suspicion is required in its diagnosis. Diagnostic acumen and prompt treatment aids in decreasing complications, morbidity and mortality.<sup>3</sup> Diagnosis of foreign body aspiration begins with a patient history and physical examination that can be strengthened by radiographic findings. Cough, fever and breathlessness are commonest symptoms with signs of respiratory distress, tachypnea, decreased air entry and rhonchi.<sup>4</sup> Chest X-ray is an important tool to localize foreign body. However, chest radiographs are normal in about one third of patients with inhaled foreign body, and frequently insufficient for the diagnosis of foreign body aspiration.<sup>5</sup>

Rigid bronchoscopy is diagnostic as well as therapeutic even when routine chest X-ray is normal.<sup>6</sup> The aim of this study was to evaluate the clinical presentation and management of tracheobronchial foreign body aspiration in children.

## MATERIALS AND METHODS

This perspective study was conducted in the Otorhinolaryngology and Head & Neck Surgery Department Sandeman (Provincial) Hospital, Quetta from April, 2014 to September, 2016. A total 113 paediatric patients of both gender with tracheobronchial foreign body aspiration were included in this study. Children with suspicion foreign body aspiration were brought to ENT Department through Emergency Department, OPD of ENT and Paediatric unit. All patients underwent rigid bronchoscopy under general anaesthesia after clinical and radiographic workup. Patients with negative bronchoscopic findings were not included in this study. Chest X-rays were performed in 106 cases while in 7 cases chest X-ray could not be performed due to their critical condition. Patient characteristics, history, clinical, radiographic and bronchoscopic findings were noted and results were analyzed statistically to draw inferences.

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**RESULTS**

There were 113 paediatric patients of age 3 months to 12 years with a mean age of 4.03±2.91 years. Out of 113 children 75 (66.37%) were male and 38 (33.63%) were female and male to female ratio was 1.97:1. Ninety one (80.53%) patients presented to our department through Emergency department, 10 (8.85%) cases admitted through ENT OPD and 12 (10.62%) cases were referred from paediatric unit. Majority of the patients (53.98%) were below 3 years (Table-1). The commonest symptom of presentation was cough, which was present in 57 (50.44%) cases, followed by dyspnoea in 14 (12.39%) cases, while decreased air entry on affected side of chest was the commonest physical finding and was present in 18 (15.93%) patients. Choking, wheeze, stridor and fever were other clinical features as shown in Table-2. Duration of lodgement of foreign bodies ranged from 1 hour to more than 1 month as outlined in Table-3. Chest X-rays was performed in 106 patients. Air trapping was the commonest radiographic finding (29.25%), followed by atelectasis (16.04%) and pneumonia (15.09%).

**Table No.1: Age distribution of children with foreign body aspiration.**

Age	No. of Patients	Percentage
< 1 year	3	2.65%
1-3 years	61	53.98%
3-5years	19	16.82%
>5 years	30	26.55%

**Table No.2: Clinical features of children with foreign body aspiration (n=113).**

S.N.	Clinical features	No. of patients	Percentage
1.	Cough	57	50.44%
2.	Dyspnea	14	12.39%
3.	Choking	4	3.54%
4.	Wheeze	7	6.19%
5.	Stridor	4	3.54%
6.	Fever	6	5.31%
7.	Cyanosis	3	2.66%
8.	Decreased breathing sounds	18	15.93%

**Table No.3: Duration of lodgement of aspirated foreign bodies (n=113).**

Length of time	No. of patients	Percentage
1-6 hours	5	4.42%
6-12 hours	8	7.08%
12-24 hours	19	16.82%
1-7 days	57	50.44%
7-14 days	11	9.74%
14-30 days	7	6.19%
More than 1month	6	5.31%

**Table No.4: Chest X-rays findings (n=106).**

Chest X-rays findings	No. of patients	Percentage
Air trapping	31	29.25%
Normal image	31	29.25%
Atelectasis	17	16.04%
Pneumonia	16	15.09%
Radio-opaque foreign bodies	11	10.37%

**Table No.5: Site of lodgement of tracheobronchial foreign bodies (n=113).**

Site of lodgement	No. of cases	Percentage
Laryngeal inlet	4	3.54%
Right bronchus	67	59.29%
Left bronchus	37	32.74%
Trachea/carina	3	2.66%
Both bronchi	2	1.77%

**Table No.6: Types of foreign bodies (n=113).**

Types of Foreign bodies	No. of cases	%age
Organic foreign bodies	75	62.83%
seeds	7	5.75%
Water melon seed	21	18.59%
Sun flower seed	12	10.62%
Orange seed	4	3.54%
Maize gram	5	4.42%
Pea grain	2	1.77%
Nuts	11	9.74%
Peanut	11	9.74%
Betel nut	9	7.97%
Miscellaneous	1	0.88%
Pistachio shell	1	0.88%
Piece of carrot	1	0.88%
Chicken bone	3	2.66%
Fish bone	1	0.88%
Piece of match	1	0.88%
Inorganic foreign bodies	42	37.17%
Beads	15	13.28%
Plastic objects	12	10.62%
Whistle	7	6.20%
Needle	2	1.77%
Nail	2	1.77%
Metallic screw	2	1.77%
Office pin	1	0.88%
Piece of stone	1	0.88%

Radio-opaque foreign bodies were found in 11 (10.37%) cases. In 31 (29.25%) cases, chest X-rays were normal (Table-4). Rigid bronchoscopy was done in all cases. The commonest site of lodgement was right bronchus. In 67 (59.29%) cases foreign bodies were retrieved from right bronchus and in 37 (32.74%) cases from left bronchus. Other sites of lodgement were laryngeal inlet in 4 (3.54%) cases, trachea/carina in 3 (2.66%) cases and both bronchi in 2 (1.77%) cases, (Table-5).Associated bronchoscopic findings were granulations in 2 (1.77%) patients, mucosal edema in

2(1.77%) patients and bleeding on contact in 3 (2.65%) patients. Organic foreign bodies (62.83%) were more common than inorganic foreign bodies (37.17%). Watermelon seed was the most common foreign body (18.59%) retrieved followed by sun flower seed (10.62%) and peanut (9.74%). Most common inorganic bodies were beads (13.28%), followed by plastic objects (10.62%) and whistles (6.20%) as outlined in Table-6. No mortality occurred in this series. However, post bronchoscopic complications occurred in 4(3.54%) patients. Two (1.77%) patients developed bronchospasm and 2(1.77%) patients laryngeal oedema after bronchoscopy. They were managed successfully by bronchodilators, antibiotics and steroids.

## DISCUSSION

Tracheobronchial foreign body aspiration in children is a serious problem necessitating prompt recognition and management. In present study majority of the patients (53.98%) were below 3 years of age which is consistent with findings of other studies.<sup>2,4,6,7</sup> The natural urge to explore the objects by mouth, immature dentition, crying and playing while eating and lack of parental supervision contributes to this hazard in this age group. Male to female ratio in our study was 1.97:1. Boys are more commonly affected than girls.<sup>8</sup> Several other studies have shown male preponderance.<sup>3,4,6,9</sup> Children with aspirated foreign bodies typically present with the symptoms of coughing, wheezing, cyanosis or stridor. The most predominant symptoms include choking episode with cough following ingestion of the foreign body.<sup>10</sup> In this study cough, followed by dyspnea, wheeze and choking were the main symptoms while decreased air entry on the affected side of chest was the main sign. Stridor, fever and cyanosis were other clinical features in this study. According to Mushtaq A, et al, cough, respiratory difficulty, choking, fever and stridor are main symptoms and decreased air entry is the most common sign.<sup>11</sup> Several studies have documented the cough as the main symptom and decreased breathing sounds as the main sign.<sup>2,12-14</sup> Chest X-ray was performed in 106(93.80%) cases, but only in 10.37% cases radio-opaque foreign bodies were visible. Air trapping (29.25%) was the most common radiographic finding. Chest X-ray was normal in 29.25% patients. Sattar A, et al, reported air trapping as most common radiographic finding.<sup>15</sup> However, chest X-ray is not specific for diagnosis of foreign body aspiration in patients with a history of foreign body aspiration and positive physical examination. Rigid bronchoscopy is the procedure of choice for diagnosis and management of foreign body inhalation in pediatric patients.<sup>13</sup> All patients underwent rigid bronchoscopy under general anesthesia. Right bronchus was the main site of lodgement (59.29%), followed by left bronchus (32.74%), Laryngeal inlet (3.54%) and trachea/carina in (2.66%) patients. In 2(1.66%) cases bilateral foreign

bodies were found. Many national and international studies have shown right bronchus as the main site of lodgement for aspirated foreign bodies.<sup>16-19</sup> However, Baig MM reported left main bronchus as the commonest site of foreign body impaction.<sup>20</sup> Majority of foreign bodies (62.83%) were organic in nature with seeds and nuts being most common. Water melon seed (18.59%) was the commonest foreign body, followed by sun flower seed (10.62%). Saki N, et al, reported the seeds as the most common foreign body.<sup>21</sup> Aydogan LB, et al and Mallick MS have shown water melon seed as the most common aspirated foreign body in their studies.<sup>22,23</sup> In contrast several studies have shown peanut as the commonest foreign body.<sup>14,16,17,24</sup> Mushtaq A, et al, and Shafi M, et al, have reported betel nut as most retrieved foreign body.<sup>11,18</sup> Baig MM and Khan AR, et al, have reported whistle as most common inhaled foreign body.<sup>20,25</sup> In this study peanuts retrieved from tracheobronchial tree in 11(9.74%) patients and betelnuts in 9(7.97%) patients. Various studies estimate the current morbidity rate from bilateral bronchial foreign body as between 0.24 and 2%.<sup>26</sup> In this series 2(1.99%) children had bilateral bronchial foreign bodies. Zhao ZG, et al, have reported bilateral bronchial foreign bodies.<sup>27</sup> Few foreign bodies have tendency to migrate which add further difficulties in the management.<sup>28</sup> Early and thorough bronchoscopic examination should be performed to rule out migration or bilateral foreign body.<sup>29</sup>

## CONCLUSION

Tracheobronchial foreign body aspiration is more common in 1-3 years old children. Cough, dyspnea and decreased air entry are common clinical features. Rigid bronchoscopy is an effective method for removal of foreign body from tracheobronchial tree. Right bronchus is the main site of foreign body lodgement.

**Recommendations:** Emergency bronchoscopy facility should be available at the District Head Quarter level. Mass awareness should be created through print and electronic media, to decrease the incidence of foreign body aspiration in children.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Clinico-Pathological Spectrum of Prostatic Carcinoma in a Tertiary Care Hospital of Lahore

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## ABSTRACT

**Objectives:** To determine the clinico-pathological characteristics of prostate cancer in a tertiary care Hospital of Lahore

**Study Design:** Observational / descriptive study.

**Place and Duration of Study:** This study was conducted at the Department of Morbid Anatomy and Histopathology, University of Health Sciences, Lahore from January 2012 to December 2015.

**Materials and Methods:** Fifty paraffin embedded blocks of prostate specimens were selected on retrospective basis. Relevant clinical profile including age, presenting complaints and clinical diagnosis were retrieved from the clinical record. The tumours were diagnosed, sub-classified and graded according to the Revised Gleason's score 2013.

**Results:** Mean age of the patients was  $70 \pm 22.3$  years with a peak seen at 65-75 years. Prostatic adenocarcinoma was diagnosed in all cases where in 75% cases it was clinically evident while in rest of the cases it was an incidental finding. Mean serum Prostatic Specific Antigen level was  $98 \pm 11$  ng/d. Histologically most of the carcinomas (61%) were of large acinar type. Variable Gleason scores (GSs) were obtained and most of the carcinomas scored 7 (4+3 in 41% while 3+4 in 23% cases).

