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Editorial

Original Articles

Editorial

Anemia Might Increase the Risk for Dementia

Mohsin Masud Jan
Editor

Older adults suffering from anemia may be at an increased risk for dementia.

Anemia affects as many as 23 percent of seniors, the researchers say. A 60 percent increased risk of dementia has been discovered in the presence of anemia. Even after controlling other factors such as other medical illness, demographics, etc, the risk remains elevated at nearly 40 to 50 percent, and given how common both anemia and dementia are in older adults, more attention to the connection between the two is important Though a study of more than 2,500 men and women in their 70s doesn't actually prove that anemia causes dementia.

It can be said that anemia is causally related to dementia, but with observational studies one can never say for sure.

The job of the red blood cells is to carry oxygen throughout the body. When you are anemic, less oxygen is delivered to brain cells. Anemia could also indicates poor overall health, the study authors noted. Causes of anemia include iron deficiency and blood loss. Cancer, kidney failure and certain chronic diseases can also lead to anemia.

The study published online July 31 in Neurology should remind doctors that many conditions can lead to dementia, and treating them might ward off mental decline, one expert said. "One concern about the increased visibility and prevalence of Alzheimer's disease is that some physicians will be tempted to jump straight to that diagnosis without first having followed the 'rule out reversible causes' rule." Alzheimer's disease is the most common form of dementia. We must always seek to exclude treatable, reversible causes of dementia such as depression, nutritional deficiencies, endocrine disorders and metabolic disorders before rushing into a diagnosis of Alzheimer's.

During the study conducted, all of the participants were tested for anemia and took memory and thinking tests over 11 years. Almost 400 participants were anemic at the study's start. Over the course of the study, about 18 percent of participants — 455 — developed dementia, the researchers found. Of participants with anemia, 23 percent developed dementia, compared with 17 percent of those who weren't anemic. People who were anemic at the study's start had a 41 percent higher risk of developing dementia than those without anemia after the researchers took into account factors such as age, race, sex and education.

For now though, suffice it to say that additional research is needed to confirm this association before recommendations are made regarding dementia prevention. But, nevertheless, we should screen the elderly for anemia, and bring up their nutrition to par, or treat any other causes for the anemia, because as stated previously, Anemia in itself is a disease, indicative of poor overall health.

Original Article

Surgery in Diabetic and Non-Diabetic

Comparative Study of Surgical Site Infection in Clean Surgical Procedures between Diabetic and Non-Diabetic Patients

Muzaffar Aziz[1], Muhammad Azim Khan[2], Ghulam Murtaza[1] and Khalid Hussain Qureshi[1]

ABSTRACT

Objective: The objective of this study was to determine the frequency of surgical site infection in clean surgical procedures between diabetic and non-diabetic patients**.**

Study Design: Cohort study

Place and Duration of Study: This study was conducted at the Indoor Department of General Surgery, Nishtar Hospital Multan from 01-01-2016 to 02-07-2016

Materials and Methods: In this study, One hundred patients of either gender with 20-50 year of age who underwent the laparoscopic cholecystectomy procedure during the sampling period were included in this study. Fifty patients belong to diabetic group or exposed group (both type-I and II) and fifty patients belong to non-diabetic group or unexposed group. All cases included were operated by consultant surgeons under general anesthesia and strict aseptic conditions. A SSI case was distinguished utilizing CDC, USA definition, which expresses that "infection would be viewed as surgical site infection in the event that it happens inside 30 days after surgery and has any one of the accompanying: purulent discharge from the wound, agony or delicacy, confined swelling, redness, malodor, fever". Information with respect to SSI was recorded from both groups.

Results: Age range in this study was 20-50 years with mean age of 33.860 ± 6.49 years in diabetic group and 34.940 ± 7.29 years in non-diabetic group. Majority of patients according to age groups were belongs to 20-35 years in both groups and there was more females than males. Seven patients in diabetic group developed surgical site infection. Three patients in non-diabetic group developed SSIs ($p = 0.182$) with relative risk of 2.33.

Conclusion: It is concluded that patients experiencing laparoscopic cholecystectomy has no increased risk of surgical site infection in diabetic patients when contrasted with non-diabetic patients..

Key Words*:* Diabetes, Cholecystectomy, Surgical Site Infection

Citation of article: Aziz M, Khan MA, Murtaza G, Qureshi KH. Comparative Study of Surgical Site Infection in Clean Surgical Procedures between Diabetic and Non-Diabetic Patients. Med Forum 2017;28(1):2-5.

INTRODUCTION

Diabetes mellitus is an expanding challenge now a days. About 33% of people with diabetes are unconscious that they have diabetes mellitus.[1] As the population keeps on aging, the predominance will keep on rising. Alarmingly, diabetes mellitus is being diagnosed all the more in more young patients.[2] The rising predominance of diabetes mellitus is a worldwide issue, and it is assessed that there will be 366 million individuals with diabetes mellitus worldwide by the year 2030.[3] The biggest increments will happen in developing countries over that time span.[3] Despite extensive research on best practices and walks in refining surgical methods, innovative advances and natural enhancements in the operating room, and the utilization of prophylactic preoperative anti-infection agents, contamination at the surgical site remains the second most common adverse event occurring to hospitalized patients and a noteworthy source of morbidity taking after surgical procedures.[4]

Surgical site infection relies on various patient variables, including previous medical conditions, occupant skin bacteria, perioperative glucose levels, center body temperature vacillations, and preoperative, intraoperative and postoperative care. In this way, it is hard to anticipate which wounds will get to be infected.[5]

The relationship of diabetes mellitus with an expanded hazard for SSI has been perceived for a long time. Recently, as showed in the article by Latham et al in this issue, granulocyte capacities, including adherence, chemotaxis, phagocytosis, and bactericidal action, have been appeared to be influenced by hyperglycemia.[6] Others have demonstrated that enhanced glucose control accomplished with an insulin input in the perioperative period can diminish SSI rates in diabetic heart surgery patients when compare to controls.[7] Latham and hi associates tentatively accumulated hemoglobin A1c values on 1,000 diabetic and

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nondiabetic cardic patients before coronary artery bypass. They affirmed the previously observed increase in SSI rates in diabetics.

They likewise found that 4.2% of the patients had undiscovered diabetes, and the disease rate in these patients was equivalent to the rate in analyzed diabetics. All the more strikingly, they showed that the most serious hazard for SSI associated with postoperative hyperglycemia (blood glucose levels more than 200 mg/dL) instead of with the level of hemoglobin A1c or with pre procedure hyperglycemia.[6]

The reason for this study was to determine the frequency of surgical site infection in clean surgical procedures between diabetic and non-diabetic patients

MATERIALS AND METHODS

One hundred patients of either gender and 20-50 year of age who underwent the laparoscopic cholecystectomy procedure during the sampling period were included in this study. Fifty patients belong to diabetic group or exposed group (both type-I and II) and fifty patients belong to non-diabetic group or unexposed group.

Patients with known or found sensitivity to silver or nylon and with history of hypertension were excluded. The determination of diabetes depended on if by lab test demonstrate a fasting plasma glucose level >126 mg/dl (> 7.0 mmol/l) at two occasions. Demographic deltails from every patient regarding age, gender and length of surgery were recorded.

All cases included were operated by consultant surgeons under general anesthesia and strict aseptic conditions. A solitary prophylactic dose of Cefuroxime 750 mg intravenous was given to all patients at the inclusion. In addition, all patients were given three doses of intravenous anti-microbial Cefuroxime 750 mg postoperatively.

A SSI case was distinguished utilizing CDC, USA definition, which expresses that infection would be viewed as surgical site infection in the event that it happens inside 30 days after surgery and has any one of the accompanying: purulent discharge from the wound, agony or delicacy, confined swelling, redness, malodor, fever". Information with respect to SSI was recorded from both groups.

Data was analyzed with statistical analysis program (IBM-SPSS version 20). Frequency and percentage was computed for qualitative variables like age groups, gender and SSI. Mean ±SD was presented for quantitative variables like age and duration of procedure. Chi-square test was applied to compare SSI in both groups taken $p \leq 0.05$ as significant. Relative risk was also calculated. Stratification was done with regard to age, gender and duration of procedure to see the effect of these variables on SSI. Post stratification using the chi-square test for both groups, $p \leq 0.05$ was considered statistically significant.

RESULTS

Age range in this study was 20-50 years with mean age of 33.860 ± 6.49 years in diabetic group and 34.940 ± 7.29 years in non-diabetic group. Majority of patients according to age groups were belongs to 20-35 years in both groups and there was more females than males as shown in Table-I.

Seven patients in diabetic group developed surgical site infection. Three patients in non-diabetic group developed SSIs ($p = 0.182$) with relative risk of 2.33 as shown in Table-2.

Stratification of SSI with respect to age groups, gender and duration of procedure in diabetic and non-diabetic-group are shown in Table-3, 4 and 5 respectively.

Table No.I: Demographics of both groups

Demographics	Diabetic Group	Non-diabetic Group
Mean Age (years)	33.860±6.49	34.940±7.29
Mean Duration of procedure (hours)	1.700±0.47	1.600±0.67
Age groups		
20-35	34(68%)	26(52%)
36-50	16(32%)	24(48%)
Total	50(100%)	50(100%)
Gender		
Male	14(28%)	21(42%)
Female	36(72%)	29(58%)
Total	50(100%)	50(100%)

Table No.2: Surgical Site Infection in both groups

Skin Structure Infection	Diabetic Group	Non-diabetic Group	P Value	RR
Yes	7(14%)	3(6%)	0.182	2.3
No	43(86%)	47(94%)		
Total	50(100%)	50(100%)		

Table No.3: Stratification of SSI with respect to age groups in diabetic and non-diabetic-group

Age Group 20-35 years			
Skin Structure Infection	Yes	No	P Value
Diabetic Group	4(11.8%)	30(88.2%)	0.602
Non-diabetic Group	2(7.7%)	24(92.3%)	
Age Group 36-50 years			
Skin Structure Infection	Yes	No	P Value
Diabetic Group	3(18.8%)	13(81.2%)	0.132
Non-diabetic Group	1(4.2%)	23(95.8%)	

Table No.4: Stratification of SSI with respect to gender in diabetic and non-diabetic-group

Male			
Skin Structure Infection	Yes	No	P Value
Diabetic Group	4(28.6%)	10(71.4%)	0.143
Non-diabetic Group	2(9.5%)	19(90.5%)	
Female			
Skin Structure Infection	Yes	No	P Value
Diabetic Group	3(8.3%)	33(91.7%)	0.415
Non-diabetic Group	1(3.4%)	28(96.6%)	

Table No.5: Stratification of SSI with respect to duration of procedure in diabetic and non-diabetic-group

1-2 hours			
Skin Structure Infection	Yes	No	P Value
Diabetic Group	2(4.5%)	42(95.5%)	0.148
Non-diabetic Group	0(0%)	45(100%)	
> 2 hours			
Skin Structure Infection	Yes	No	P Value
Diabetic Group	5(83.3%)	1(16.7%)	0.386
Non-diabetic Group	3(60%)	2(40%)	

DISCUSSION

Wound infection is a noteworthy intricacy in diabetic patients. This study demonstrates that diabetic patients are 2.3 times more porn to infection when contrasted with non diabetics. Solangi et al. in 2004 reported that utilization of prophylactic antibiotic in every single clean technique ought to be avoided as they couldn't watch any impact of prophylactic anti-infection utilization and skin structure infection rates in clean methodology in diabetic patients.[8]

Laparoscopic cholecystectomy (LC) was firstly viewed as the highest quality level operation for gallstone disease in 1992, basically as a result of the preferences realized by the insignificantly obtrusive strategies it started to employ.[9] In contrast with open surgery, laparoscopic surgery has been appeared to lessen postoperative SSI in all patients.[10] Due to the littler size of cut and the lesser injury perpetrated because of less tissue involvement, it is conjectured that laparoscopic surgery ought to have no critical extra morbidity in diabetic patients.