**Conclusion:** Late presentation and lack of awareness for screening of prostatic carcinoma leads to presentation of patients in higher grade in our population

**Key Words:** Prostate carcinoma, Gleason grading, Serum PSA

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## INTRODUCTION

Globally prostate carcinoma is the second commonest malignancy in men, with an estimated 1,100,000 cases and 307,000 deaths in 2012.<sup>1</sup> The incidence of prostate cancer is low in Pakistan, with a figure of 3.8% of our male population<sup>2</sup>. The clinical behavior of prostate cancer ranges from a microscopic, well-differentiated tumor that may never be clinically significant to an aggressive, high grade cancer that ultimately causes metastases, morbidity, and death.

The frequency of patients presenting with prostate carcinoma has dramatically increased over last many

years especially in Centres where patients are encouraged to be screened with serum prostate specific antigen (PSA) levels<sup>4</sup>. Over the years, studies have shown that genetic as well as environmental factors play their roles in causation of this malignancy. Prostate carcinoma incidence is less likely to be seen before 50 years of age; it increases swiftly after fifth decade<sup>5</sup>. Histologically, most prostate carcinomas are adenocarcinomas that may be small acinar, large acinar, cribriform, or solid/trabeculae types with varying degrees of differentiation<sup>6</sup>. The Gleason score (GS) is the most widely acceptable and reproducible system for grading prostate cancer; it is also considered as one of the most reliable prognosticator for the patients with prostate carcinomas<sup>4</sup>. It is based on the varying and heterogeneous dominance of glandular patterns within a biopsy. The precise diagnosis and grading of prostate cancer is critical for determining patient's prognosis and therapeutic options<sup>7</sup>.

## MATERIALS AND METHODS

Paraffin embedded blocks of all prostate specimens received in the department of Department of Morbid Anatomy and Histopathology, University of Health Sciences Lahore between January 2012- December 2015 were selected for the study. All sections were

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stained with routine hematoxylin and eosin stain for determination of diagnosis and histologic grading according to revised Gleason scoring system. Detailed clinical characteristics of the study population including age, presenting complaints and clinical diagnosis were retrieved from the clinical record kept with the surgeons. Blocks where tissue sections were inadequate for histologic diagnosis or where clinical data could not be retrieved were excluded from the study. The result obtained was analyzed using SPSS 20

## RESULTS

Of the 50 reviewed specimens, 70%(n=35) were transurethral resection of prostate (TURP) biopsies, while 30%(n=15) were prostatectomies.

The mean age patients was  $70 \pm 22.3$  years with a range of 52-87 years. Peak was seen at 65-75 years. Only 4%(n=2) cases were found within 40 to 50 years age group.

Mean serum PSA level was  $98 \pm 11$  ng/d range (48-200 ng/dl).

On histologic examination, all of the carcinomas were adenocarcinoma. Of these, 61% were histologically of the large acinar pattern, followed by small acinar pattern (22%), solid/trabeculae pattern (13%), and cribriform pattern (4%).

Gleason grading of the carcinomas showed that 64% (n=32) biopsies scored 7 while score 9, 8, 6 and 10 constituted 12%, 10%, 8% and 6% cases.

Score 7 was distributed as 4+3 in 40% (20) while 3+4 in 24% (12 cases). Score 9 was distributed as 4+2 in 8% (n=4) while 3+3 in 4% (n=2) cases. Score 8 was distributed as 3+5 in 6% (n=3), 5+3 in 2% (n=1) while 4+4 in 2% (n=1) cases. Score 6 was distributed as 4+5 in 6% (n=3) and 5+4 in 2% (n=1) while Score 10 was distributed as 5+5 in all 6% (n=3) cases.

On applying chi-square and Fisher Exact tests, higher serum PSA level was strongly associated with higher Gleason score ( $p=0.023$ ).

## DISCUSSION

The incidence of prostate cancer in our study is high. Similar results were reported from Bashir et al who states prostatic carcinoma as the third most common malignancy among males in Pakistan<sup>8</sup>. Also JPMA reports prostatic adenocarcinomas comprising 14.2% of all prostate specimens which were transurethral resection, suprapubic prostatectomies and core biopsies<sup>4</sup>.

This rising incidence may possibly indicate some locally prevalent environmental factors potentiating the genetic etiologic agents effecting our male population<sup>9</sup>. In a study from Faisalabad Pakistan, age and family history of prostate cancer along with, obesity were taken as potential risk factors for prostate cancer<sup>8</sup>. This calls for future prospective studies for

connecting the etiologic links with that of prostatic carcinoma in our population<sup>10</sup>.

Majority (70%) of the malignant biopsies were obtained from TURP procedure especially for the cases with strong clinical suspicion for carcinoma developing in benign prostate hyperplasia. Carcinoma detected in prostatectomy specimens was largely an incidental finding.

A study in Washington DC reported peak age incidence within 70 to 79 years, which is similar to our finding. Minimum age recorded was 40 years (Mean age  $66.4 \pm 9.1$  years by a local study at Karachi<sup>11</sup>). Age is considered to be the strongest risk factor for prostate cancer in our study, which has been recently revealed in an Indian study<sup>12</sup>. The mean age was 72.1 years; 68.1% patients were 65 years or older<sup>4</sup>.

Majority (61%) of the adenocarcinomas were histologically of the large acinar variety, followed by small acinar pattern. This finding is in contradiction with a study reported in Benin where small acinar pattern (40.6%) was the most predominate followed by large acinar pattern (16.7%) and mixed pattern making up the rest<sup>13</sup>.

As regards the Gleason score, reports from Benin<sup>13</sup> and Lagos<sup>14</sup> showed the majority of the tumours were moderately to poorly differentiated (Gleason's scores 5 and 6) as compared to our study where score 7 and 9 were the commonest signifying late presentation and high grades in our population. This finding however is concordant with that of a study by Han and colleagues where most of their cases demonstrated Gleason score from 6-7 whereas scores 8-10 accounted for <10% of the cases. However, our study and that of John Hopkins University are similar in having 7 as the peak score<sup>15</sup>.

Lack of screening practices and awareness of the disease has been connected to the high scores and poor prognosis of the patients<sup>16</sup>.

According to prognostification score of Freeman and Roase's<sup>17</sup>, it can be inferred that the most of our cases (60.6%) having scores 7-10 have poor prognosis. This statement settles with other studies, which concluded that majority of patients with prostatic carcinoma present with already a higher grade and stage and thus have poor prognosis<sup>18,19</sup>.

## CONCLUSION

The incidence of prostate cancer relates well with an overall high incidence seen all over the world. Histologically, all cases are acinar adenocarcinomas. Most patients present late with high mean PSA levels and GS and therefore mark poor prognosis.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Complication of Diabetes in Patients Attending Nishtar Hospital Multan

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## ABSTRACT

**Objectives:** The objective of our study is find out the prevalence of diabetic complications among the diabetic patients

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Nishtar Hospital, Multan from June 2016 to November 2016.

**Materials and Methods:** The study population came from diverse socio-demographic backgrounds. Most of them were from different districts of Punjab. 200 patients were selected by Systematic random sampling. SPSS 21 was used for data entry and analysis.

**Results:** A total of 200 patients participated in study with main age of respondents being 48.5 SD. About which 52.1 male and 48% female. Visual impairment is most common complication of diabetes. According to research 75% of patients had visual impairment, out of which 74.1% had decreased vision and 26.4% had cloudy vision. Most patients went for regular check up to ophthalmologist. Diabetes is related to CVS complications as 60% diabetic patients were hypertensive.

As the table 4 shows, diabetes has adverse effects on the renal system and this complication of diabetes is the second leading cause of death if diabetes is left uncontrolled. Most of the patients had frequency and urgency of micturation. 46% patients had complained of change in color of urine, about 33.6% of them had pale yellow color. Regular check up of kidney is very necessary for the prevention of getting nephropathy. But mostly patients were unaware of this worst complication and only 26.5% went for regular check up to nephrologists.

**Conclusion:** This study demonstrated a satisfactory elementary knowledge regarding complications of diabetes in diabetic patients. But there is lack of understanding regarding complications of diabetes among patients. Our findings suggest sustained efforts and more emphasis on this particular topic so that patient become more aware about diabetes complications and go for there regular check up in order to prevent the complications.

**Key Words:** Diabetes, incidence, complication.

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## INTRODUCTION

Diabetes mellitus is a lifelong disease characterized by high blood sugar level than normal which is 70-120 mg/dl. If the blood sugar level not properly controlled it can cause many complications like nephropathy, retinopathy, neuropathy, feet ulcers and gangrene etc. These complications are the leading cause of morbidity and mortality in all over the world.<sup>1</sup>

Complications are mainly related to duration and uncontrolled diabetes. The most common complication is diabetic retinopathy. It is the leading cause of blindness particularly in the affluent society.

It is common after the disease has lasted approximately 10 years. It usually occurs in patients after the age of 20

years. second most common complication is nephropathy which effects the kidneys and cause renal failure of the diabetic patients, it is the 2<sup>nd</sup> leading cause of death among the patients.<sup>1</sup> 1<sup>st</sup> cause of death among the diabetic patients is the myocardial infarction which is one of CVS complications of the diabetes.<sup>2</sup>

According to prevalence of diabetes and its complications Pakistan is at 7<sup>th</sup> number in the world. Total population of Pakistan is 140 million out of which the prevalence of diabetes is 11.4% in 25 year of age and the prevalence of complications is 9.3%. Global burden of diabetes and its complication are increasing day by day, prevalence of diabetes in adults worldwide is estimated to be 4% in 1995 and rise to 5.4% in 2025.<sup>3</sup> Complications of diabetes are mainly related to duration, if the duration is more than 7 Years then there are more chances of developing diabetic complications. Diabetic complications are also associated with uncontrolled diabetes, those patients who are not taking regularly hypoglycemic drugs and not at the regular follow up are more prone to diabetic complications. It is also related to hypertension, obesity and BMI. Because

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in case of obesity insulin receptors are decreased due to increased intracellular fat concentration. Insulin is one of the Metabolic defect which cause type 2 diabetes other defect is beta cell dysfunction. Insulin resistance occur due to genetic predisposition and obesity, it is often detected 10 to 20 years before the onset of diabetes in predisposing individuals.<sup>4</sup>

The rationale of our study is to elucidate the knowledge, attitude and practices of people regarding diabetes and its complications. The aim of our study is to educate people about diabetic complications and to make them aware about the hazards of uncontrolled diabetes mellitus and to educate them how they can manage or control their diabetes and prevent the complications. We also want to make them educate that if the complication occurred then how they can be managed.

## MATERIALS AND METHODS

This Cross-sectional study carried out in Diabetic patients attending Nishtar Hospital, Multan. outdoor from June 2016 to November 2016. The study population came from diverse socio-demographic backgrounds. Most of them were from different districts of Punjab. 200 patients were selected by Systematic random sampling.

Self administered structured questionnaires were given to the students. The information sought included the socio-demographic characteristics of the study participants and questions regarding the history, control, medication, regular follow up and the complications of diabetes.

### Data analysis:

SPSS 21 was used for data entry and analysis. Descriptive statistics and frequency distribution were computed. Chi-square test and Student's t-test were used to determine statistical significance. All tests were performed using  $\alpha=0.05$ .

## RESULTS

A total of 200 patients participated in study with main age of respondents being 48.5 SD. About which 52.1 were male and 48% female. Mostly the patients belong to lower middle class, illiterate, and unemployed. (Table 1)

Most patients attending Nishtar Hospital, Multan had the history of diabetes less than 5 years and 5-10 years. About 84% of them go for regular check up and 80% takes oral hypoglycemic drugs. About 85% of these diabetic patients avoided sweets for control of diabetes and 34% patients responded positively that they do regular exercise (Table 2)

Visual impairment is most common complication of diabetes. According to research 75% of patients had visual impairment, out of which 74.1% had decreased vision and 26.4% had cloudy vision. Most patients went for regular check up to ophthalmologist. Diabetes is

related to CVS complications as 60% diabetic patients were hypertensive. (Table 3).

As the table 4 shows, diabetes has adverse effects on the renal system and this complication of diabetes is the second leading cause of death if diabetes is left uncontrolled. Most of the patients had frequency and urgency of micturation. 46% patients had complained of change in color of urine, about 83.6% of them had pale yellow color.

**Table No.1: Demographic characteristics of diabetic patients attending NHM. (N=200)**

Characteristic	Number	Percentage
Age		
12-48yrs	68	34.0
48-85yrs	132	66.5
Gender		
Male	104	52
Female	96	48
Occupation		
Government servant	5	3.0
Employed	8	39
Unemployed	116	58
Educational status		
Illiterate	81	40.5
Under matric	87	43.5
Graduation and more	32	16

**Table No.2: History of diabetes of diabetic patients attending NHM**

Characteristic	Number	Percentage
Duration of diabetes		
Less than 5yrs	95	47.5
5-10yrs	64	32
More than 10yrs	35	17.5
Regular follow-up		
Yes	161	80.5
No	39	19.5
BSL checked after regular intervals		
Yes	168	84
No	32	16
If 'yes' then at		
Home	33	19.6
Clinic	135	80.3
Controlled diabetes		
Yes	107	53.5
No	93	46.5
Medicine taken to control diabetes		
Yes	185	92.5
No	15	7.5
Medicine taken regularly		
Yes	160	80
No	40	20

Regular check up of kidney is very necessary for the prevention of getting nephropathy. But mostly patients were unaware of this worst complication and only

26.5% went for regular check up to nephrologists. (Table 4)

Table 5 shows that diabetes has effect on the nervous system and 76.5% had the complain of numbness of hand and feet. 91% showed the muscle weakness ,patients with long history of diabetes had complain of developing gangrene and foot ulcer.

**Table No.3: Ophthalmological and CVS complications in diabetic patients attending NHM.**

Characteristic	Number	Percentage
Visual impairment seen		
Yes	151	75.5
No	49	24.5
if 'yes' then		
Decreased vision	112	74.1
Cloudy vision	40	26.4
Visited ophthalmologist		
Yes	104	52
No	96	48
High blood pressure present		
Yes	120	60
No	80	40

**Table No.4: Nephrological complications in diabetic patients attending NHM.**

Characteristic	Number	Percentage
Kidney problem present		
Yes	48	24
No	152	76
Increased frequency of urination		
Yes	119	59.5
No	81	40.5
Complaint of urgency present		
Yes	111	55.5
No	89	44.5
Complaint of burning micturition present		
Yes	68	34
No	132	66
Change in urine color present		
Yes	92	46
No	108	54
Regular check-ups by nephrologist		
Yes	53	26.5
No	147	73.5
Increase in weight present		
Yes	31	15.5
No	96	48

In our study history of disease in most of patients was less than 5 year because of the short duration of the diabetes most of patients developed eye complications

out of which they had decreased vision and the patient did not had regular checkup by ophthalmologist.<sup>8,9</sup>

**Table No.5: CNS complications in diabetic patients attending NHM.**

Characteristic	Number	Percentage
Muscle weakness present		
Yes	183	91.5
No	17	8.5
Complaint of numbness of hands and feet present		
Yes	153	76.5
No	47	23.5
Color of digits changed		
Yes	43	21.5
No	157	78.5
Dryness of digits present		
Yes	60	30
No	140	70
Foot ulcers present		
Yes	37	18.5
No	163	81.5
If 'yes' Visited doctor for foot ulcers		
Yes	29	78.4
No	8	21.6

## DISCUSSION

In this study conducted in NHM an attempt has been made to see complications of diabetes among diabetics and its staggeringly high prevalence. In addition to improving community awareness regarding this disease, enhanced knowledge among people is elementary in addressing issue .A study conducted to know prevalence of complications.<sup>5</sup> Our study diverges in a way it involve diabetic patient from government hospital where most of patient were illiterate, unemployed and from lower socioeconomic status. This study predominanetly demonstrated poor understanding regarding diabetes ,its course and complications .So most patients are at risk of developing complications .Our study mirrored these results so it is important to take steps at a relatively early level to eliminate flaws and deficits in patients response regarding management of disease.<sup>6</sup>

The prevalence of complications of diabetes is higher in the older age groups than in younger age groups .An essentially similar higher prevalence rate in older age group has been reported in many studies. In our study majority of these patients were in 45 years above age group .Our study showed that patients who had no regular checkup of blood sugar level and did not had the regular follow up developed complications earlier.<sup>7</sup> Patients who also did not take medicine regularly developed complications early. Poverty is an important limiting factor for treatment. In this community there is a wide spread ignorance of the complications.

Research shows that diabetes has strong relationship with vascular system as majority of patients were hypertensive and it is alarming because CVS problem like myocardial infarction is the first leading cause of death among diabetics. Due to short duration of history of diabetes gangrene and other micro vascular abnormalities were not too much prevalent.<sup>10</sup>

Study showed that patients were not aware about kidney problems but symptoms of related kidney disease were present in patients is urgency and increase in frequency of micturation. Patient needs to understand serious effects of diabetes on kidney even able to cause renal failure which is second most common cause of death worldwide.<sup>12,13</sup>

The study indicate that diabetes cause muscle weakness and numbness in great majority of patients. Obesity, lack of exercise and physical activity are an important risk factor and hence causes most of the complications.

## CONCLUSION

This study demonstrated a satisfactory elementary knowledge regarding complications of diabetes in diabetic patients. But there is lack of understanding regarding complications of diabetes among patients. Our findings suggest sustained efforts and more emphasis on this particular topic so that patient become more aware about diabetes complications and go for there regular check up in order to prevent the complications.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# To Determine the Elevated C- Reactive Protein in Patients with Acute Myocardial Infarction

Shahid Memon<sup>1</sup>, Abdul Ghaffar Memon<sup>2</sup> and Rajkumar Sachdevani<sup>1</sup>

## ABSTRACT

**Objective:** To assess the frequency of elevated C reactive protein in patients those were admitted in the cardiology department after diagnosis of myocardial infarction.

**Study Design:** Cross sectional study.

**Place and Duration of Study:** This study was conducted at the Department of Cardiology, Liaquat University Hospital Hyderabad from October 2015 to march 2016.

**Materials and Methods:** In this study all the patients with diagnosis of MI were selected. Blood samples were drawn and send to the hospital laboratory to assess the CRP levels in all selected cases. On the collection of the reports CRP levels were noted. Data regarding age, gender, types of MI and levels of CRP were recorded in the proforma.

**Results:** Total 62 cases were incorporated in the study; mean age of the study participants was  $46.5 \pm 6.24$  years. Male gender was found in the majority 74.19%, while female were 26.81%. Typical chest pain was most common presentation in 88.70% of the cases, breathing difficulty was noted in 72.58%, sweating, nausea/vomiting, palpitation, syncope and others were found with percentage of 56.45%, 45.16%, 24.19%, 19.35% and 32.25% respectively. Elevated CRP level was found in 73.58%, while 26.42% cases were with normal CRP level.

**Conclusion:** In the conclusion of this study elevated CRP level was most frequent in patients with acute MI. This may due to diabetic and hypertensive patients. More research is needed especially in diabetic and hypertensive patients.

**Key Words:** Acute MI, CRP, Clinical presentation

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## INTRODUCTION

Acute myocardial infarction (AMI) is the commonest diagnoses in cases during Hospitalization in the industrial countries.<sup>1</sup> Early (30 days) death rate of AMI is 30%. Estimatly 37% of cases those experience the coronary attack will die in similar way.<sup>2,3</sup> Now a days countries like Pakistan, India, Sri Lanka, Bangladesh, and Nepal has big incidence of the coronary heart disease in the global comparison. Furthermore mostly studies contains coronary heart disease have been carried out at Bangladesh, India and Pakistan.<sup>3,4</sup> Etiological factor of the ischemic heart disease and AMI are rising in the Pakistan. Estimatly 18% adult population is suffered by hypertension. Tobacco and the smoking consumption markedly increased and obesity alsothe rising.<sup>5</sup> DM reported 16.2% in the men and

11.7% in the women.<sup>6</sup> DM also is the commonest etiological factor CVD and death ratio estimately four times in females and about twofold in the males. Combination of different risk factors additionally enhances the risks.<sup>7</sup> Zia has in his study demonstrated that 30% cases with an episode of MI had type II DM.<sup>8</sup> In the field comprehensive research has emerged with the multiple newest biomarkers and inflammatory markers of the CHD like as, elevated lipoproteins (a) levels, total plasma homocysteine, increased plasma fibrinogen, plasminogen activating inhibitor (PAI), CRP, several cytokines and the micro albuminuria.<sup>9</sup> It is stated that baseline CRP level in subgroup of cases having acute MI was significantly more elevated as compare to those were with stable CAD. Elevated level of the CRP can predict the future cardiovascular event individualistically of coronary heart disease's severity and associate with the number of angiographically complex stenosis of the coronary artery in cases having ACS. Consequently elevated levels of the CRP is a marker of atheromatous plaque vulnerability and CAD activity.<sup>10</sup> Cases with unstable angina, serum level of CRP and the coronary atherosclerosis are not associated, but these both independently linked with the worse outcome on the follow-up.<sup>11</sup> CRP is a

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phylogenetically highly conserved plasma protein which participates in systemic response to the inflammation. It is the excellent biomarker of the acute-phase response and has emerged as an the important, strong and the characteristic predictors for the future CVD and metabolic abnormalities in ostensibly healthy male and females.<sup>12,13</sup> Very few data is available in literature regarding it specially in Pakistan. Hence this study had done to assess the frequency of elevated CRP level in patients with acute MI.

**MATERIALS AND METHODS**

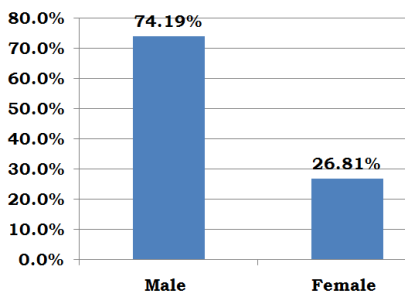
This study was a cross sectional, and was done in cardiology ward of the Liaquat university hospital Hyderabad. Study was carried out between six months from October 2015 to march 2016. In this study all the patients with diagnosis of MI were selected. After admission complete medical history regarding diabetes, hypertension, smoking and family history etc, was carried out. Patients were selected on the basis of ECG and other biomarkers. Patients’ blood pressure and glycemic status was assessed. Patients with other severe comorbidities which associated with C reactive protein elevation were not included in the study. After diagnosis all the patients were underwent treatment immediately. When routine laboratory ingestions were done then the blood samples also were drawn and send to the hospital laboratory to assess the CRP levels in all selected cases. On the collection of the reports CRP levels were noted. Data regarding age, gender, types of MI and levels of CRP were recorded in the proforma.

**RESULTS**

Total 62 cases were incorporated in the study, mean age of the study participants was 46.5±6.24 years, and majority of the cases 35 (56.45%) were found with age group of 41 – 50 years. Table 1

**Table No.1: Age distribution of patients n = 62**

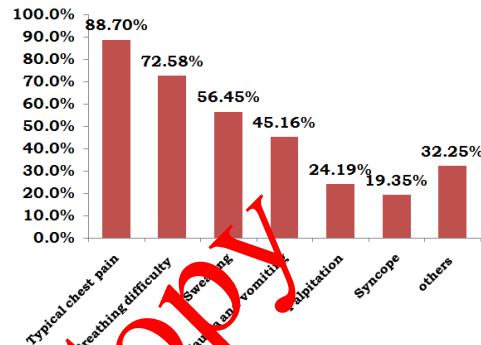
Age and Gender	Frequency (%)
<b>AGE</b>	
Mean±SD	46.5±6.24 years
<b>Age groups</b>	
30 – 40 years	04 (6.45%)
41 – 50 years	35 (56.45%)
51 – 60 years	18 (29.04%)
> 60 years	05(8.06%)



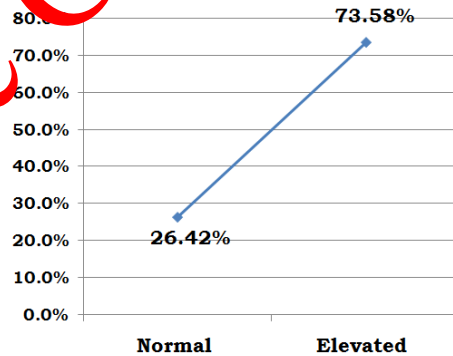
**Figure No.1: Gender distribution of patients n = 62**

In this study male gender was found in the majority 74.19%, while female were 26.81%. Figure 1. According to the clinical presentation typical chest pain was in 88.70% of the cases, breathing difficulty was noted in 72.58%, sweating, nausea/vomiting, palpitation, syncope and others were found with percentage of 56.45%, 45.16%, 24.19%, 19.35% and 32.25% respectively. Figure 2.