SSI rate in diabetic patients in this study was 14% which is more than that of non-diabetics (6%) yet is not significant (p=0.182). In a study it is accounted for the SSI rate in diabetic patients experiencing laparoscopic cholecystectomy to be 14.29% involving the operation in local setup.[11] Similarly, in the another planned study involving 986 patients, recorded that there was no huge contrast in the result in diabetic and non-diabetic patients experiencing laparoscopic surgery.[12]

Previously research done on this topic were review analysis. This research was prospective and main variable was SSI. On the premise of the consequence of this study, we believe that the SSI is not expanded with laparoscopic approach in diabetic patients, not at all like in open surgery where various studies have reported expanded surgical site infection. It is important that every surgical patient be assessed preoperatively for undiscovered or potentially uncontrolled diabetes.

Patients confronting surgery ought to have fasting serum glucose (FSG) and Hemoglobin A1c (HbA1c) attracted to assess the pre-existing diabetes. Assuming either or both of these tests demonstrate uncontrolled as well as pre-existing diabetes (FSG>110 mg/dL or HbA1c>7%), then the patient ought to be set on a medical intervention to help in controlling serum glucose if executed and followed.[13,14]

CONCLUSION

It is concluded that patients experiencing laparoscopic cholecystectomy has no expanded morbidity in diabetic patients when contrasted with non-diabetic patients. A persistent long haul observation framework ought to be built up to recognize more risk factors, alongside advancement of healing facility contamination control councils and officers who ought to take a gander at these everyday issues of disease and give essential rules in regards to wellbeing measures for decreasing SSI.

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

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Original Article

Causes and Management of Acute Mechanical Small Bowel Obstruction in Adults

Bowel Obstruction

Shahnawaz Abro[1], Muhammad Anwer Memon[2], Khalid Rashid[3] and Imtiaz Ali Soomro[4]

ABSTRACT

Objective: To determine causes and management of acute mechanical small bowel obstruction in adults.
Study Design: Randomized clinical study.
Place and Duration of Study: This study was conducted at the Surgical Department, People's Medical College Hospital, Nawabshah, Jamshoro and Jinnah Post Graduate Medical Centre Karachi from August 2014 to July 2015.
Materials and Methods: The study pertains to patients admitted into the hospital casualty surgical department during the emergency with diagnosis of acute mechanical small bowel obstruction on the basis clinical features like abdominal pain, vomiting, distension, constipation and radiological evidence of small bowel obstruction with multiple fluid levels. Clinical examination were inspection of abdomen any distension, peristalsis or old scar was noted. Any tenderness, rigidity, distension, palpable mass were noted on palpation. Groins, hernial orifices and scrotal examination was done for strangulated hernias. Any fluid thrill and shifting dullness was recorded. On auscultation normal, borborygmi or absent bowel sounds were also recorded. All base line investigations, ultrasound and C.T scan were not carried out preoperatively. All cases in this study were treated surgically.
Results: Out of 50 patients 19(38%) were 14-25 years of age. This was the age group with highest incidence of the disease. Only 6 patients (12%) were above 65 years in this study. Out of 50 patients 30 (60%) were male and (40%) were female . Distension was the most commonly found physical finding in 40 (80%) cases followed by dehydration was second common sign in 23 (46%) cases, tenderness 20 (40%) cases, previous operation scar 15 (30%) cases and external hernias 11(22%) in descending order of frequency. The main cause of obstruction was adhesion, band and strictures in 30 (60%) cases, external hernias 11(22%) cases, internal hernias 4(8%) cases, volvulus 3(6%) cases, congenital anamolies 1(2%) case, worms 1(2%) case and other rare causes 1(2%) case. All patients in this study were treated surgically. Out of 50 patients complications encountered in 6(12%) cases, out of these 6 cases 3 (6%) were wound infection, all responded well to simple drainage and antibiotic cover. 1(2%) cases of wound dehiscence, responed to tension sutures, antibiotic cover and abdominal bandage. Chest infection was seen in 1(2%) cases ranging from mild bronchitis to sever respiratory distress.
Conclusion: We conclude that management of bowel obstruction is careful, pains taking and repeated clinical assessment of the patient.
Key Words: Bowel Obstruction, Acute Mechanical, Causes of Bowel Obstruction

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INTRODUCTION

Small bowel mechanical obstruction is the obstruction to the onward flow of contents in the duodenum, jejunum and ileum, caused by mechanical occlusion of the bowel lumen[1]. Commonly small bowel obstruction is the jejunal or ileal obstruction because duodenal obstruction is rare and is not seen in the adults and also because it's clinical presentation is similar to gastric outlet obstruction and not similar to intestinal obstruction[2]. Small bowel obstruction is a common cause of acute abdominal distress and accounts upto 20% of emergency admissions for a general surgeon to deal with [3].

The incidence of causes of the disease vary from country to country and alter from year to year [4]. In geographic areas with long life expectancy and good surgical care post operative adhesions cause at least fifty percent of all the obstructions in third world countries and is the second major cause of obstruction in the developed countries[5]. Small bowel mechanical obstruction presents with central abdominal colic, early vomiting, central abdominal distention and constipation. X-ray abdomin is a key to the diagnosis[6,7]. Small bowel obstruction is a surgical emergency in which early diagnosis and prompt treatment can avoid high mortality rate [8]. Statistical data is usually lacking in our part of the world, however one come across

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patients of acute small bowel mechanical obstruction in emergency unit in People's Medical College Hospital, Nawabshah, Jamshoro and JPMC Karachi.

MATERIALS AND METHODS

This is randomized clinical trial study conducted at Surgical Department of Nawabshah, Jamshoro and Jinnah Post Graduate Medical Centre Karachi, from August 2014 to July 2015.

The study pertains to patients admitted into the hospital casualty surgical department during the emergency with diagnosis of acute mechanical small bowel obstruction on the basis clinical features like abdominal pain, vomiting, distension, constipation and radiological evidence of small bowel obstruction with multiple fluid levels. Clinical examination were inspection of abdomen any distension, peristalsis or old scar was noted. Any tenderness, rigidity, distension, palpable mass were noted on palpation. Groins, hernial orifices and scrotal examination was done for strangulated hernias. Any fluid thrill and shifting dullness was recorded. On auscultation normal, borborygmi or absent bowel sounds were also recorded. All base line investigations, ultrasound and C.T scan were not carried out preoperatively. All cases in this study were treated surgically.

RESULTS

A total of 50 patients with acute Mechanical small bowel obstruction were collected during 2 year period. Out of 50 patients 19(38%) were 14-25 years of age (Table no.1). This was the age group with highest incidence of the disease. Only 6 patients (12%) were above 65 years in this study. Out of 50 patients 30 (60%) were male and (40%) were female.

Thirty three patients were from poor class. Three were rich and fourteen were from middle class. Patient's complain were abdominal pain 100% (50 cases),vomiting 92%(46 cases) and constipation 100% (50 cases). Analysis of symptoms showed that 20 (40%) patients had presenting complaints for less than five days. In 23 (46%) patients the pre-intervention period was between 5 to 10 days, in 6 (12%) patients it was 11 to 15 days. While in 2 (4) patients it was more than 15 days. Distension was the most commonly found physical finding in 40 (80%) cases followed by dehydration was second common sign in 23 (46%) cases, tenderness 20 (40%) cases, previous operation scar 15 (30%) cases and external hernias 11(22%) in descending order of frequency (Table No.1). The main cause of obstruction was adhesion, band and strictures in 30 (60%) cases, external hernias 11(22%) cases, internal hernias 4(8%) cases, volvulus 3(6%) cases, congenital anamolies 1(2%) case, worms 1(2%) case and other rare causes 1(2%) case (Chart No.1). All patients in this study were treated surgically. Release of adhesion only was performed in 13(26%) cases, resection and end to end anastomosis was done in 9 (18%),repair of hernia in 7(18%), ileostomy in 6(12%), side to side by pass anastomosis in 3(6%), right hemicolectomy in 3(6%), stricturoplasty in 2(4%), while in one (2%) ileotransverse end-to-side and one (2%), enterotomy was performed.

Table No.1: Demographic variable of patients

Variable	No.Patients	Percentage
Symtoms		
• Abdominal pain	50	100%
• Vomiting	46	92%
• Constipation	50	100%
Age		
• 14-25 years	19	38%
• 26-35 years	5	10%
• 36-45 years	11	22%
• 46-55 years	9	18%
• 56-65 years	9	18%
Physical Finding		
• Distension	40	80%
• Dehydration	24	48%
• Tenderness	22	44%
• Operation	15	30%
• External Hernia	11	22%

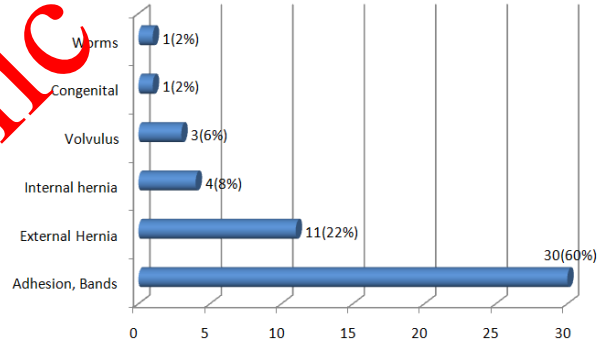

Chart No.1: Causes of Obstructions

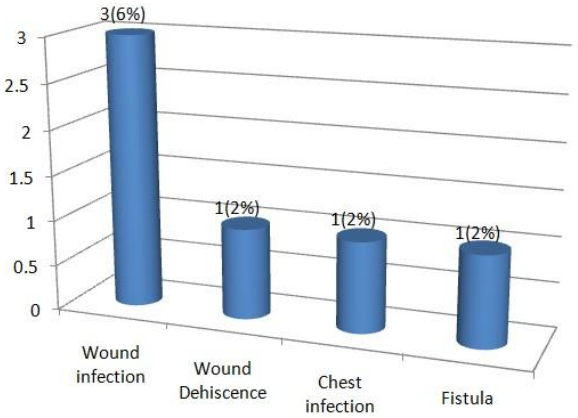

Chart No.2: Postoperative Complication

Out of 50 patients complications encountered in 6(12%) cases, out of these 6 cases 3 (6%) were wound

infection, all responded well to simple drainage and antibiotic cover. 1(2%) cases of wound dehiscence, responed to tension sutures, antibiotic cover and abdominal bandage. Chest infection was seen in 1(2%) cases ranging from mild bronchitis to sever respiratory distress. However all responded to chest physiotherapy, bronchodilators, expectorants and appropriate antibiotics.

DISCUSSION

Small bowel obstruction is a common cause of acute abdominal distress and accounts for 20 percent of all surgical emergencies[9]. The over all incidence in the present study was only 11.5%. This low incidence was because our study was limited to mechanical obstruction in adults only. Small bowel obstruction is the disease of all age groups. Most studies indicate that this disease most commonly occurs in 2nd,3rd and 4th decade [10].The same was the finding in our study as the most affected age group was 14-25 years. Males predominates females in this study and most of the patients were poor, belonging to areas lacking basic health facilities.

In this study presenting complaints were same as in some other studies, pain, vomiting, constipation, distension, tenderness, external hernia, dehydration [11,12]. Pre-intervention period in 60 percent patients was 5-15 days. This indicate that most of the patients presented late. This may be because either in initial stage patients were improperly treated or referred by "Quacks" and general practitioners.

Abdominal X-ray is a key to the diagnosis 4 and this was proved in our study as all the X-ray films were positive. Causes of bowel obstruction vary from country to country and alter from year to year 2. Adhesions usually postoperative is the major cause of obstruction in areas with good health facilities [13].Our study has the same results because in our study adhesions were the major cause of obstruction, but our study differs from Fuzun[4] study because the number of patients with postoperative adhesions (25%) were equal to that of tubercular adhesion (25%). This is because of high incidence of abdominal tuberculosis in this region. However adhesions, bands were the major cause of obstruction in our study.

Hernia is the major cause of obstruction in developing communities [13], due to infrequent herniorraphy and abdominal operations. In prospective study conducted at Rawalpindi General Hospital reported commonest cause of intestinal obstruction was obstructed inguinal hernia (44 %), followed by adhesions (24 %) [14]. In our study the cause of obstruction were postoperative adhesions 60% and external hernias 22%.The reason for this type of pattern in our study is due to increasing number of laparotomies, increased incidence of abdominal tuberculosis after the migration of Afghan refugees and increasing number of herniorrhaphies in this area.

In this study all the patients demanded surgical exploration. In 12% cases gut was gangrenous. This percentage is lower than 20% in the study of Malik A[15]. However the main factor of non viability of gut was late presentation.

The result of treatment varied with the type of pathology. Early presentation and early surgical intervention has an impact on the survival of these patients. Patients presented late with peritonitis due to gangrene of gut or tubercular perforation showed high mortality rate. The rest of the patients treated surgically did very well showing 100% survival rate. Mortality rate in our study was 6.65% which we consider satisfactory, considering the fact that most of our patients were received in extrememly serious and unstable state. In previous studies the rate of mortality 4.85% reported [15].

CONCLUSION

From this study we conclude that management of bowel obstruction is careful pains taking and repeated clinical assessment of the patient. Every patient with obstruction may have strangulation. Strangulation nearly always requires urgent operation. Small bowel obstruction that appears simple may prove to be strangulated. Therefore conservative measures are continued only while improvement continues. Operation should be deliberate, meticulous and conclusive in curing obstruction, rather than indecisive, hurried procedures that leave the patient unrelieved.

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

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Original Article

Nailing in Tibial Shaft Fractures

Comparison of Rate of Delayed Union Between Plaster Cast and Intramedullary Nailing (IMN) Technique in Closed or Grade 1 Open Tibial Shaft Fractures

Abdul Malik Shaikh[1], Mohammad Ishaq[2], Sijad Ahmed Mahar[3] and Muhammad Zeb Tunio[1]

ABSTRACT

Objective: To compare the frequency of delayed union in plaster cast and intramedullary nailing technique in the management of closed or Grade 1 open tibial shaft fractures.
Study Design: comparative study
Place and Duration of Study: This study was conducted at Department of Orthopedics, Chandka Medical College Teaching Hospital, Larkana in collaboration with Ghulam Mohammad Mahar Medical College Hospital, Sukkur from 1st January 2016 to 30th June 2016
Materials and Methods:. Total 60 patients having age from 20 to 50 years both male or female with closed or type 1 open tibial shaft fractures were selected for this study.
Results: The average age of cases in group A was 34.70±7.27 years and in group B was 35.33±8.10 years. Out of these 60 cases, 47 (78.33%) were male and 13 (21.67%) were females with ratio of 3.6:1. Rate of delayed union in Group A was (intramedullary nailing) was 20.0% while in Group B (plaster cast) was 63.33% with p-value<0.001.
Conclusion: This study concluded that delayed union is less in intramedullary nailing (IMN) technique compared to plaster cast in closed or grade 1 open tibial shaft fractures.
Key Words: Tibial, Fractures, Plaster cast, Intramedullary, Nailing

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INTRODUCTION

The tibia being the most commonly fractured long bone, and its fracture management has changed drastically from conservative to early surgical management.[1] Epidemiological studies suggest that motor vehicle accidents are the most common causes of tibial diaphyseal fractures, followed by sports related injuries.[2] High energy trauma, which imparts more kinetic energy, causes fractures which are often severe with associated soft tissue injury.[3]
Treatment options for tibial fractures vary according to the type of fractures, age group, bone density, soft tissue status and associated complications.

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utilization of prophylactic preoperative anti-infection agents, contamination at the surgical site remains the second most common adverse event occurring to hospitalized patients and a noteworthy source of morbidity taking after surgical procedures.[4]
Surgical site infection relies on various patient variables, including previous medical conditions, occupant skin bacteria, perioperative glucose levels, center body temperature vacillations, and preoperative, intraoperative and postoperative care. In this way, it is hard to anticipate which wounds will get to be infected.[5]
The relationship of diabetes mellitus with an expanded hazard for SSI has been perceived for a long time. Recently, as showed in the article by Latham et al in this issue, granulocyte capacities, including adherence, chemotaxis, phagocytosis, and bactericidal action, have been appeared to be influenced by hyperglycemia.[6] Others have demonstrated that enhanced glucose control accomplished with an insulin input in the perioperative period can diminish SSI rates in diabetic heart surgery patients when compare to controls.[7] Latham and hi associates tentatively accumulated hemoglobin A1c values on 1,000 diabetic and nondiabetic cardic patients before coronary artery bypass. They affirmed the previously observed increase in SSI rates in diabetics.

They likewise found that 4.2% of the patients had undiscovered diabetes, and the disease rate in these patients was equivalent to the rate in analyzed diabetics. All the more strikingly, they showed that the most serious hazard for SSI associated with postoperative hyperglycemia (blood glucose levels more than 200 mg/dL) instead of with the level of hemoglobin A1c or with pre procedure hyperglycemia.[6]

The reason for this study was to determine the frequency of surgical site infection in clean surgical procedures between diabetic and non-diabetic patients.

MATERIALS AND METHODS

This comparative study was conducted at Department of Orthopedics, Chandka Medical College Teaching Hospital, Larkana in collaboration with Ghulam Mohammad Mahar Medical College Hospital, Sukkur from 1st January 2016 to 30th June 2016. Total 60 patients having age from 20-50 years either male or female with one week duration of fracture and with closed or type 1 open fractures of tibial shaft were selected for this study. Patients with open diaphyseal fractures of tibia Type II & III, tibial fractures with intra-articular extensions, presence of an excessively narrow medullary canal, aspectic non-unions, pathological fractures, significant medical co-morbidity like CLD, CRF, chronic steroid use excluded from the study. Fracture is the breach in the continuity of bone and tibial shaft fractures are those in which fracture occurs at the middle third part of the tibia. Tibial shaft fractures are named 42 (4 for tibia; 2 for diaphysis) and subdivided into A, B and C. We were included only 42 A3 fracture type (A for simple and 3 for transverse) in which there was one fracture line and cortical contact between fragments >90% after reduction (assessed on anteroprosterior and lateral x-rays). Open grade 1 tibial shaft fractures, those with a skin lesion smaller than 1 cm, the wound is clean, and there is a simple bone fracture on x-ray. Base line investigations like complete blood count, random blood sugar, Urine Complete Examination, Renal functions tests and ECG (where needed) were done in every patient on admission for anesthesia purposes. Antero-posterior and lateral X-rays of the affected leg were done in all patients. All the selected cases were divided into two equal group (A & B) randomly. In groups A patients, intramedullary nailing (IMN) was done for the fractures while in group B, plaster cast was applied. All patients were followed on regular intervals post-operatively and final outcome (delayed union) was noted at the end of 3 months. Delayed union was defined as the delayed healing radiologically (anteroposterior & lateral x-ray) at 3 months after procedure by the absence of bridging of three of the four cortices in standard anteroposterior and lateral radiographs.All this information was collected through pre-designed Performa. Data was analyzed by using SPSS version 20. Mean and SD was calculated for numerical data and frequencies were calculated for categorical variable. Comparison of delayed union between the both group was done by using chi-square test and p value ≤5% was taken as significant.

RESULTS

Average age of the cases was 35.02±7.64 years. In study group A & B mean age was 34.70±7.27 and 35.33±8.10 years respectively. Comparison of delayed union was done between the both groups. Delayed union rate in study group A & B was 06 (20%) and 19 (63.33%) respectively. Delayed union rate in study group B was significantly higher as compared to study group B with p value 0.001 (Table 1). Patients of both groups were divided into two groups according to duration of injury i.e. ≤3 days duration of injury and >3 days duration of injury. In ≤3 days of duration of fracture group, delayed union was noted in 4 (19.05%) and 12 (60.0%) patients respectively in study group A & B. Delayed union rate was significantly (P = 0.007) higher in study group B as compared to study group A. In >3 days duration of fracture group, delayed union was noticed in 2 (22.22%) of study group A and 07 (70.0%) of study group B, significant (p = 0.037) difference for delayed union was noted between the both study groups (Table 2).