In this study elevated CRP level was found in 73.58%, while 26.42% cases were with normal CRP level. Figure 3.



**Figure No.2: Clinical presentation of patients (n=62)**



**Figure No.3: Patients distribution according CRP level (n=62)**

**DISCUSSION**

This study was carried out to assess the frequency of elevated CRP level in patients with acute MI, in other words we can say that elevated CRP level is used in this study as diagnostic marker of acute myocardial infarction. In our series mean age of the study participants was 46.5±6.24 years, and majority of the cases 35 (56.45%) were found with age group of 41 – 50 years. Similarly Jaffery MH et al<sup>14</sup> demonstrated that male in majority 77 and 23 females out of 100 cases, and mean age was according to gender as 54.78 ± 8.82 years of male and 53.64 ±10.82 years of females. As well as In this study male gender was found in the majority 74.19%, while female were 26.81%. According to the clinical presentation typical chest pain was in 88.70% of the cases, breathing difficulty was noted in 72.58%, sweating, nausea/vomiting,

palpitation, syncope and others were found with percentage of 56.45%, 45.16%, 24.19%, 19.35% and 32.25% respectively. Bruyninckx R et al<sup>15</sup> reported that similar findings. On other hand Chowta KN et al<sup>16</sup> reported that 80% cases had chest pain, following by dyspnea in the 28.3%, sweating in the 21.7% patients, and vomiting was in 13.3% cases. Epigastric pain had 10% of the cases. 3 patients had syncopal and 3 had palpitation.

In this study elevated CRP level was found in 73.58%, while 26.42% cases were with normal CRP level. Çilelik Ş et al<sup>17</sup> reported that CRP levels was significantly high in patients with LV thrombus as compare to those were without it.  $p=0.001$ ). Psychari SN et al<sup>18</sup> reported that there were an inverse association between inflammatory marker CRP, rate of the heart and HRV indices which expressed mainly sympathetic tone, after the acute MI. In a previous study reported that CRP strongly linked with the atherosclerosis and as measured at different site of arterial tree.<sup>19</sup> Many mechanisms had reported that CRP and other mediators of the inflammation may be hardly implicated in atherogenesis.<sup>20</sup> C-reactive protein produced through the cells of smooth muscle of atherosclerotic lesion,<sup>21</sup> and produced CRP locally could straightly contribute in the atherogenesis and cardiovascular complications development. In a large reports of the basic science had reported that circulating CRP is associated to prognosis in the cases having atherosclerotic illness as myocarditis, heart failure and atrial fibrillation.<sup>22</sup>

## CONCLUSION

In the conclusion of this study elevated CRP is the good diagnostic marker for acute MI, because it was most frequent in patients with acute MI. This may due to diabetic and hypertensive patients, because CRP elevation was also associated with hypertension, smoking and diabetes in the literature therefore our results are not finalized. More big sample size research is needed especially in diabetic, smokers and hypertensive patients.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Determine the Outcome of Radical Cystectomy in the Management of Muscle Invasive Bladder Tumor

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## ABSTRACT

**Objectives:** To determine the outcome of radical cystectomy in the management of muscle invasive bladder tumor.

**Study Design:** Observational / descriptive study

**Place and Duration of Study:** This study was conducted at the Urology Wards 14, Liaquat University Hospital, Jamshoro from March 2007 to February 2009.

**Materials and Methods:** 25 cases were studied through data collected by performa filled by each case separately. Base line Investigations like CBC, Urine DR, Blood Urea, Serum Creatinine, Serum Electrolytes, LFT, Clotting profile, serum total protein AG ration, Hepatitis B and C with Specific Investigations such as Ultrasound abdomen & pelvis, Contrast CT abdomen Pelvis. Cystoscopy & biopsy under GA, Start irrigation by 7 days twice daily by 30 cc N/S till discharge. Ascending pouchogram for suspicious cases by 19 day. Remove of urethral catheter by 20<sup>th</sup> day. After discharge patient call for follow up. Post-operative was observing postoperative complication like survival, leakage, sepsis and bleeding.

**Results:** In the present study predominantly 25 male patients with mean age of 70. 10 having 07 patients were died within 24 hrs. After surgery, 05 patients have postoperative bleeding and 02 patients have anastomotic leakage..

**Conclusion:** The study concludes that more cases are required for justification of radical cystectomy in muscle invasive locally advanced bladder tumor..

**Key Words:** Radical Cystectomy, Ileal Conduit, Management, Muscle Invasive, Bladder Tumor.

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## INTRODUCTION

Bladder cancer is a heterogeneous disease; Muscle invasive (T2) bladder tumor usually needs a more truculent treatment options. The standard and most effective treatment is radical cystectomy and urinary diversion. Bladder carcinoma mostly involved advanced age people, yet many treatment strategies restrict entry to patient who is under seventy, but the age might increase upto eighty if extensive radical cystectomy is an option of treatment. The importance of lymph node dissection in association with extensive radical cystectomy is well accepted and there is more local control and survival after extended lymph node dissection. After this extensive surgery the urine should be diverted by means of using the different gastrointestinal segments which still dependent on their original blood supply but transected to make a reservoir for urinary diversion.<sup>1</sup>

Ileal conduit diversion is the most commonly performed procedure used for the urinary diversion. The ileal reservoir receive urine from its proximal part via newly ureteric re-anastomosis and urine drain continuously on its distal end to an externally placed urostomy bag outside the abdomen which can be emptied later on regular intervals by patients him or herself or by nursing care staff. Catheterizable continent reservoir for instance, Indiana pouch is one of a type of neobladder formation where the distal end of the reservoir instead of anastomosis with native urethra, open separately by means of cathetrizable stoma outside the abdomen wall through which an intermittent catheter insertion. This technique is specially performed for those patients who are unfit for orthotropic substitution due to the higher risk or positive frozen section biopsy of the native urethra.

## MATERIALS AND METHODS

This descriptive study was conducted on 25 cases at Urology wards 14 Liaquat University Hospital. The data was collected by performa filled by each case separately. Both male and female patients with muscle invasive Ca. bladder, less than 70 years age were included. 80% patients had W pouch (mansoura pouch) and 20% had Ileal conduit. Patients with superficial Ca, Bladder, extensive metastasis, patients above 70 Years age and previously operated for pelvic surgery were not included.

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**Data Collection Procedure:** Performa was be filled for each case separately. Patients diagnosed a urinary bladder growth were admitted in ward – 14 LUMHS, Jamshoro from OPD and referred from other centers. Base line Investigations like CBC, Urine DR, Blood Urea, Serum Creatinine, Serum Electrolytes, LFT, Clotting profile, serum total protein AG ration, Hepatitis B and C with Specific Investigations such as Ultrasound abdomen & pelvis, Contrast CT abdomen Pelvis were performed. Cystoscopy & biopsy were done under general anaesthesia, after surgery 30 cc N/S irrigation was started by day 7 postoperatively, twice daily till discharge. Ascending pouchogram was performed for suspicious cases by 19 day. urethral catheter was removed by 20<sup>th</sup> day. Patients were followed up for postoperative complications like survival, leakage, sepsis and bleeding.

**Data Analysis Procedure:** All the data was entered and analyzed using SPSS version 17. Descriptive statistics was used to summarize the categorical variables like gender, post-operative complication like bleeding, leakage of anastomosis and death reported as frequencies and percentages whereas age presented as Mean±S.D. Stratification was done by age, gender and post-operative complications.

## RESULTS

According to inclusion criteria mentioned above, the study comprises total of 25 patients. All patients were male. The average mean age of the patients was 59.9 ± 10. The 40% patients were at the age of 59 to 64 and the patient between 65 to 70 years was 60%. After surgery 7 patients were died within 24 hrs. after surgery and remaining 18 patients survive with minor or major complications which were successfully deal during and after post-operative care period.

## DISCUSSION

Radical cystectomy procedure is a big undertaking but currently a choice of managing the patients with muscle-invasive (T2) bladder carcinoma.<sup>1</sup> It is an extensive and major abdominal surgery involving the simultaneous manipulation of genitourinary tract, gastrointestinal segments and all related lymph nodes so the procedure related complications occur most frequently during and after this extensive abdominal surgery. Most current statistics shows that the incidence of these iatrogenic complications ranges from 19% to 64%<sup>2,3</sup>. There is substantial variability in the mortality figures reported in the most recent urological investigations approximately between 1 to 8%<sup>4,5</sup>. Post-operative mortality occur within a month upto 33% of cases, while the same figures of mortality can occur between period of one to two month. Statistics of another population based research demonstrated the one, two and three month duration mortality rate of upto 1%, 2.5% and 4 % respectively.<sup>6,7</sup> Moreover,

figures of a single city hospitals in USA, revealed significantly lower mortality rates in the facilities where > 10 cystectomies were performed each year<sup>8</sup>. Even with higher numbers of radical cystectomies, there still seems to be a relationship between hospital volume and postoperative mortality. To evaluate the impact of procedure volume, another study by using the data obtained from the University HealthSystem Consortium Clinical Database, which comprises > 6000 cystectomies performed at academic centres<sup>9</sup>. The results revealed lower in-hospital mortality rates at centers that annually performed > 50 cystectomies compared with those that handled 26–50 such cases each year. In addition to the number of procedure performed including the overall surgical units related factors that have been suggested to affect the mortality also include the number of surgeons<sup>7,10</sup> as well as the number of registered surgical nurses to the patients<sup>8</sup>. One study demonstrated that the number of other urological and oncological procedures which perform at the same time can directly influence on hospital volume and mortality after radical cystectomy<sup>11</sup>. Recently performed larger set patients volume also demonstrated that the risk of postoperative mortality after 3 month of radical cystectomy can also be affected by the other important factors that is patient age, volume of tumor and its histological grading<sup>6,12,13</sup>. There is an emergent need of publishing standardized statistics on surgical complications after radical cystectomy.<sup>14,15</sup> Published data on 2538 cases by Hollenbeck et al shows that upto 70.5% of the patients had one complication at least within a month of follow-up after radical cystectomy<sup>16</sup>. Clavien approach to classify the surgical complications was initially exists in late 1990s specially for the application in organ transplantation surgeries<sup>17</sup>, and then it was restrain in year 2004<sup>18</sup> and currently becomes the standardized approach for reporting and assessment of complications and quality of life in all types of surgeries including radical cystectomies.<sup>3,19</sup> During this extensive abdominal surgery there is an average blood loses between 560 ml to 3000 ml<sup>20,21</sup>, indicating moderate to considerable blood transfusion may require which may further effects in transfusion related complications and increases mean cost on hospital specially for this procedure<sup>13,22</sup>. It is also recommended that by supplementation of epidural anesthesia along with general anesthesia might reduce the requirement of blood transfusion during surgery<sup>23</sup>. Additionally, it has been suggested that current proficient surgical apparatus such as bipolar device system and by using harmonic scalpel can be beneficial<sup>24</sup>. Another randomized statistics shows that, stapling apparatus can minimize the blood loss and reduces the need of blood transfusions<sup>25</sup>. There is an alarming postoperative complication soon after radical cystectomy which includes leakage of intestinal anastomosis and extravasation of urine. Data of another

prospective study shows that insertion of stent during the procedure was found in reduction of urinary anastomose leakage<sup>26</sup>. In other study there is comparatively decrease rate of extravasation connected with radical cystectomy, so as likely it is not always essential to carry out routine urography and stenography in those patients with normal postoperative period<sup>27,28</sup>. Another randomized study observed postoperative ileus in upto 18% in those patients who were managed with multimodality treatment options including epidural analgesia, encouraged early central nourishment through jejunal placed cannula, removal of nasogastric tube earlier and sufficient preparation of bowel before the surgery<sup>29</sup>. Nonrandomized comparative data shows that, bubble gum chewing was found to reduce the time of bowel motility after radical cystectomy<sup>30</sup>. There is a reduction in the risk of post radical cystectomy atelectasis shown in those patients with early removal of nasogastric tube along with metoclopramide support<sup>31</sup>.

It is also recommended now for thromboprophylaxis remedy after every major abdominal and pelvic cancer surgery for a period upto one month with low dose heparin which is also cost effective<sup>32</sup>. Primary wound dehiscence in the early postoperative period accounts 15% of all early complications of radical cystectomy<sup>3</sup>. Several elements might influence the risk of wound dehiscence including surgical technique. One of them is a ratio of suture to wound length, which was demonstrate in a prospective clinical trial study to cause wound dehiscence in 0.7% cases<sup>33</sup>. There is significant reduce in the risk of wound dehiscence associated with the interrupted technique of wound closure during laparotomy as compared to continuous technique but figures regarding the risk of hernia remains same in comparative randomized studies<sup>34</sup>. Study shows the significant importance with regard to lymph node dissection specially with this extensive surgery, encouraging a view to use more extended lymph node dissection with radical cystectomy<sup>35, 36</sup>. Moreover with regard to fecal leakage and urgency there is less data available to justify adverse events of rectal dysfunction post radical cystectomy. Selection of patient is extremely very important part of any extensive surgery as like radical cystectomy because it can help to assess in preventing from complications and morbidity to a minimum level.<sup>37</sup> Advancing age has also been linked with increase complication rates in other series.<sup>13</sup>

## CONCLUSION

The radical cystectomy is considered has the gold standard treatment for muscle invasive bladder cancer especially in fit patients when comparing it with chemo-radiotherapy in unfit patients or those who wish to repressive their bladder. In our country the patients usually present late and although begin recognized as uncommon tumor our experience clearly shows that it is

a common neoplastic condition when compared with prostate cancer, being considered the commonest tumors in men in the developed world. Radical cystectomy and urinary diversion is being performed in very few centers of Pakistan. In the present study clearly shows if performed in patients with strict criteria it can be lifesaving.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Recurrence Rate in Aesthetic Approach for Removal of Epidermoid Cyst

Habib ur Rahman Khan Toor, Gulshan Ali Memon and Kashif Ali Shah

## ABSTRACT

**Objectives:** To determine the recurrence rate in minimally invasive aesthetic approach for removal of epidermoid cysts

**Study Design:** Observational /descriptive study.

**Place and Duration of Study:** This study was conducted at the Peoples University of Medical and Health Sciences Nawabshah (PUMHS) from October 2013 to October 2015.

**Materials and Methods:** 125 cases with epidermoid cyst were included according to selection criteria. Procedures were performed in main operation theater under local anesthesia. A small stab incision, less than 5mm, given and cheesy contents of the cyst expressed out by squeezing lateral pressure with index finger and thumb. Wall of the cyst was stripped and squeezed out with artery forceps. Wounds were not stitched but approximated with adhesive dressing. patients were then sent home and three doses of oral amoxicillin with diclofenac sodium was prescribed in all cases. Follow up visits were scheduled to observe any post operative bleeding, wound infection, wound cosmetics and any recurrence.

**Results:** Among 125 cases 82 were male and 43 were females with M:F ratio of 3:2. Mean age was 29 years with a range of 13- 52 and SD  $\pm$  9. Mean operating time was 12 minutes with SD  $\pm$  3 and a range of 8-15. Primary hemorrhage was noted in 1(0.8%) reactionary bleeding was noted in 2(1.6%) while there was no any secondary bleeding. wound infection was noted in 4(2.4%) cases. Wound cosmetics was remarkable as scar was almost non visible after some time. There was no any recurrence even after 1 year follow up.

**Conclusion:** Minimally invasive aesthetic approach to remove small epidermal cysts at cosmetically concern body areas, give excellent scar cosmetic and no greater chance of recurrence.

**Key Words:** Epidermoid Cyst, Minimal Invasive Surgery, Recurrent Epidermoid Cyst

**Citation of article:** Toor HRK, Memon GA, Shah KA. Recurrence Rate in Aesthetic Approach for Removal of Epidermoid Cyst. Med Forum 2017;28(4):178-180.

## INTRODUCTION

Epidermoid cyst is one of the commonest benign skin tumor. The size of the epidermoid cysts varies from a few millimeters to 5 cm in diameter. They frequently appear on the scalp, face, neck, trunk, scrotum and less commonly on other parts of the body<sup>1,2,3</sup>. Breast is not a rare site of its occurrence<sup>4</sup>. These slow growing lesions remain asymptomatic in majority of the cases. Symptoms starts appearing when the size is rapidly increasing or the cyst become infected and the main symptom is usually a small, non-painful lump beneath the skin. The lining of the epidermoid cyst is very similar to the infundibulum of the hair follicle, therefore, it is assumed that the source of this epidermis is nearly always the infundibulum of the hair follicle<sup>5</sup>

The true incidence of malignancy remains uncertain as there is very variable (0.045–19.0%) malignant potential in epidermoid cysts.<sup>6</sup> On clinical examination these cysts appear as -yellowish, firm, round nodules of variable size. A central pore or punctum may be present. Majority of the patients do not seek medical advice until the epidermoid cyst become symptomatic or because of cosmetic reasons. The mainstay of treatment of an epidermoid cyst is surgical removal of the cyst. Surgical treatment of epidermoid cysts may involve simple excision or incision with removal of the cyst and cyst wall though the surgical defect.<sup>7</sup> A conventional approach with a wide elliptical incision with an effort to remove the cyst in *toto*, leave a prominent scar but almost completely remove the cyst wall and ultimately reduce the chances of recurrence. Recurrence of epidermoid cysts after surgical removal strongly correlates with the residual wall of the cyst. Whenever a surgical scar is to be made on a part of the body with high cosmetic concern especially the face, an aesthetically inconspicuous scar becomes a real demand. Worldwide various less invasive techniques were introduced in an attempt to make a minimal scar for the removal of epidermal cyst like Patton<sup>1</sup> in 1963, Vivakananthan<sup>2</sup> in 1972, Moore and Greer<sup>5</sup> in 1975 Park SW et al in 2015.<sup>8,9,10,11</sup> As compare to conventional approach, less invasive procedure are not

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supposed to be much accurate in complete removal of the wall of the epidermoid cysts. Removal of sebaceous cyst with small linear incision, squeezing out cheesy material, stripping off the wall of the cyst and without applying any stitch gives good aesthetic results.<sup>12</sup> This study was conducted at PUMHS Nawabshah to determine the rate of recurrence of an aesthetic approach in removal of epidermal cyst.

## MATERIALS AND METHODS

This is a descriptive study extending from October 2013 to October 2015 and comprised 125 patients. Patients were selected from surgical outpatient department (OPD). No age and gender discrimination was made. Demographic data was recorded. Diagnosis of the Epidermoid cyst was solely made on history and clinical examination. Patients with epidermoid cyst of less than 2.5 cm were selected. Infected and recurrent epidermal cyst were not selected for this study. Immuno-compromised cases like diabetics, taking steroids and patients with bleeding disorders were not included. Patients with generalized skin disorders were also not considered for this study. All patients were advised to get blood complete picture, coagulation profile and hepatic viral status lab reports. Procedures were done in operation theater with all aseptic measures. Local anesthesia with ring block using 2% xylocain and 1:2000 adrenalin in an insulin syringe was used. A small less than 5mm stab incision was given on the most prominent part of the swelling or on the punctum if present. All the cheesy material is squeezed out by applying rolling compression with thumb and index finger. After complete emptying of the cyst, a pair of small artery forceps was introduced into the cavity through the stab wound to catch the wall of the cyst. The wall of the cyst then squeezed out or stripped off with rotatory movements of artery forceps. Hemostasis is secured by applying gentral pressure. Wound cavity was irrigated with small amount of normal saline. No stitching was used and wound is approximated with adhesive dressing. Few minutes after procedure patients were sent home. Three doses of oral amoxycycline along with diclofenace sodium were prescribed. After 3 days dressing was removed on their first follow up in the OPD and patients were then allowed to wash the wound area routinely. After first early visit, patients were scheduled for 2<sup>nd</sup> and 3<sup>rd</sup> follow up after 2 and 12<sup>th</sup> week of surgery respectively to observe the cosmetic of the scar. Patients were advised to come for follow up after one year or any time after that, when they notice any swelling at the operated site to detect any recurrence Data was analyzed on spss latest version.

## RESULTS

125 patients were included in this study that was conducted between October 2013 and 2015. Among

these 125 cases 82 were male and 43 were female making a male female ratio M:F 2:1. Mean age was 29 years with a range of 13- 52 and SD  $\pm$  9. Mean operating time was 12 minutes with SD  $\pm$  3 and a range of 8-15. Primary hemorrhage was noted in 1(0.8%) reactionary bleeding was noted in 2(1.6%) while there was no any secondary bleeding occurred in any case Post operative wound infection was noted in 4(2.4%) cases. Scar was almost invisible after 3 months in 110 cases and undetectable after 1 year in all 95 cases who came for their fourth follow up. No recurrence found even after 1 year.

## DISCUSSION

In this two year 125 cases were selected for the study. Male to female ratio was 2:3. On clinical parameter a size of 2.5 cm was selected as an upper limit of the epidermoid cyst as larger cysts may develop a thick and adherent cyst wall, difficult to remove. This size selection is similar to Palloot A *et al.*<sup>13,14</sup> The mean operating time 12 minutes was similar to Lee.<sup>15</sup> The epidermoid cyst is one of the commonest skin swelling, usually presents as a small papule or nodule subcutaneously on the head, neck, trunk and extremities.<sup>16</sup> Majoriry of the cases remain asymptomatic until the cyst enlarge in size or become infected. Patients seek medical advise due to cosmetic reasons and developing symptoms. Surgical excision is the only optimum treatment. Conventional surgical excision requires a wide elliptical incision and complete removal of the cyst wall but left with a permanent scar. A significant ratio of epidermoid cysts occur at exposed areas of the body with a high cosmetic concern like face, neck and extremities. To get minimal scarring and better cosmetic results many new less invasive procedure were introduced like removal with a biopsy punch incision<sup>14</sup>, laser punch evacuation and minimal incision.<sup>17,18</sup> In the present study the cosmetic of scar was excellent as the scars were almost invisible after few months of surgery and patients found delighted. As compare to conventional surgical approach these less invasive procedures may not completely remove the wall of cysts resulting in a relatively greater chances of rate of recurrence. Most recurrences occur within the first year of surgical removal<sup>14</sup>. In the present study, there was no any recurrence found even after one year follow up that is very similar to Park SW<sup>9</sup> (no recurrence) and HuiLing Wu *et al*'s minimal invasive laser punch aesthetic surgery(no recurrence)<sup>18</sup>. Klin observed the a negligible recurrence (0.66%) in his similar work of 302 cases.<sup>19</sup> Song's *et al* also shown no recurrence in his work of minimally invasive small hole CO<sub>2</sub> laser technique.<sup>20</sup> These studies are supporting the aesthetic approach of small incision for removal of sebaceous cysts with no increase chance of recurrence.