Patients were divided into 3 age groups i.e. age group 20 years to 30 years, age group 31 years to 40 years and age group 41 years to 50 years. In patients of age group 20-30 years, delayed union was noticed in 1 (12.5%) of study group A 6 (75.0%) patients of study group B and the difference was significant (P = 0.012). In age group 31-40 years, delayed union was found in 3 (20.0%) and 8 (61.54%) patients of group A and B respectively and the difference was statistically significant (P = 0.025). In age group 41-50 years, delayed union rate was 02 (28.57%) and 05 (55.56%) respectively in both study groups with p value 0.280 which is statistically insignificant (Table 3). Total 4 (17.39%) and 18 (75.0%) male patients of study group A and B found with delayed union and the difference was statistically significant with p value 0.000. While 02 (28.57%) and 01 (16.67%) female patients of study group A & B were found with delayed union with insignificant (P = 0.612) difference (Table 4). In closed fracture group, delayed union was noticed in 03 (17.65%) patients of study group A and in 10 (62.5%) of study group B and the difference was significant with p value 0.008. In open fracture group, delayed union was noted in 3 (23.08%) and 9 (64.29%) patients of study group A & B and the difference was statistically significant with p value 0.031 (Table 5).

Table No.1: Comparison of presence of delayed union between both groups

Group	Union				P value
	Yes	%	No	%	
A	6	20.0	24	80.0	0.001
B	19	63.33	11	36.67	

Table No.2: Comparison of delayed union according to duration of injury

Duration (days)	Group A				Group B				P value
	Yes		No		Yes		No		
	No.	%	No.	%	No.	%	No.	%	
≤ 3	4	19.05	17	80.95	12	60.0	8	40.0	0.007
> 3	2	22.22	7	77.78	7	70.0	2	30.0	0.003

Table No.3: Comparison of delayed union in relation to age of patients

Age (years)	Group A				Group B				P value
	Yes		No		Yes		No		
	No.	%	No.	%	No.	%	No.	%	
20 – 30	1	12.5	7	87.5	6	75.0	2	25.0	0.012
31 – 40	3	20.0	12	80.0	8	61.54	5	38.46	0.025
41 - 50	2	28.57	5	71.43	5	55.56	4	44.44	0.280

Table No.4: Comparison of delayed union according to gender

Gender	Group A				Group B				P value
	Yes		No		Yes		No		
	No.	%	No.	%	No.	%	No.	%	
Male	4	17.39	19	82.61	18	75.0	6	25.0	0.000
Female	2	28.57	5	71.43	1	16.67	5	83.33	0.612

Table No.5: Comparison of delayed union in relation to type of fracture

Type of fracture	Group A				Group B				P value
	Yes		No		Yes		No		
	No.	%	No.	%	No.	%	No.	%	
Closed	3	17.65	14	82.35	10	62.5	6	37.5	0.008
Open	3	23.08	10	76.92	9	64.29	5	35.71	0.031

DISCUSSION

This randomized controlled study has compared the frequency of delayed union in plaster cast and intramedullary nailing (IMN) technique in the management of closed or Grade 1 open tibial shaft fractures. Average age of cases in study group A was 34.70±7.27 years and in study group B was 35.37±8.10 years. These findings are very much comparable to studies of Walia et al[7] and Kamruzzaman et al[8] who had found a mean age of 34 and 35 years respectively. Similarly, Akhtar et al[9] and Neeraj et al[10] had found mean age of 36 years in their studies which is also comparable to our study. William et al[11] reported age range as 14-70 years in cases of tibial shaft fractures. In our study, out of these 60 patients, 47 (78.33%) were male and 13 (21.67%) were females with ratio of 3.6:1. These findings are comparable with some other studies.[10-12]

In our study, delayed union was seen in 6 patients in group A (intramedullary nailing) and 19 patients in group B (plaster cast). So, rate of delayed union in Group A (intramedullary nailing) was 20.0% while in Group B (plaster cast) was 63.33% with p-value 0.001 which is statistically significant. Karladani et al[13] in their study has shown the rate of delayed union (at 3 months) after plaster cast treatment as 61.54% and after intramedullary nailing (IMN) as 22.22% in closed tibial shaft fractures. In another study by Zaman et al, total 60 patients of tibial fracture were managed with unreamed nails. On follow up delayed union was noted in 11.66% patients.[14] Sinha et al[15] reported rate of delayed union in 31% patients of tibial fracture managed with IMN. Singh et al[16] found 20% patients of tibial fracture with delayed union after managed with IMN. All these studies are comparable with our findings. Some other studies also documented more delayed union and malunion with cast management as compared to IM nailing in patients of tibial fractures. In addition conservative management of tibial fractures with casting has been shown to result in prolonged joint immobilization, restricted ambulation and extended rehabilitation requirements to regain a preinjury level of function.[17,18]

CONCLUSION

This study concluded that rate of delayed union is less in intramedullary nailing (IMN) technique compared to plaster cast in closed or grade 1 open tibial shaft fractures. So, we recommend that intramedullary nailing (IMN) technique should be used as a first line treatment for treating these types of fractures in order to reduce the morbidity of these patients.

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

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Original Article

Cholecystectomy

Management of Iatrogenic Bile Duct Injuries Following Cholecystectomy

Syed Ahmed Sultan Ali, Bashir A Sheikh, Farah Idrees, Mubashir Iqbal, Muhammad Sohail Choudhary, Adnan Aziz and Naheed Sultan

ABSTRACT

Objective: The objective of the study is to analyzed Iatrogenic bile duct injuries (IBDI) following laparoscopic and open cholecystectomies and their management.

Study Design: Observational study

Place and Duration of Study: This study was conducted at Surgical Unit, Civil Hospital, Karachi from January 2009 to December 2015.

Materials and Methods: The study includes twenty three patients by convenient sampling technique. Patients with common bile duct (CBD) injury following open & laparoscopic cholecystectomy were included whereas patients with CBD injury following hepatobiliary pancreatic malignancy, gastrectomy, abdominal trauma, CBD exploration due to stone disease/stricture were excluded from the study.

Results: A total of twenty three patients, 20 (87%) female and 03(13%) male were included in the study after IBDI following laparoscopic/open cholecystectomy. Mean age was 42.65 (range: 25-65). Emergency department admission was common mode of admission (15 patients, 65.2%). Whereas mean time to referral following injury was 4.87 (median 5) days. Roux-en–Y hepatojejunostomy were the commonest surgical procedure performed 14(60.2%) patients. Major complications noted were stricture at anastomasis site (1 patient, 4.3%) and liver abscess (1 patient, 4.3%) but overall no mortality.

Conclusion: Early diagnosis and treatment of iatrogenic bile duct injury result in reduce morbidity and mortality.

Key Words: Iatrogenic bile duct injuries, Cholecystectomy, Biliary bypass surgery

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INTRODUCTION

One of the most common general surgical procedures performed is Cholecystectomy.[1] Following this procedure Iatrogenic bile duct injuries (IBDI) are the postoperative complications that are most difficult challenge to treat. The risk of bile duct injuries is 0.2-0.4%, it is more common following laparoscopic cholecystectomy (LC) than after open cholecystectomy (OC).[2,3] Early identification and repairhave excellent outcome, although it also depends on extent of injury. Sprengel in 1891, reported first iatrogenic bile duct injury.[4,5,6,7,8] The first procedures performed for IBDI was end-to-side choledochoduodenostomy by Mayo in 1905, whereas first Roux-en-Y hepatoje-junostomy was performed by Dahl 1909 and in 1954, Hepp and Couinaud described the hilar plate and left hepatic duct dissection for repair of high strictures. Roux-en-Y hepatojejunostomy, is now the procedure of choice used for reconstruction of IBDI.[9,10]

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The object of the study is to analysis the iatrogenic bile duct injuries during laparoscopic and open cholecystectomies and their management at tertiary care center.

MATERIALS AND METHODS

The Prospective observational study was conducted at surgical unit, Civil Hospital, Karachi from 2009 to 2015. Twenty three patients were included in the study.

Inclusion Criteria: Patients with IBDI following laparoscopic and open cholecystectomy were included in the study.

Exclusion Criteria: Patients with CBD injury following hepatobiliary pancreatic malignancy, gastrectomy, blunt and abdominal trauma and CBD exploration due to stone disease/stricture were excluded from the study.

Procedure Details: All patients with IBDI were admitted from outpatient and emergency department by convenient sampling technique. Consent was taken, a proforma was used to record the data which included patient's age, sex, diagnosis at the time of cholecystectomy, time of injury, time of referral, investigative workup, type of injury according to the Strasberg classification,[11] type and timing of surgical/nonsurgical management, complications (leak , stricture and need of second procedures) and treatment outcome were assessed. Patients with peritonitis were

explored in emergency, washed out and drain placed. Definitive procedures for emergency cases and other were performed after stabilization of patients and assessing ductal injuries by Strasberg's classification. Roux-en-Y hepatojejunostomy, primary repair with or without T-tube insertion and ERCP were used in patients management.

Statistical Analysis/outcome measures: The data was analyzed using Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics frequency, percentage, mean etc. were calculated.

RESULTS

The study included 23 (20 women and 03 men)patients, in which 12(52.2%) patients injury was because of laparoscopy whereas in 11(47.8%) patients it was because of open cholecystectomy. Mean age was 42.65 (range: 25-65).

Table No.1: Final diagnosis according to Strasberg's Classification

Staging according to Strasberg's classification	Frequency	Percent
Type D:Lateral injury to the extrahepatic bile ducts (CBD,CHD,right/left hepatic duct)	1	4.3
Type A/C:Bile leak from minor duct in continuity/ not with CBDi.e.i.e.cystic duct stump/liver bed, right posterior sectoral duct	8	34.8
SubtypeE1:CHD injury,stump>2cm from bifurcation	4	17.4
SubtypeE2:Middle CHD injury,stump<2cm from bifurcation	5	21.7
SubtypeE3:High(hilar):CHD division at bifurcation	4	17.4
SubtypeE4:Separate left & right hepatic duct	1	4.3
Total	23	100.0

Emergency department admissions were common (15 patients, 65.2%). Chronic calculus cholecystitis was primary diagnosis in 14(60.9%) patients, acute calculus cholecystitis and empyma gallbladder were noted in 02(8.6%) patients, whereas no previous record were found in 7 (30.4%) patients. The mean time to referral following injury was 4.87 (median 5) days.CBD injury was assessed according to Strasberg's classification (Table-1). In 4 (17.4%) patients, emergency exploration were carried out without repair, except biliary aspiration and drainage.