## CONCLUSION

Minimally invasive aesthetic approach to remove small epidermal cyst at cosmetically concern body areas,

gives excellent scar cosmetic and no greater chance of recurrence.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Frequency of Arrhythmias in Patients with Acute Myocardial Infarction

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## ABSTRACT

**Objective:** To determine the frequency of arrhythmias in patients admitted with Acute Myocardial Infarction.

**Study Design:** Observational study

**Place and Duration of Study:** This study was conducted at the Department of Cardiology, LUH Hyderabad from January 2015 to December 2016.

**Materials and Methods:** Patients with Acute MI, both genders were selected for the study. Acute MI and arrhythmia's diagnosis was assessed on the basis of history, electrocardiography and arrhythmias, and significantly cardiac enzymes (biomarkers) elevation particularly Troponins. Finally arrhythmias were assessed and all the data was recorded in the proforma.

**Results:** In our study 90 patients were selected, patients mean age was 55.66±10.4 years male gender was most common 69(76.6%). Acute anterior wall MI and Acute inferior MI were found most common as 27.77% and 23.33%. Over all arrhythmias was found 83.40%. According to type of arrhythmias VT, VF, Atrial Fibrillation and CHB were found most common as 26.66%, 13.34%, 14.66% and 14.66% respectively.

**Conclusion:** We concluded that Arrhythmias is most frequent in patients with MI and found almost all in cases

**Key Words:** AMI, frequency, Arrhythmias

**Citation of article:** Memon AG, Sachdewani R, Memon S. Frequency of Arrhythmias in Patients with Acute Myocardial Infarction. Med Forum 2017;28(4):181-184.

## INTRODUCTION

Acute myocardial infarction (MI) is also called heart attack refer to decrease blood and oxygen supply to cardiac muscles which leads to necrosis or cell death. This occurs due to blockage of coronary artery lumen by thrombus.<sup>1</sup> There is two commonest sub types of acute MI, non-ST-elevated MI and ST-elevated MI. Most important reason of total blockage of coronary artery is disruption of an atherosclerotic plaque which initiates clotting cascade.<sup>3,4</sup> Atherosclerosis results from steady accumulation of fibrous tissue and cholesterol in the walls of arteries over a long period of time.<sup>5</sup> On angiography, irregularities in the blood stream column are seen which suggests narrowing of artery lumen due to accumulation of atherosclerosis for a long time.<sup>6</sup> Plaques can be unstable, rupture or they may form thrombus which blocks the artery within minutes. When plaque ruptures inside the coronary artery than it results in myocardial infarction.<sup>3,4</sup>

In minority of cases with acute ischemia, polymorphic ventricular tachycardia (VT) or ventricular fibrillation (VF) is observed early in course of arrhythmogenesis which is mostly associated with genetic predisposition.<sup>7</sup>

Frequency of mortality in patients who are admitted to hospital due to acute cardiac failure or VT/VF has been decreased remarkably because of extensive use of reperfusion methods. Most important complication of acute myocardial infarction is arrhythmias, which is responsible for 40-50% of mortality. After AMI, likelihood risk of arrhythmias after first hour is about fifteen times more than 12 hours.<sup>8,9</sup> In myocardial infarction, incidence of ventricular arrhythmia and bundle branch block is high. In the studies, 13% of cases during hospitalization had BBB. Degree of frequency of VT is 39%. 22.6% PVC, 12% ventricular tachycardia and the ventricular fibrillation 4.4% respectively.<sup>10</sup> Few studies have showed various types of arrhythmias with numerous distributions of MI.<sup>11,12</sup> Goal behind this study was to determine the frequency of arrhythmias in patients admitted in cardiology department with acute MI.

## MATERIALS AND METHODS

Present observational study was done in cardiology department of LUH Hyderabad with one year duration from January 2015 to December 2016. Patients with Acute MI, both genders were selected for the study. All the patients with history of malnutrition, alcoholism, diarrhea and history of drugs like as Loop and thiazide diuretic and PPI were not selected in the study. From all the selected cases written and informed consent was taken. All patients were under went clinical examination and complete medical history. Diagnosis of the acute MI and arrhythmias was assessed on the basis of history, electrocardiography and arrhythmias,

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and significantly cardiac enzymes (biomarkers) elevation particularly Troponins. All routine laboratory investigations were carried out from diagnostic laboratory of the LUH, Hyderabad. Finally arrhythmias were assessed and all the data was recorded in the proforma. SPSS version 20 was used for the data analysis.

## RESULTS

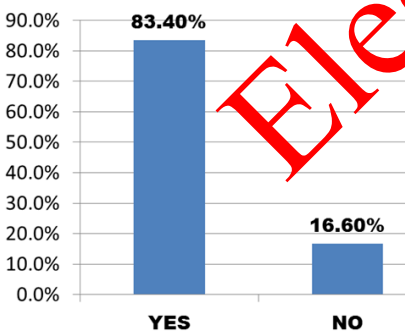
In this study 90 patients were selected, patients mean age was 55.66±10.4 years male gender was most common 69(76.6%), while female were 21(23.4%). Table 1.

**Table No.1: Patients distribution according to age and gender n=90**

	Frequency (%)
<b>AGE</b> (mean±SD)	55.66±10.4 years
<b>GENDER</b>	
Female	21(23.4%)
Male	69(76.6%)

**Table No.2: Types of myocardial Infarction n=90**

Type of MI	Frequency	Percent
Acute anterior wall MI	25	27.77%
EXT ANT WALL MI	12	13.34%
Acute A/S MI	03	03.34%
Acute AVR MI	02	02.22%
Acute inferior MI	21	23.33%
Acute inferior +RV MI	15	16.66%
Acute inferior +POST MI	07	07.77%
Acute inferior +LATERAL MI	03	03.34%
Acute POST WALL MI	02	02.22%



**Figure No.1: Frequency of arrhythmias (n=90)**

In this study acute anterior wall MI and Acute inferior MI were found most common as 27.77% and 23.33%, following by EXT ANT WALL MI, Acute AVR MI, Acute A/S MI, Acute inferior +RV MI, Acute inferior +POST MI, Acute inferior +LATERAL MI and Acute POST WALL MI with percentage of 13.34%, 03.34%, 02.22%, 16.66%, 07.77%, 02.22% and 03.34% respectively. Table 2.

In this study arrhythmias was found 83.40%. Figure 1. in this study according to type of arrhythmias VT, VF, Atrial Fibrillation and CHB were found most common as 26.66%, 13.34%, 14.66% and 14.66% respectively, while 1<sup>ST</sup> Degree AV Block, 2<sup>nd</sup> Degree AV Block, 2<sup>ND</sup> Degree Heart Blocks, Atrial Fibrillation, Bigemny, High Degree AV block, Junctional Bradycardia, Sinus Bradycardia, SVT and Variable Block were found with percentage of 1.34%, 2.67%, 1.34%, 2.67%, 1.34%, 4.0%, 8.0%, 4.0% and 2.67% respectively.

**Table No.3: Types of arrhythmias in patients with acute MI n=75**

Arrhythmias	Frequency	Percent
First degree AV BLOCK	01	1.34%
Second degree AV BLOCK	02	2.67%
Second degree heart blocks	01	1.34%
Atrial Fibrillation	11	14.66%
BIGEMNY	02	2.67%
CHB	11	14.66%
HIGH DEGREE AV BLOCK	01	1.34%
JUNCTIONAL BRADYCARDIA	03	4.0%
SINUS BRADYCARDIA	06	8.0%
SVT	02	2.67%
VARIABLE BLOCK	03	4.0%
VF	10	13.34%
VT	20	26.66%

## DISCUSSION

This study was conducted to evaluate frequency of arrhythmias in patients having acute MI. In this study 90 patients were selected, patients mean age was 55.66±10.4 years male gender was most common 69(76.6%), while female were 21(23.4%). In the study of D, rajasekhar<sup>13</sup> reported mean age as 54.5 ± 11.5 years, also reported that male gender was in majority 71%. Masood A et al,<sup>14</sup> had also showed male gender most common 75% and female gender 25%. Hreybe H et al<sup>15</sup> reported that study participants were with mean age as 64.66±14.07 years and male gender most common 63.4%.

In this study acute anterior wall MI and Acute inferior MI were found most common as 27.77% and 23.33%, following by EXT ANT WALL MI, Acute AVR MI, Acute A/S MI, Acute inferior +RV MI, Acute inferior +POST MI, Acute inferior +LATERAL MI and Acute POST WALL MI with percentage of 13.34%, 03.34%, 02.22%, 16.66%, 07.77%, 02.22% and 03.34% respectively. Masood A et al, <sup>14</sup> reported that 63.8% cases had anterior wall MI, 31.3% were with inferior wall MI, 3.8% were with posterior wall MI and only 1.3% were with lateral wall MI. Palwasha Sahibzada et

al.<sup>16</sup> stated that out of total cases 45.1% were with STEMI, 29% having anterior wall MI and 16% were with inferior wall MI, while 29% were diagnosed as ACS. Similar finding also reported by some other studies.<sup>17,18</sup> Hreybe H et al<sup>15</sup> reported that AMI was found as 41.2% had anterior MI, 52.9% had inferior MI, 1.6% having posterior MI, and 4.2% had lateral MI.

In this study over all arrhythmias was found 83.40%. Similarly Toshniwal SP et al<sup>19</sup> reported that out of 118 cases, 79.88% had different types of arrhythmias. Almost 90% cases had arrhythmias during early 24 hours, furthermore half of these 48.93% were observed during 1<sup>st</sup> hour with statistically significance. Most common sinus bradycardia was in 21.30% cases. Ventricular premature complexes were the 2<sup>nd</sup> most common in the 11.70% cases. Rajkumar C et al<sup>20</sup> also reported that 75% had develop arrhythmias with MI in peri-infarct period.

In this study according to type of arrhythmias VT, VF, Atrial Fibrillation and CHB were found most common as 26.66%, 13.34%, 14.66% and 14.66% respectively, while 1<sup>st</sup> Degree AV Block, 2<sup>nd</sup> Degree AV Block, 2<sup>nd</sup> Degree Heart Blocks, Atrial Fibrillation, Bigemny, High Degree AV block. Junctional bradycardia, Sinus Bradycardia, SVT and Variable Block were found with percentage of 1.34%, 2.67%, 1.34%, 2.67%, 1.34%, 4.0%, 8.0%, 4.0% and 2.67% respectively. These results are comparable with the previous studies in which they reported association of the AMI location and the different arrhythmias.<sup>21,22</sup> Many other studies reported link between inferior AMI and the different degrees of the AV blockade. Rathore et al.<sup>22</sup> stated that occurrence of complete AV block in case having inferior MI was highly more in the comparison of anterior AMI. Rajkumar C et al<sup>20</sup> also reported sinus bradycardia (24%) and sinus tachycardia (38.5%) were the most frequently seen arrhythmias.

## CONCLUSION

We concluded that Arrhythmias is most frequent in patients with MI, and found almost all in cases. More research is needed to assess more information regarding arrhythmias in patients with MI.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# The Incidence of Hepatitis C in Patients of Chronic Liver Disease at Bahawal Victoria Hospital, Bahawalpur

Azib Ilyas<sup>1</sup>, Zarnain Khalid<sup>2</sup> and Syeda Tooba Bukhari<sup>1</sup>

## ABSTRACT

**Objectives:** The purpose of this scrutiny was to document the frequency of seropositive patients of hepatitis C from all fields of life & from each part of Bahawalpur with chronic liver disease.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the Bahawal Victoria Hospital, Bahawalpur from January to June 2016.

**Materials and Methods:** Sample size of 100 was taken who belonged to all fields of life in Bahawalpur Sixty (60) were males and forty (40) were females. Serum sample collected from department of Medicine and Surgery from both indoor and outdoor departments.

**Results:** There were 23 (23%) pts +Ve for hep C virus antibodies, including 15 (25%) men & 8(20%) females. Male patients with +Ve for hep C virus antibodies were 15 (25%) while male pts with -Ve for hep C antibody were 45 (75%). Female pts with active hep C virus antibodies were 8(20%), and female patients with -Ve hep C virus antibodies were 32 (80%).

**Conclusions:** The rate of hep C virus antibodies is rather low down in pts with CLD approaching hospital. There is an alarming situation in District Lodhran for hepatitis patients.

**Key Words:** Hepatitis C; Chronic liverdisease; Hepatitis C; Frequency

**Citation of article:** Ilyas A, Khalid Z, Bukhari ST. The Incidence of Hepatitis C in patients of Chronic Liver Disease at Bahawal Victoria Hospital, Bahawalpur. Med Forum 2017;28(4):185-187.

## INTRODUCTION

Hepatitis is inflammation of the liver, the most common being caused by a viral infection. In these viruses, hepatitis B virus (HBV) and hepatitis C virus (HCV) infection accounts for a large part of the world's liver disease. These viruses are responsible for liver damage from mild disease to cirrhosis and hepatocellular carcinoma. The world population of about 350 million people infected with HBV, 170 million people infected with HCV.<sup>1</sup> In Africa comprehensive HBV and HCV infection is possible because of the common pattern of virus transmission.<sup>2,3</sup> HBV is transmitted at birth by exposure to infectious blood, semen, other body fluids or exposure from infected mothers to infants. The spread may also occur by infusing HBV contaminated blood and blood products, contaminating injections during medical procedures, and by injecting drug use. HCV is also transmitted through blood transfusion to infectious blood.<sup>4</sup>

Chronic liver disease is caused by inflammatory liver injury, which lasts 6 months and will not completely resolve. CLD includes chronic hepatitis, cirrhosis and HCC and other diseases.<sup>5</sup> It causes more than 1.4 million deaths each year, characterized by a permanent inflammation of the liver. About 1-2 million per year people die from HBV-related acute and chronic liver disease. Most of the chronic carriers of HBV are located in sub-Saharan Africa. The World Health Organization estimates that 350 million people worldwide suffer from chronic HBV infection and 170 million people suffer from chronic HCV infection.<sup>6</sup>

The positive rate of hepatitis B surface antigen (HBsAg) is estimated to be between 0.1% and 20% in different parts of the world.<sup>7</sup> In Africa, HBV infection plays a major role in the etiology of most liver diseases. In sub-Saharan Africa, the incidence of liver disease is high. According to reports, 12% of hospital admission and 31% mortality in hospital hospitals in Ethiopia are due to chronic liver disease.<sup>8</sup> In order to ensure the best clinical management of chronic liver disease patients, it is important to know the HBV and HCV status of these patients. Ethiopia's research on various subjects has proved that 2%<sup>9</sup> and another population based study of 0.9% occurrence.<sup>10</sup> However; co-infection studies of HBV and HCV in chronic liver disease are limited.

Hep C is a RNA virus that was characterized for the first time in 1980. There are 6 genotypes & above 50 subtypes. Serotype 3 is mostly in Pakistan.<sup>11</sup> Due to

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high frequency and morbidity it is a challenging public health problem in our country.<sup>12</sup> Hepatitis C is most prevalent from ranging 5% to 82%. Other Studies in India also that 83% of dialysis patients show Hepatitis C, and this frequency in Venezuelais 72% and 45% in Saudi Arabia<sup>13</sup>

The frequency of hepatitis C virus was 25% in patients having regular Dialysis<sup>14</sup> Hep C has greater tendency to cause liver disease, whereas the frequency of hepatitis B virus causing chronic liver disease is not as much as hepatitis C.<sup>15</sup> 75% of CLD cases reported in India<sup>16</sup>. 17-20% of Egyptians has chronic hep C<sup>17</sup>, other research conducted in Pak showed 45% of hep C patients in CLD<sup>18</sup>. There are 20-30% chances of developing liver cirrhosis in Hepatitis C infected patients. Chronic hep C is 10<sup>th</sup> most important reason of death worldwide<sup>19</sup>. 30% Hep C leads to CLD.<sup>20</sup>

No study has been conducted in Punjab province on frequency of hep C in pts with CLD. So, this study needs to be introduced in the real picture of chronic hepatitis C in chronic hepatitis C, providing a basis for further research.

## MATERIALS AND METHODS

This cross sectional study brought out at Bahawal Victoria Hospital, Bahawalpur from January to June 2016. Serum sample collected from department of Medicine and Surgery (both indoor and outdoor department). Sample size of 100 was taken who belonged to all fields of life Sixty (60) were males and forty (40) were females. SPSS 21 used and data was presented in the form of percentages frequencies & tables.

## RESULTS

100 patients were included in this study. 23 (23%) were HCV +Ve and 77 (77%) pts were HCV -VE for antibodies (Table 1)

No of male pts enrolled in study were 60 (60%) and 40 (40%) were females. Male pts with +ve hep C virus antibodies were 15(25%) while male pts with hep C virus antibody -Ve were 45 (75%). Female pts with active hep C virus antibodies were 8 (20%) while female pts with -Ve hep C virus antibodies were 32 (80%). Most pts simply did not know about vaccination, risk factors, preventive measures and treatment. This indicates a very traumatic situation for hepatitis patients in Bahawalpur.

**Table No.1: HCV antibodies Serofrequency**

Patients		HCV Positive	HCV Negative
n	%		
Males 60	60%	15	45
Females 40	40%	08	32
Total 100		23	77

**Table No.2: HCV serofrequency By Gender**

Gender	Number	Percentage
Males	15	25%
Females	08	20%

## DISCUSSION

40-60% of patients of CLD show Chronic Hepatitis C positive and in USA it is the 10<sup>th</sup> leading cause of mortality. Hepatitis C proceeds to hepatocellular carcinoma and it is about 27% of all hepatocellular carcinoma in USA.<sup>21</sup>

InAsia, the frequency of hepatitis C virus is related with increase in age,<sup>22,23</sup> and is the main cause of mortality. Hepatitis C is the main cause of CLD that is a challenging public health problem.<sup>24</sup> Many viruses attack and break the antiviral response of genome and develop chronic infection that can cause CLD, cirrhosis and HCC.<sup>25</sup>

In developed countries many people are infected with hep C virus towards the end of the seventies (1970s), before the availability of virus's identification and diagnostic tests in 1980s.<sup>26</sup> Chronic hep C continuous infection can produce symptoms, and significantly leads to CLD in 20-30 years.<sup>27</sup>

The estimated occurrence of hep C virus infection in the total population of the USA is 1.8% based on NHANES III, approximately 3.9 million Americans infected with the hepatitis C virus.<sup>28</sup> It is estimated that in the United States Hep C virus frequency was slightly higher than 2.0% in the mid-90s and expected to reduce to 1.0 % in 2030. There is an increase in the number of infected persons from 1990 to 2015 by an estimate of 40%.

The risk factors of hep C should be reduce in clear majority of patients simply not aware of any causative factors, prophylaxis, treatment and complications that indicate a very traumatic situation in patients with hepatitis B in Bahawalpur.

Intravenous administration is the foremost risk factor for 60% of cases. Before 1990, blood transfusion accounted for 10% of pts, hemodialysis pts and health care workers included only 5%, and 15%. Sexually transmitted was the risk factor. The perinatal risk of transmission of hepatitis C (6%) is much lower as compared to hepatitis B which is 20-60%.

Hep C is largely associated with the complications like cirrhosis and liver cancer. Hospital nursing staff has a significant proportion of hepatitis C-related liver disease. HCV antiviral treatment is available in outdoor of govt hospitals. The cost of interferon and ribavirin reaches in billion in the cure of hep C, which will put a burden on fragile economy. The frequency of hepatitis C is low in Bahawalpur as compared to national and international studies.

Appropriate actions should be taken to avoid the infection by HCV. Because vaccination is not available for HCV, prevention is important than treatment in the countries like Pakistan.



## CONCLUSION

The rate of hep C virus antibodies is rather low down in pts with CLD approaching hospital. There is an alarming situation in District Lodhran for hepatitis patients.

**Recommendation:** The following steps may prevent from HCV infection.

- Media and doctors should give health education to mass about the nature, causes and complications of the disease.
- It is important to ensure proper use of disposable, sterile surgical instruments, dental and endoscopic instruments.
- Appropriate screening of blood and blood products should be carried out at each level of the medical capacity.
- In each medical center should be properly handle the hospital waste.
- The change in the barber's razor should be very obligatory.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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# Obstructive Sleep Apnea and Metabolic Syndrome; Causal Association or Co-Existence?

Ambreen Qamar<sup>1</sup>, Mirza Saifullah Baig<sup>2</sup> and Nausheen Saifullah<sup>3</sup>

## ABSTRACT

**Objectives:** To assess the association between Obstructive Sleep Apnea (OSA) and Metabolic Syndrome (MS).

**Study Design:** Case-Control study.

**Place and Duration of Study:** This study was conducted at Sleep Lab, Dow University Hospital, Karachi from February 2013 to November 2014.

**Materials and Methods:** The study was conducted on 100 individuals, 50 each of OSA subjects attending Sleep Lab in DUHS, Karachi and 50 controls. After informed consent and detailed history those having positive Epworth Sleep Scale (ESS) score went through full night polysomnography to confirm their OSA and its severity. Appropriate correlations among components of MS and OSA were evaluated and analyzed applying SPSS version 20.

**Results:** The frequency of MS was 76% in OSA subjects compared to 48% in controls. Frequency of MS in mild, moderate and severe OSA was 50%, 82.4% and 85.7% respectively.

**Conclusions:** Our findings suggest that OSA is associated with a higher occurrence of MS; it was also associated with severity of OSA. Future research with larger sample size is advised to confirm these associations.

**Key Words:** Metabolic syndrome, Obstructive sleep apnea

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## INTRODUCTION

Obstructive Sleep Apnea (OSA), the most prevalent of all Sleep Related Breathing Disorders (SRBD), is a serious condition which requires early diagnosis and medical intervention to prevent complications<sup>1,2</sup>. OSA is characterized by repeated events of complete or partial upper airway obstruction during sleep for at least 10 seconds, resulting in hypopnea or apnea and respiratory effort-related arousals (RERAs). Severity of the disorder is characterized by the frequency of apnea and hypopnea episodes per hour of sleep which is termed as Apnea-Hypopnea Index (AHI)<sup>3</sup>. OSA is an underestimated, serious and potentially life-threatening disorder whose prevalence varies considerably in different countries; for example, 3-28% in western countries and 7.5 - 9.3% in India.

However no information is available for Pakistani population. According to a study carried out in Agha Khan University Hospital Karachi, in 2008, predisposing factors for OSA are highly prevalent in our country and our at least 10% population is at high risk for OSA<sup>4</sup>.

Studies report the association of OSA with Metabolic Syndrome (MS) and point towards possible causal role of OSA in the development of MS<sup>3</sup>. A recent Indian study emphasizes that the increasing prevalence of MS with increasing severity of OSA suggests a strong association of OSA with MS<sup>5</sup>. A UK based study showed prevalence of MS in patients with OSA to be 87% compared with 35% in normal controls<sup>6</sup>. Another hospital based study from UK shows MS in OSA group was 74% and in control it was 24%<sup>7</sup>. A study carried out in Turkey in 2011 showed that the MS was 47.2% in OSA patients, whereas it was only 29.4% in control group without OSA<sup>8</sup>. In a Chinese study, it was 58% in the former and 21% in the latter group of subjects<sup>9</sup>. In a Japanese study, MS was 49.5% in OSA group as compared to 22.0% in controls for men and 32.0% vs. 6.7% for women<sup>10</sup>. The studies from North India showing MS in OSA and control were 77% vs. 40% in a hospital based study and 79 % vs. 48% in a population based study respectively<sup>2</sup>.

These studies though show a consistent association between OSA and MS, doesn't imply causality and thus this can be just another co-morbid condition present with the wide spectrum of OSA. For instance, some studies have emphasized that OSA is not limited to the conditions associated with MS and as much as 40% of the people suffering from OSA are not obese and can strike anyone at any age even children with normal BMI<sup>11</sup>.