Magnetic resonance cholangiopancreatography (MRCP) was carried out to assessed injury in 14(61.1%) patients, whereas Endoscopic retrograde cholangiopancreatography (ERCP) remained diagnostic in 5(21.5%) patients.

Table No.2: Operative findings with surgical procedures

Finding of first surgery with procedure	No. of patients (Percent)	Finding of second surgery with procedure	No. of patients (Percent)
Conservative management (No second surgery at our unit)	8(34.8%)	Non	20(87%)
Injury at CBD with biliary fluid aspirated, repair done, drain placed	1(4.3%)	Lateral CBD injury, Cut 2cm below confluence, Repair over T- tube	2(8.7%)
Injury at CHD, stemp<2cm, biliary fluid aspirated, drain placed	1(4.3%)	CHD injury, stump<2cm, Roux-Y-Hepatoje-junostomy performed	1(4.3%)
No injury identified, biliary fluid aspirated, Drain placed	1(4.3%)		
Lateral injury at CBD, biliary fluid aspirated, drained placed	1(4.3%)		
CHD injury, stump<2cm, Roux-en-Y Hepatoje-junostomy	3(13%)		
CHD devision at bifurcation, Roux-en-Y Hepatoje-junostomy	3(13%)		
Separate right & left hepatic duct, Gassion capsule dissected, Roux-en-Y Hepatoje-junostomy	1(4.3%)		
Injury at CHD, stump>2cm, Roux-en-Y Hepatoje-junostomy	4(17.4%)		
Total	23(100%)		23(100%)

Commonest injury noted were type A/C, 8 (34.8%) patients, followed by type E2, 5(21.7%) patients, type E1 and E3 each had 4 (17.4%) patients and lastly 01(4.3%) for each of type D and type E4 injuries. (Table-2) Roux-en-Y hepatojejunostomy was the commonest operative procedure performed 14(60.2%) patients, while in 0 9(38.7%) patients, no surgery were performed. Therapeutic ERCP was performed in 02(8.6%) patients. Early and late complication were shown in Table 3& 4. Readmission were of 06(25.9%) patients with no associated mortality. (Table 3 & 4).

Table No.3: Early complications

Early post operative complications	No. of patients (Percent)
Bile coming in drain(inadequate injury identified at first surgery, treated as late complication)	1(4.3%)
Chest infection	2(8.7%)
Wound infection	1(4.3%)

Table No.4: Late complication which requires conservative/surgical procedure

Complication	Surgical procedure	No. of patients (Percent)
CHD injury,	Stump <2cm from bifurcation, Roux-en-Y Hepatojejunostomy	1(4.3%)
Liver abscess	Incision & drainage under general anesthesia	1(4.3%)
Stricture at CHD	Roux-en-Y Hepatojejunostomy	1(4.3%)
Cholangitis	Conservative treatment	2(8.7%)

DISCUSSION

Gallstone disease is a major public health problem throughout the world and cholecystectomy is the common procedure. With the operative mortality of less than 1%, it does have a drastic morbidity of bile duct injuries of 0.5% which is comparatively small but difficult to treat.**Error! Bookmark not defined.** This small observation study was dominated by female patients twenty out of twenty three which quit similar to other studies like Gluszek S**Error! Bookmark not defined.** and Evangelos Felekouras**Error! Bookmark not defined.**. The mean age were 42.65 (rang:25-65) years which is similar to Mercado MA.**Error! Bookmark not defined.** Our study showed almost equal patients of laparoscopic versus opencholecystectomy (12 laparoscopic 11, open cholecystectomy) which is similar to the study conducted by JM Plummer.[12] The mean time to referral following injury was 4.87 (median 5) days. Which was a moderate duration as compare to a study conducted by Evangelos Felekouras**Error! Bookmark not defined.** comparing early and delayed intervention for LC. Emergency explorations was limited to 04(17.4%) for patients with toxicity due to biliary peritonitis. Primary elective explorations were 11(47.8%). In 04(17.4%) patients, drain placed at cholecystectmy, in which drain output became nil in a week (labeled as type A/C injuries). In 2(8.7%) patients, drain placed under ultrasound (U/S)guidance which later on became nil (again labeled as type A/C injuries), whereas multiple U/S guided aspirations in 01(4.3%) patient and only resuscitation was carried out in 01(4.3%) patient(both labeled as type A/C injuries). Type D injury, 01(4.3%) patient, in which stent passed via ERCP and U/S guided drain placed. So, conservative management were remained successful in 9 patients (39.1%).Roux-en-Y hepatojejunostomy were performed in 14(60.2%) patients. In which the injuries were according to Strasberg classification are: Type E IV:1, Type E III:4, Type E II:5, Type E I:4. ERCP was performed in 05(21.5%) patients in 03(12.9%) patients it was therapeutic, in rest of 02(8.6%) it was diagnostic. Early postoperative complications were chest infection 02(8.7%) patients, wound infection 01(4.3%)patient, lastly failure to identify complete injury 01(4.3%) patient, which letter on lead to another surgery ended up in Roux-en-Y hepatojejunostomy. CBD injuries noted in our study are somewhat similar with studies conducted by Evangelos Felekouras**Error! Bookmark not defined.**, Arora A,[13] AinulHadi,[14] Muhammad Saddique.[15] Readmissions were of 06(25.9%)patients and it was for late postoperative complications. One patient had stricture at anastomasis site two years after CBD repair, for which Roux-en-Y hepatojejunostomy was performed. Another patient developed liver abscess for which incision & drainage under general anesthesia was performed, whereas 02(8.7%) patients developed cholangitis managed conservatively. Lastly 01(4.3%) patient admitted for remove of stents following lateral CBD injury, which was not the complication. The complication observed in our study were less as compare to study conducted by Ozturk E.[16]

CONCLUSION

Bile duct injuries are worse complication of both open and laparoscopic cholecystectomy. It can have devastating effects on patients quality of life. If these injuries are diagnosed early (during operation or the early postoperative period) can reduce the morbidity and mortality.

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

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Original Article

Functional Outcome of Nonunion Mid Shaft Tibia With NA (Naseer-Awais) Fixator

Nonunion Tibia With NA Fixator

Muhammad Zeb Tunio, Abdul Malik Shaikh, Kashif Iqbal Tebani and Mushtaque Ahmed Shaikh

ABSTRACT

Objective: Management and functional outcome of nonunion mid shaft tibia with NA (Naseer-Awais) fixator.
Study Design: Experimental study.
Place and Duration of Study: This study was conducted at the Orthopaedic Unit at Chandka Medical Hospital/Shaheed Mohtarma Benazir Bhutto Medical University Larkana from January 2012 to 2014.
Materials and Methods: This study was conducted on 70 patients. Both gender between 20 to 40 years having nonunion the follow up was done for 02 years according to (ASAMI) based on clinical& radiological outcome.
Results: Out of 70, 55 (79%) were male, 15 (21%) were female. Male to female ratio 11:3 mean age was 30 years. Right leg (tibia) was involved in 45 (64.29%) patient, left tibia in 25 (35.71%) patient right/left leg ratio was 9:5 DCP 55 (78.57%), interlocking nail 15 (21.43%), pin track infection grade-I 20 (28.57%), headache 10 (14.27%), shortening 3 (4.29%). Results were excellent in 50 (71.43%), good 16 (22.86%), fair in 3 (4.2%) and poor in 1 (1.43%). Functional result excellent were 61 (87.14%), good 8 (11.43%) fair 2 (2.86%) patients.
Conclusion: This type of fixation is very cheap, easy available local made less cumber some and technically easy to apply. Applying compression forces at fracture site after freshening and debridement of ends with bone graft with local version of external fixator and unipolar configuration of this is more comfortable than others light, easy in cleaning, well in outlook, movements at two joints can be easily performed.
Key Words: Functional outcome, Nonunion mid shaft tibia, NA fixator, Road traffic accident

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INTRODUCTION

The tibia is known as shin or shank bone, strong bone in the leg. It is named for greek "aulos (flute)" recognized as stronger weight bearing bone of body. Diaphyseal tibial fractures are most commonest lower limb fractures and more general to others around world. Though change in tibial fracture with advance in all means of life style and technology it is very vulnerable to the injury.[1] Fracture may damage to the skin, muscles, nerves, blood vessels and ligaments. They have higher risk for problems like infections and gets longer time to heal. Salvage of these challenging problems usually requires staged treatment based on through debridement. Complication usually are delayed union, nonunion, malunion, compartment syndrome, skin necrosis, skin loss, metallic infection, chronic diaphyseal infection, loosening and breakage of hard metal, needs secondary procedures.[2] Drainage with broad spectrum antibiotics local soft tissue flaps, packing defect with impregnated beads,in open or close diaphyseal fracture treatment by all technique reported in overall revision rate is 22.4% result in nonunion.[3] In 10% cases healing process is delayed, can effect over 30%.[3,4] Known causes of nonunion are systemic deficits advanced age, diabetes mellitus local impairment of extremity, chronic impairment of blood circulation of soft tissue, the traumatic impacts its self, fracture geometry, degree of soft tissue damage and bacterial contamination of tibia prone it for open fracture less tissue soft coverage that favors for high rate of nonunion and infected nonunion.[5]

These fractures are usually treated with numerous operative procedures with significant signs, laboratory markers of infection parameters and microbiological findings, are usually inadequate for sorting the infection.[5-7] These nonunion estimated 2 to 10% of all tibial fracture incidents is greater with high velocity injury and open fracture such as degree of fracture, communition, bone loss and soft tissue damage. Patient profile also contributes incidents of nonunion. Cigar smoking is well-known factor for delay healing and nonunion and NSAID also inhibits bone healing. Tibial

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diaphyseal fracture do not show enough bridging callus to achieve clinically stability by 16 week are termed as delayed union.[8] Paley-Herzenberg classified nonunion according to clinical mobility as siff(<5° mobility), partially mobile (5° to 20° mobility) and flail (20° mobility).[9] Vacularized fibular graft, transplantation of allograft bone and papineau technique have also advised. Due to the increase in global world population, change in human social living standards number of accident have been increase though better understanding of soft tissue and bone management most of limb are being saved otherwise would have been amputated though it takes time.[10]

MATERIALS AND METHODS

This is experimental study conducted from 2012 to 2014 at Orthopaedic Department Chandka Medical College/Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU) at Larkana Sindh Pakistan. All patients having nonunion admitted through Outdoor department (OPD), Accidents & Emergency (A&E) department of Ortho unit. Patients with mid shaft non union, age 20 to 40 years, DCP Failure, failed interlocking nail and unilateral limb were included. Those patients who have congenital deformity, gap nonunion>2.5cm, infected nonunion with un operable skin and uncontrolled infection were excluded. All patient included in the present study were fully systematically and clinically assessed and local examination of effected limb, counseling, (informed for the respective procedure consent (Verbal/written) taken) in detail i-e surgical technique, alternative producer, respective advantages and disadvantages were informed. Analgesic, 1/V antibiotics propylaxis against tetanus were given, all patient received standard protocol preoperatively. Investigation marker such as CBC, ESR- C-Reactive prot incuture swab was taken for gram staining culture and sensitivity, biopsy, standard X-rays views (AP and lateral view joint above and below) were taken under spinal anesthesia, under tourniquet control and aseptic measure hardware DCP, Nail removed, ends delivered and freshened curettage, debridement and nibbling done till the paprika sign appeared alignment done and according to principles N.A fixator applied compression given on bone, graft harvested in all patients drain in placed routine 1/V Broad Spectrum antibiotic an according to culture and sensitivity given. Patient mobilized on next day after evaluation of wound follow was done for two years to achieve clinical outcome was based on table 01 for union. On each follow up visit patient evaluated both clinically and radio logically for callus formation at fracture site, pin site stability of frame compression and limb examination, contracture, equines deformity checked. Fixation was removed after corticalization and consolidation of union with appearance of hard bridge of bone either sides of cortexes, after removal of frame PTB Cast applied mobilization with and without crutches physiotherapy started initially and later on under supervision of physiotherapist.

RESULTS

There were 55 (79%) males and 15 (21%) females with male to female ratio 11:3. Mean age 30 years. Right leg (tibia) was involved in 45 (64.29) patient, left (tibia) in 25(35.71%) patient right/left leg ratio was 9:5, DCP 55 (78.57%), interlocking nail 15 (21.43%) pin track infection grade-I 20 (28.57%). Bone results were excellent in 50 (71.43%), good 16 (22.86%), fair in 3 (4.2%) and poor in 1 (1.43%). Functional result excellent in 61 (87.14%), good 8 (11.43%) fair 2 (2.86%) patients due to RTA motor bike injury. Prominent and dominant was right leg. There was three days hospital stay due to short of beds did not kept for longer time in ward. (Follow up was 0 to 06 months, 07 to 12 and every year. All patient received spinal anesthesia as previously has been operated under same kind of anesthesia in 10 (14.27%) patient developed headache due to their uncooperative attitude for maintaining supine position which was managed accordingly with anesthetic personals. Fibular osteotomy and bone grafting was performed in all patient during surgery. Ankle foot orthrosis was applied for fully day then in night to prevent equines deformity. None of patient found any knee or ankle joint laxity, or stiffness none of them reported for any kind of pain, numbness, difficulty in sleeping, walking or running and attended full range of movement at both joints. 3 (4.29%) patients observed 1.5cm shortening due to nibbling and refreshing of bone. Active and passive physiotherapy was started earlier under the supervision of physiotherapy department. After complete union, dynamization of fixator done then removed under 1/V sedition full above knee cast applied.

Table No.1: Demographic information of the patients

Male	55 (79%)
Female	15 (21%)
Male/female ratio	11: 3
Mean age	30 years
Right leg	45 (64.29%)
Left leg	35.71
Right/left leg ratio	9: 5
DCP	55 (78.57%)
Interlocking nail	15 (21.43%)
Pin track infection grade-I	20 (28.57%)
Headache	10 (14.27%)
Shortening	3 (4.29%)

On each visit stability of frame and its accessories checked and tightening. 20 patients (28.57%) hade Grade-I superficial pint tract infection no any compartment syndrome, pin loosening, equine deformity noted and none required secondary intervention (Table 1). Functional results were excellent

in 50 (71.43%), good in 16 (22.86%), fair 3(4.28%) and poor in 1 (1.43%) in this region 80% after the 1st subsequent surgery functional result were excellent 61 (87.14%), good 8 (11.43%) fair 2 (2.86%) and poor 0 (Table 2).

Table No.2: Functional results of the patients

Result	Excellent	Good	Fair	Poor	Failure
Bone	50 (71.43%)	16 (22.86%)	3 (4.2%)	1 (1.43%)	None
Functional	61 (87.14%)	8 (11.43%)	2 (2.86%)	-	None

DISCUSSION

Famous saying of Mr. llizarov that "Infection burns in the fire of regenerate".[10-12] Post traumatic tibia nonunion, infectionsare most challenging task and headache for the Orthopaedic Surgeon as review of many research articles details for new technique of fixation the most common treatment is radical debridement, removal of lose and sequestrated bone until live and bleeding bone is reached know as "Paprika Sign".[13] Bone transport flap and application of stable fixation and soft tissue replacement encourage bone union. Standard and circular External fixation are often heavy discomfort able found them aesthetically unacceptable.[14] Majority of our patient sustained road traffic accident (RTA) assault and right tibia was involved in 45 (64.29%) study conducted in Nigeria 2004 results reveals road traffic injuries are similar to our society due to rising trends in all over world specially third world countries due to illegal driving. Miss conduct of law, poor road condition and safeties impatient and over speeding.[4] Most of research reveals male sex are commonly involved.[14,15]

Right leg is dominate in all persons used as fight are flight to save or escape from danger this study 55 (79%). were male. Paley reported bone grafting 11%.[16] In our study in 100% bone graft. Study conducted at Xiangya University Hospital in China shows 20 patient with pin tract infection that is similar our results.[13] Pasha and Iqbal[17] reported 10.2% and 38% respectively study at Abbottabad Pakistan show 08% eqyinus foot noted in 04 (20% study conducted GMMMC) Hospital in Sukkur[11] Pakistan reveals with 3 patient equinus at 6 patient knee and ankle joint stiffness study conducted by Trangquilli et al[18] in Italy 20 patient achieved union all patient cases with average time of 4.5 months with illizarov. Dendrions[19] achieved union in 9.4 months, Paley got 10.6 months with bone transport. Marsh et al[20] reported et al observed union in 40 out monoliteral conventional external fixator. Denndrions et al[19] reported 4 (16%) mail-alignment with Multiplan llizraov external fixator. Comparing to these study our results are quit excellent with no mail-alignment, limb lengthening discrepancy, loosening, and knee or ankle stiffness and displacement noted.

CONCLUSION

This type of fixation is very cheap and easy available, local made, less cumber some and technically easy to apply. Compression or distraction, or transportcan be done. This type of fixation but only applying compression forces at fracture site after freshening and debridment of ends with bone graft local version of external fixator, NA (Nasser-Awais) because it has threatened rods are used for compression to achieve excellent results. Uniploar configuration of this fixator more comfortable than others i-e light, easy in cleaning, well in outlook movements at two joints can be easily performed. Fixation is cheap short learning for PG student full weight bearing on limb is admitted as others, easy with hand drill, good range movements. This study is adding our knowledge that with in local circumstances better can be done for poor outcome in post-traumatic nonunion of tibia soft tissue envelope below knee joint, high energy trauma unfavorable blood supply, complex fracture geometry which contributes in unfavorable outcome in nonunion of tibia. In the last concluded and we advise to improve the configuration where it causes difficulty in maintaining the position while reduction and insertion.

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

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Original Article

Suicidal Hanging Deaths

Male and 3rd Decade of Life Predominate in Suicidal Hanging Deaths in Lahore

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ABSTRACT

Objective: The objective of the study was to find out sex and age group predominance amongst all asphyxial deaths especially suicidal in Lahore, hanging in particular and also to analyze its results with other studies carried out previously.

Study Design: Observational / descriptive study

Place and Duration of Study: This study was conducted at the Department of Forensic Medicine & Toxicology, King Edward Medical University, Lahore from January 2006 to December 2008.

Materials and Methods: During this study 2979 autopsies were conducted. 220 cases of Asphyxial Deaths were selected. The material of study was taken from autopsy reports, available police papers and treatment charts of various hospitals.

Results: It was 7.39% (220) cases of asphyxial deaths in 2979 autopsies. The commonest cause was hanging, 104 cases (47.27%), 64 cases of strangulation (29.09%) and 52 cases of manual compression (throttling) 23.64%. Out of these 220 asphyxial deaths, the commonest manner of deaths was hanging in 68 cases (68.50%). It also showed a distinct male predominance in all asphyxial deaths, which appeared as 2.78:1 male to female ratio. Another distinct feature which was highlighted that, 3rd decade age group in males showed higher incidence in contrast to females which had high incidence in 2nd decade in all asphyxial deaths.

In all such deaths, strangulation was higher in number in twenties, thirties and forties years.Male were higher in number in hanging as compared to female, while females showed high incidence in thirties and forties years.In Ligature Strangulation, females showed higher number in 2nd, 3rd and 4th decades as compared to males. Males showed higher in manual throttling in thirties as compared tofemales, who showed predominance in forties.

In all 220 asphyxial deaths, the homicidal manner was seen in 57.27% of cases, suicidal in 30.90% and 11.82% cases were un-determined. The manner of death in hanging was suicidal in 65.38% (n=68 cases), homicidal in 9.62% (n=10 cases) and in 25.0% (n=26 cases) it was un-determined. The knot was placed at occiput in hanging (062.50%) cases, and was in lateral position in023.08% of cases. Whereas it was on front in 78.13%cases in ligature strangulation and in 21.87% of cases it was lateral.

Conclusion: In our country, the hanging is a commonest method adopted for suicide andstrangulation & manual throttling are used for homicidal killings. In hanging deaths, males predominate and especially the 3rd decade of age group. In autopsy findings, the presence of ligature above the thyroid cartilage usually is seen in hanging. On the other hand it's seen at or below the thyroid in strangulation. The hyoid bone fracture if present, strongly suggest, that death is due to throttling.

Key Words: Asphyxia, Suicidal Hanging, Male Hanging, 3rd Decade.

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INTRODUCTION

Neck is a very important structure of body, which is most vulnerable in most of the traumatic injuries and asphyxial compression. It is a conduct of many important structures, like common carotids & vertebral arteries. It also transmits spinal cord, cranial nerves, wind pipe &oesophagus. So any pressure on neck will cause interference to the processes of respiration. The commonest methods adopted to get it are either ligature constriction or compression with hands. In the hanging the weight of the body is sufficient to constrict vital structures[1]. Blow on the neck, arm locks or accidental entanglement in rope can cause constriction of neck[2].