In Pakistan, little has been published on OSA which either discusses the frequency of risk factors for sleep apnea in our population<sup>16</sup> or general characteristics of

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these patients<sup>13</sup>. Most of these research studies are based on the symptoms addressed by the questionnaire. Frequency of metabolic abnormalities in OSA subjects has not been studied in Pakistan so far. This study was intended to find out the frequency of MS in patients with OSA in our community.

## MATERIALS AND METHODS

A total of fifty cases (aged between 30-65 years) with OSA, diagnosed at Sleep Lab, Dow University Hospital, Ojha campus Karachi and fifty age, sex & BMI matched controls (without any sleep disturbance) were enrolled for this study. The controls were selected from the employees of DUHS. Epworth Sleepiness Scale (ESS) scores were assessed in both groups using ESS questionnaire to determine the level of daytime sleepiness. This scale was introduced by Dr Murray Johns of Epworth Hospital in Melbourne, Australia in 1991(14). A total score less than 9 was considered normal while more than 9 indicated day time sleepiness revealed the chances of sleep disorders and indicated the need of Polysomnography (PSG) for further confirmation.

Patient's age between 30 and 65 years having snoring, witnessed apnea or day time sleepiness, after the primary evaluation were went through full night Polysomnography. PSG was performed with multichannel polysomnography machine under continuous monitoring from a sleep technician(15). OSA subjects were classified according to the Chicago criteria as recommended by the American Academy of Sleep Medicine(5) as follows:

AHI 5 to 15 as mild OSA

AHI 15-30 as moderate OSA

AHI greater than 30 as severe OSA

After full night PSG of OSA subjects, fasting blood sample was collected in the morning for required blood tests. Control subjects were requested to give fasting blood samples in morning after a comfortable sleep at night.

The diagnosis of MS was based on an updated definition by NCEP-ATP III criteria in which the BMI is ethnic specific. According to this definition, to diagnose MS three out of these five metabolic abnormalities must be present, including obesity (Asian origin, BMI more than 25 or waist circumference  $\geq 90$  cm in males,  $\geq 80$  cm in females), high blood pressure (systolic blood pressure  $\geq 130$  mmHg or diastolic blood pressure  $\geq 85$  mmHg), hypertriglyceridemia (triglycerides  $\geq 150$  mg/dl), low HDL cholesterol (HDL cholesterol  $\leq 40$  mg/dl in males,  $\leq 50$  mg/dl in females), and high fasting blood sugar ( $\geq 100$  mg/dl)<sup>16</sup>.

Statistical Analysis was done on Statistical Package for Social Sciences (SPSS) version 20.0. Threshold for statistical significance was set at  $p < 0.05$ . Mean and standard deviation computed for numerical variables by applying independent sample t-test. Continuous variables were summarized as mean and corresponding 95% confidence intervals and categorical variables as proportions, n(%). Comparison between groups was done by independent Sample t-test. Chi-square test was used for categorical variables to examine prevalence of MS and its components in various categories of OSA and their comparison with non-OSA subjects. Spearman correlation was applied to check strength of association between OSA & MS.

## RESULTS

The mean age of the cases was 49.4 years (95% CI 47.21-51.63) and of controls 47.04 years (95% CI 44.79-49.29) with no statistically significant difference (p-value 0.13). Male to female ratio were similar in both groups (3:2). Anthropometric parameters including height, weight and BMI, neck circumference, waist circumference, hip circumference, waist hip ratio and others are shown in table 1.

Mean ESS score for OSA group was 12.84 with SD  $\pm 4.20$  and for control group it was 4.52 with  $\pm$  SD of 1.82.

The mean of AHI for cases was  $32.795 \pm 22.70$ . The percentage of different OSA categories are shown in table 4.3, these are 24% (12) with mild apnea, 34% (17) with moderate apnea and 42% (21) with severe apnea (Table 2).

All the components of MS were analyzed in both cases and controls and frequency of MS was determined 76% of cases and 48% of controls. Presence of MS was further analyzed based on AHI/severity of OSA, using a definition of OSA with an  $AHI \geq 5$ . It was found that 48% population of control group, 50% population of mild apnea group, 82.4% population of moderate apnea group and 85.7% population of severe apnea group had MS (Table: 4). No significant difference was found in control group and mild apnea group with respect to the presence of MS, which was 48% and 50% in both groups respectively. But significant difference was present in control and moderate/severe apnea group which indicated clear relationship between MS and severity of apnea, more the severity of apnea higher the % of MS.

In order to determine the strength of the linear relationship between OSA and MS, Spearman correlation was applied. It was observed that MS was significantly and directly related to severity of apnea. 34.3% positive correlation was present between severity of apnea and MS.

**Table 1 Comparison of mean baseline characteristics with 95% confidence intervals among subjects with and without Obstructive Sleep Apnea**

Baseline characteristics	Controls	Cases	p-value
Age (years)	47.04 (44.79-49.29)	49.42 (47.21-51.63)	0.133
Height (m)	1.65 (1.63-1.68)	1.67 (1.64-1.71)	0.405
Weight (Kg)	83.12 (78.37-87.87)	89.22 (84.20-94.24)	0.079
BMI	29.89 (28.37-31.47)	31.98 (30.13-33.83)	0.087
Neck circumference (m)	0.38 (0.37-0.39)	0.39 (0.38-0.41)	0.101
Waist circumference (m)	1.04 (0.99-1.08)	1.10 (1.04-1.16)	0.086
Hip circumference (m)	1.11 (1.07-1.15)	1.17 (1.12-1.21)	0.093
Waist to Hip ratio	0.92 (0.9-0.94)	0.94 (0.90-0.97)	0.343
Systolic Blood Pressure (mmHg)	129.40 (125.16-133.64)	138.60 (134.60-140.60)	0.002*
Diastolic Blood Pressure (mmHg)	80.90 (76.86-84.94)	85.84 (81.91-89.77)	0.081
Fasting Blood Glucose (mg/dL)	98.42 (89.63-107.21)	113.30 (106.92-119.68)	0.007*
Total Cholesterol (mg/dL)	180.76 (171.56-189.96)	199.44 (179.31-219.57)	0.093
Triglycerides (mg/dL)	173.06 (151.12-195.00)	185.18 (159.20-211.16)	0.476
LDL (mg/dL)	112.26 (103.39-121.13)	128.30 (113.10-143.50)	0.070
HDL (mg/dL)	41.68 (38.92-44.43)	37.38 (35.08-39.69)	0.018*

\*Statistically significant difference, p-values generated by t-test

**Table No. 2 Distribution of Metabolic Syndrome with severity of Apnea (n=100)**

Metabolic Syndrome	Control n(%)	Cases		
		Mild Apnea n(%)	Moderate Apnea n(%)	Severe Apnea n(%)
Absent	26(52%)	6(50%)	3(17.6%)	3(14.3%)
Present	24(48%)	6(50%)	14(82.4%)	18(85.7%)
Total	50(100%)	12(100%)	17(100%)	21(100%)

Mild Apnea: (AHI=5-15), Moderate Apnea: (AHI=15-30), Severe Apnea: (AHI >30)

**Table No.3: Factors associated with Obstructive Sleep Apnea**

	OSA patients	Controls	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
MS absent	12	26	1.00		1.00	
MS present	38	24	3.43(1.46-8.06)	0.005	1.24 (0.25-6.01)	0.78
Normal BMI	13	12	1.00		1.00	
Obesity level I	11	19	1.87 (0.63-5.51)	0.25	0.72(0.20-2.55)	0.61
Obesity level II	26	19	0.79 (0.29-2.11)	0.64	0.78(0.24-2.50)	0.68
Hypertension absent	13	35	1.00		1.00	
Hypertension present	37	15	6.64(2.77-15.92)	<0.0001	7.85(2.51-24.51)	<0.0001
Diabetes absent	17	34	1.00		1.00	
Diabetes present	31	16	3.46 (1.52-7.90)	0.003	3.60(1.21-10.70)	0.02
Triglycerides Normal	21	25	1.00		1.00	
Triglycerides High	29	25	1.38(0.62-3.04)	0.42	0.52(0.14-1.87)	0.31

## DISCUSSION

Close relationships between sleep regulatory mechanisms and autonomic nervous system, makes it clear that OSA can lead to alterations in sympathetic activity and metabolic abnormalities which have been linked to increase cardio-vascular risk<sup>17</sup>. There is paucity of information about this syndrome in Pakistani population. Continuous increase in its prevalence reported in western and some Asian countries, with no report from Pakistan, in the present era of changes in life style demands conduction of research in our population. Likewise, the contribution of MS in OSA

subjects as reported in previous studies<sup>5,17</sup> have not yet been tested in our population.

The loss of statistical significance at the multivariable analysis might be due to the higher prevalence of MS in the healthy controls which diluted the association after controlling for BMI. In both groups mean BMI was not significantly different suggesting that mechanisms other than obesity may play a bigger role in the pathophysiology of the MS in OSA subjects.

Difference in both groups with respect to the frequency of MS was slightly lower than represented by Coughlin et al and Gruber et al in their UK based study<sup>6,9</sup> as well as in a Chinese study conducted by Lam et al<sup>9</sup> while it is higher than Turkish research study conducted by

Basoglu OK et al<sup>8</sup>. Coughlin et al<sup>7</sup> study showed higher BMI in OSA subjects as compared to controls, which raised the possibility that obesity could be a co-factor for those results. The finding in the present study was in line with one conducted in north Indian hospital based population<sup>5</sup> although mean BMI was higher in OSA subjects as compare to controls in their study. But in the present study where BMI was matched in control selection, possibility of biasness due to this confounder was eliminated. The present study showed frequency of MS in controls almost comparable with a community based study (n=500) of Pakistani individuals showed MS prevalence 49% in urban population of Karachi<sup>18</sup>.

The findings on Japanese OSA subjects also produced similar results, which were independent of obesity. Likewise Zgierska et al<sup>19</sup> reported an independent association between OSA and MS. Thus the present findings based on individual components of MS with respect to the degree of severity of OSA support the suggestion showing OSA to be associated with higher BP, high FBS and deranged lipid profile. These findings are in concordance with previous studies showing OSA to be associated with higher BP<sup>20,21</sup>, insulin resistance<sup>22</sup> and deranged lipid profile<sup>3,22, 23</sup>.

Like many other previous studies, OSA patients were selected from a hospital-based sleep clinic and compared with controls recruited from the community, such designs could be a reason of selection biasness because seeking medical advice that results in referral to an outpatient clinic may select a group with higher risk of metabolic abnormalities relative to that found in the general community.

Many of our controls had association with health care profession (doctors or hospital related persons). They had better health related knowledge, and might be more conscious for their cardio-vascular health and had better metabolic profile than general population. This would have served to increase the difference found between groups. Number of female patients was less as compare to male, although this is according to previous international studies which showed higher prevalence of OSA in male, but prevalence of OSA in both genders should be further ruled out in our community, to eliminate the chances of underestimation in females. Temporal relationship of OSA and MS is not clear yet, therefore a cohort study with larger sample size is needed here which would be able to definitely prove whether OSA precedes and causes MS or vice versa.

Although at univariate level, MS was found to be strongly associated with OSA however, the association diminished when the effect was controlled for other factors. The inability of MS to sustain the association might be due to overall high prevalence of MS in the Pakistani population. Almost of the controls had MS which is extremely high prevalence. Furthermore the findings of this study support that MS is co-morbidly

present with OSA and further investigation is necessary before MS can be labelled as the cause of OSA.

## CONCLUSION

A great Strength of Study is that suspected cases and control subjects were selected by their ESS Score and then we confirmed their OSA and AHI score by supervised, full night, hospital based polysomnography in contrast to some other Pakistani studies which investigated OSA risk just on the bases of day time sleepiness, symptoms and questioners. A great strength of present study is that the mean BMI was not significantly different in both groups making it less likely that any dissimilarity could be present only on the basis of obesity. Despite this, multiple metabolic disturbances were found in OSA subjects as compared to the controls.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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