The type of structure involved, individual or in total will manifest the resultant mechanical asphyxial outcome. The means used for this purpose, like rope, hands, sticks or arms will constrict neck & the power used will determine ultimate fate.

Two kilo grams of weight are enough to constrict jugular veins, which will result in occluding the blood to return, hence causing congestion and petechial hemorrhages. Cerebral ischemia will occur if carotid

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arteries are occluded, which only needs 3.5 kg of weight. Sudden cardiac arrest will occur with pressure on carotid bodies as baro-receptors will be stimulated. When the back of the tongue is pushed back, it will cause airway obstruction. Trachea is a hard cartilaginous structure, so its occlusion will be difficult and it will need more than 15 kg of weight. Direct compression especially in manual throttling on the cartilaginous structures of wind pipe can cause fracture of hyoid cartilage and also fracture of thyroid cartilage will occur[2, 3, 4, 5, 6].

When mechanical asphyxia results in, whatever means is adopted, tissue anoxia will occur by the reduction in O_2 level. It will cause patho-physiological change in the form of endothelial damage, dilatation of capillary, increased permeability and stasis of blood. And as pathological entity these will appear asnon-specific asphyxial signs. It is a viscous cycle, causing further reduction in circulating amount of blood, resulting in more anoxia and so on.

MATERIALS AND METHODS

Source of Data: The data source was the post-mortem reports of the autopsies carried out in years2006-2008 in the Deptt. of forensic medicine and toxicology King Edward Medical University, Lahore. Post-mortem reports, presented police documents and available hospital records were scrutinized. All parameter, especially in reference to asphyxial deaths were considered as, age group, gender, type of obstruction, place of applying compression & fractures of cartilages if any.

Selection Criteria's

Inclusion: Death is due to hanging by means of constriction and the occluding force should only be the weight of the person.

Exclusion: All the deaths were excluded in which injuries to the neck was seen, and death was caused by means other than hanging.

RESULTS

Table No. 1 Weapons Used in2979 Deaths

	Number	%age
Blunt Means	0403.0	013.52
Sharp Edged	0256.0	08.50
Fire-Arms Weapons	01285.0	043.13
Poisoning	074.0	02.48
Burns	050.0	01.68
Mechanical Asphyxia	0220.0	07.38
Electrocution	019.0	0.64
Drowning	017.0	0.57
Bomb Blast	065.0	02.18
Natural Deaths	0347.0	011.65
Un-Ascertained Cases	0213.0	07.15
Total	02979.0	0100.00

We scrutinized 2979 autopsies in total which were conducted at The Deptt. of Forensic Medicine K.E.M.U. in the years of 2006-2008, and in those 220 cases (7.38%) cases wereof asphyxia. (Table No.1) (Fig: No.1).

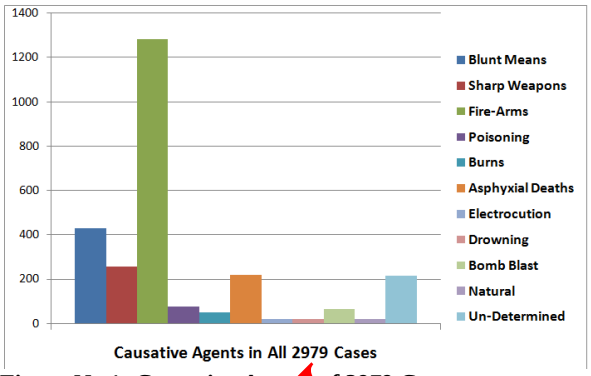

Figure No.1: Causative Agents of 2979 Cases

Types of Neck Compression: Out of 220 selected cases of asphyxial deaths, three types of neck compressions were seen. In these the cases of hanging were 104 (47.27%), strangulations 64 (29.09%) and 52 cases (23.64%) were those of throttling. (Fig: No. 2)

Figure No. 2: Neck Compressions in 220 Deaths

Age & Sex: Commonest decade of ageinvolved was 3rd (035.91%) and next to it was 4th decade (25.91%). 2nd decade was the next (17.27%) (Fig: 3).

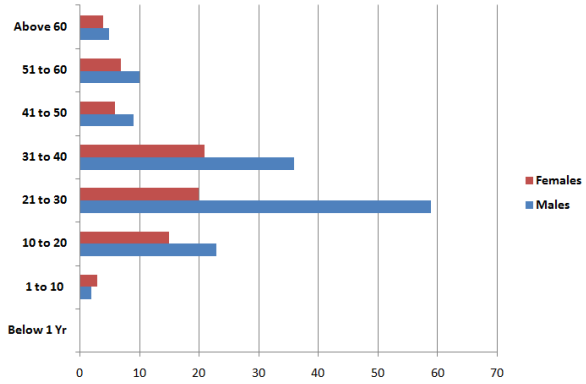

Figure No. 3: Age & Sex Distribution in 220 Asphyxial Deaths

In total 220 cases of asphyxial deaths, 144 were male (65.45%) and 76 cases were those of females (34.55%). (Fig: 4)

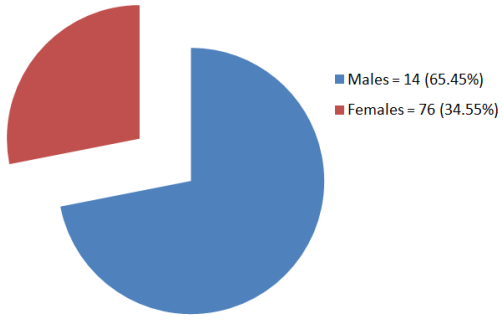

Figure No.4: Sex Distribution in 220 Cases

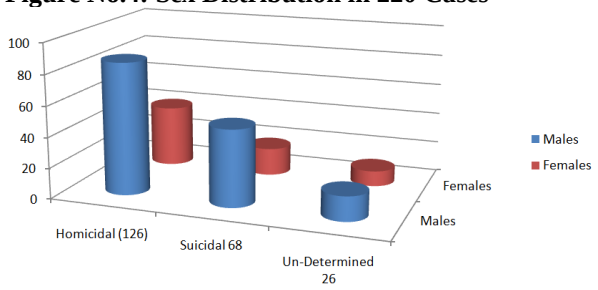

Figure No.5: Manner of Death in 220 Cases

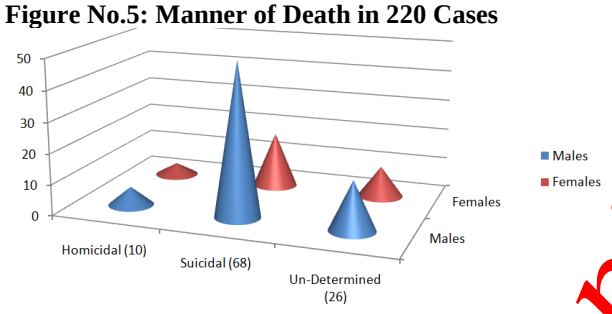

Figure No.6: Manner of Death in 104 Hanging Cases

Regarding age the incidence of hanging was highest in both sexes in the 2nd decade of life in comparison with strangulation and throttling, in which it was higher in the age groups of 21-30 and31-40 respectively. There was none of the case of hanging in first decade.(Table No. 2)

Hanging showed the male to female ratio of 2.25:1.0, 2.05:1.0 was in strangulation and1.26:1.0 was in throttling(Table No. 2).

In reference to gender it was seen that, in hanging males showed had high incidence in 3rd decade of life and in females it was seen in 2nd decade of life. In strangulation males were greater in number in age group of 21-30 yrs. And in females it was seen high in 4th decade. Males manifested number in throttling between age group 21-30 years of life than females who showed it more between 31-40 years of life. Table No: 2.

Manner of Death: Natural or Un-Natural is the manner of death. The Un-Natural mannersare homicide, suicide and accidental. In our study it also includes the cases in which the cause of death was not ascertainable with certainty due to natural or acquired limitations. Deaths due to accidental asphyxia were not seen in this study.

The homicidal asphyxial deaths were 126 (57.27%), suicidal were 68 in number (30.90%) and in 26 cases (11.82%) the cause of death could not be ascertained. (Fig: 5) In homicidal asphyxial deaths M/F ratio was 02.15:1.0, 02.77:1.0 in suicides and 01.6:1.0 in those, in which the cause of death remained un-Ascertained. Table No: 3

Manner in Hanging: Manner of death in suicides is the most common method adopted in all 104 cases of hanging. Which was seen in 68 cases (68.50%). And they had male/female ratio of 2.78:1. The homicidal hanging was seen in 10 cases(9.62%). The male/female ratio was 1.5:1. In 26 cases (25.0%) of hanging the cause of death could not be ascertained, having male/female ratio of 1.6:1. (Table No. 4) (Fig: No. 6)

The highest incidence in homicidal deaths was seen amongst males in 3rd decade of life, while females showed higher incidence in 2nd decade. In suicidal hanging cases, both the sexes showed higher incidence in 3rd decade.

Table No: 2 Age & Sex Variation

Age (Yrs)	Total No. of Cases	Ratio of Male/Female in Hanging(104 cases) 02.25:1.0		Ratio of Male/Female in Ligature Strangulation(64 cases) 02.05:1.0		Ratio of Male/Female in Throttling(52 cases) 01.26:1.0	
		M	F	M	F	M	F
<01	0.0	0.0	0.0	0.0	0.0	0.0	0.0
01-10	5.0	0.0	0.0	1.0	2.0	1.0	1.0
11-20	38.0	14.0	10.0	6.0	3.0	3.0	2.0
21-30	79.0	28.0	9.0	17.0	6.0	14.0	5.0
31-40	57.0	19.0	4.0	12.0	7.0	5.0	10.0
41-50	15.0	4.0	4.0	2.0	1.0	3.0	1.0
51-60	17.0	5.0	4.0	3.0	1.0	2.0	2.0
>60	9.0	2.0	1.0	2.0	1.0	1.0	2.0
Total No.	220.0	72.0	32.0	43.0	21.0	29.0	23.0

Table:3 Manner in 220 Asphyxial Deaths

Years of Age	Number of Cases	M/F ratio in Homicidal Cases02.15:1.0			M/F ratio in Suicidal Cases02.77:1.0			M/F ratio in Un-determined Cases01.6:1.0		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
<01	0	0	0	0	0	0	0	0	0	0
01-10	5.0	2.0	3.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
11-20	38.0	8.0	6.0	14.0	5.0	9.0	14.0	7.0	3.0	10.0
21-30	79.0	36.0	11.0	47.0	20.0	06.0	26.0	4.0	2.0	6.0
31-40	57.0	20.0	14.0	34.0	16.0	02.0	18.0	3.0	2.0	5.0
41-50	15.0	8.0	2.0	10.0	4.0	01.0	5.0	0.0	0.0	0.0
51-60	17.0	6.0	3.0	9.0	5.0	0.0	5.0	0.0	3.0	3.0
>60	9.0	6.0	01.0	7.0	0.0	0.0	0.0	2.0	0.0	2.0
Total No. of Cases	220.0	86.0	40.0	126.0 57.27%	50.	18.0	68.0 30.91%	16.0	10.0	26.0 11.82%

Table 4: In 104 Hanging Cases (Manner of Death)

Years of Age	Total Cases	In 10 Homicidal Cases 9.62% M/FRatio 01.5:1.0		In 68 Suicidal Cases 65.38% M/FRatio 02.78:1.0		In 26 Un-Determined Cases 25.0% M/FRatio 01.6:1.0	
		M	F	M	F	M	F
<1 Years	-	-	-	-	-	-	-
1-10 Years	-	-	-	-	-	-	-
11-20 Years	024	02	01	05	06	07	03
21-30 Years	037	04	02	02	05	04	02
31-40 Years	023	-	-	016	02	03	02
41-50 Years	08	-	-	05	01	-	03
51-60 Years	09	-	-	05	01	-	03
>60 Years	03	-	01	-	-	02	0
Total No. of Cases	0104	06	04	050	018	016	010

DISCUSSION

Incidence of Asphyxial Death: This study shows that, there were 220mechanical asphyxial deaths in all 2979 post-mortems conducted. The incidence of asphyxial deaths is 7.39%. This is high than what was reported by Rehman et al. (1.6%)[7], Malik SA (1.75%)[8], and Bashir MZ (1.88%)[9] in deaths due to asphyxia. And of all types of deaths it was Srivastava AK (2.94%)[10] and of total asphyxial deaths it was 24.53%, Hussain SM (5%)[11] of total deaths & of asphyxial deaths it was 82%, and 1.17% in Verma SK[12]& 12.4% in Vermici S[13] of & 5.5% of all types of deaths, it is lower than 15.7% in Azmak D[14].

Types of Neck Occulusion: Hanging has the highest number, having 104 cases (47.27%), the ligature strangulation cases are 64(20.09%) and 52 cases of throttling are seen (23.64%).This incidence is comparable with 80.70% of hanging/ligature strangulation & throttling 19.30% Rehman IU[7], 61.17% in hanging, 21.19% in strangulation &in throttling 17.64% in Malik Sa[8], 57.0% hanging, 21.0% strangulation, and 18.0% throttling in Bashir MZ[9], 19.23% ligature strangulation, 46.15% throttling in Srivastava[10], 69.0% hanging Hussain SM[11] ,12.40% ligature strangulation Demirci M[13], 41.80% hanging, 2.90% strangulation & 2.30% throttling Azmak D[14], 85.0% hanging & strangulation and 6.0% throttling Sharma BR[15].

Age and Sex Distribution: In all asphyxial deaths the highest incidence seen is in ages between 3rd decades of life. This age can be compared with that of 57.0% of Hussain SM[11], 3rd decade of life in Verma SK[12]. On the other hand in the study of Azmak[14] et.al; 41.90 years was the average age seen. Bowen[16] has shown greater number of hanging in 5th decades of life. Guarner & Hanzlick[17] in USA mentioned 3rd decades of life the greatest number.

Male/Female Ratio: The hanging is showing 2.25:1 male/female ratio in our study, strangulation of 2.05:1 and in throttling it is 01.26:1.0. The males are showing highest number in all types ofmechanical asphyxial deaths.

Males are higher in number 69.23%, than females showing 30.76%. This trend is comparable with others studies of Azmak[14]83.9% males, and of Bashir MZ[9] et al; showing 02.7:1.0 Males (73.07%)& Females (26.92%).

The study of Bashir MZ et.al; [9] has shown males as 58.9% and females 41.02%in strangulation and throttling. For strangulation study of Azmak D[14] has shown 1.0:3.0 male/female ratio& 1.0:2.0 inmanual

throttling, and in contrast to it study of Srivastava AK[10] narrated males(30.77%) & females(69.23%).

Manner of Death: The incidence of suicide in hanging in this study is (65.38%), which is less than that of Bashir MZ[9](86.53%). Homicide is (09.62%) which is greater than (03.84%) of Bashir MZ[9], but is less than that of Bowen DA[16](95%).

No case of accidental hanging was reported in our study; while Bowen DA[16] study showed 5% deaths because of accidental auto-erotic asphyxia.

CONCLUSION

Mechanical asphyxial deaththe commonest causes of deaths amongstall un-natural deaths in this region. And for that hanging is the most preferable method used suicide in mechanical asphyxias. Suicidal hanging is seen in all age groups but mostly is seen in young ages especially 21-30 years, and regarding gender male has shown higher incidence as compared to females for the reason of socio-economic liabilities mainly on them.

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

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Original Article

Breastfeeding

Impact Evaluation of Breastfeeding Message on the Container of Powdered Infant Formula in Promotion of Breastfeeding

Sadiq Hussain[1], Muhammad Wasim Khan[2], Muhammad Nadeem Khan[3], Muhammad Khalil[1], Ammara Manzoor[1] and Maria Tazarat[1]

ABSTRACT

Objective: Breast milk has short term, long term and lifelong advantages for the baby, mother, community and the country. Unfortunately, the exclusive breastfeeding in Pakistan is 38%. The objective of this study was to find out the effect of this message in the promotion of breastfeeding.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Divisional Headquarter Teaching Hospital Mirpur from February 01, 2016 to July 31, 2016.

Materials and Methods: convenient sampling method was used to collect the data. A written questionnaire was constructed to collect relevant information. 400 mother infant pairs were entered into study who visited pediatric department for their sick babies, routine examination and vaccination of their babies. Only those babies were entered into study who were feeding formula milk. The purpose of the study was explained to the mothers and a verbal consent of mothers was obtained. Mothers of babies from birth to two years of age were interviewed. A written permission of head of institute and head of department was also obtained. Data was analyzed for frequencies and percentages in SPSS programme. Knowledge/reading of the message was compared with motivation, readability of message, information source and suggestions about message.

Results: A total of 400 cases were entered in study. 83.3 % mothers were literate and 16.8% illiterate. 26.5% mothers read the breastfeeding message on the container .20.8% were motivated to breastfeed their babies after reading this message.

Conclusion: This breastfeeding message has positive impact on breastfeeding. This message is in small letters .It should cover a large area in the center of container.

Key Words: Breastfeeding, infant formula, message, code, ordinance

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INTRODUCTION

It is the right of every newborn to feed his or her mother's milk. Breast milk has remained the fundamental nutrition of babies throughout the human history. It provides the safest and healthiest start in the life of a baby. It provides all the required nutrients, energy and fluids to the baby[1]. It decreases mortality and morbidity in children. Breastfed babies are less overweight /obese. It reduces the incidence of type2 diabetes mellitus in children. The incidence of sudden infant death syndrome is less in breastfed babies. It also decreases the mortality due to necrotizing enterocolitis in premature and low birth weight babies. The IQ of breastfed babies is 3-4 points higher than non breastfed babies. In the woman it decreases postpartum blood loss, provides natural birth spacing and helps in maintaining weight. It also decreases the incidence of breast and ovarian cancer[2].It contributes to 0.5% of the total world economy [3].

However, urbanization, industrialization and increasing role of women in every field of life has caused a decline in breastfeeding in the first half of 20th century. The decrease in breastfeeding varied from 70% in 1930 to 14% in 1970s[4]. In the second half of 20th century, the superiority of the breast milk over all other milks and substitutes was established on scientific grounds. Unfortunately, in spite of miraculous advantages of mother's milk, the breastfeeding rate remained below 40%[5]. The scientific discovery of miraculous advantages of breast milk and the disadvantages associated with the use of breast milk substitutes led to

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many wake up campaigns at the world level to promote, encourage and continue breast feeding. Therefore there are global efforts to increase breastfeeding rate up to 50% by the year 2025[6]. Now breastfeeding is the center of focus in the achievement of the sustainable development goals.

Pakistan has not succeeded in reaching Millennium development goal 04. The goal was to bring the under 05 mortality to less than two thirds of its present state of 139/1000 live births in 1990 till 2015. In Pakistan under 05 mortality has decreased from 139/1000 live births in 1990 to 81/1000 live births in 2016. Pakistan is at 22nd position with regard to its under 05 mortality in children in the world community[7]. Breastfeeding is the single most powerful measure to decrease under 5 mortality in children. Over half of deaths under 05 years of age take place during first month of life of children[8]. In many studies breastfeeding in the age range of 6-23 months has resulted in 50% reduction in child mortality[9]. Breastfeeding protects against infectious diseases especially pneumonia and diarrhea. Unbreastfed babies are 15 fold prone to die as a result of pneumonia and 11 fold prone to die because of diarrhea. Early introduction and exclusively feeding mother's milk results in reduction of two thirds of deaths of children due to these two diseases and malnutrition.[10]

Currently every two in five babies who die are under one month of age[11]. In Pakistan neonatal mortality is still 46/1000 live births[7]. Early start of breastfeeding and exclusive breastfeeding significantly reduce neonatal mortality and morbidity[12]. 41% of deaths in children under five years of age occur during first four weeks of life. Most of these deaths occur during the first week of life[13]. 22% of neonatal deaths can be avoided if mother's milk is started within first hour of life. Further 16 percent of deaths can be averted if mother's milk is started within first 24 hours of life[14].

In Pakistan, breastfeeding was 96% during the first six months of infants and it was 90% at twelve months with complimentary food during 1975 to 1983[15]. In 1987 58% 0f mothers were breastfeeding their children[16]. The breastfeeding percentage in 1995,2007 and 2013 remained 16%, 37% and 37.7% respectively[17]. The exclusive breastfeeding in Pakistan was 37% in 2006-2007[18] and 38% in 2012-2013[19].It indicates there is a mere increase of only one percent during this period. The latest situation in Pakistan is only 18% of newborns are put to their mothers breasts within the first hour after birth. Exclusive mother feeding at 06 months of infant life is 38%. Besides other reasons causing falling breastfeeding rate in Pakistan, the main factor causing this decrease is the illegal and unethical activities of the manufacturers of breast milk substitutes. Pakistan is a special victim of this industry because of very slow implementation and enforcement of Code and very weak monitoring of breastfeeding protection rules. Pakistan was a signatory to the resolution of World health assembly in 1981 .Pakistan adopted the international code of marketing of breast milk substitutes. In 2002, Pakistan adopted this code by issuing an ordinance[20]. According to this ordinance, the formula companies must comply with the code of breast milk substitutes. Unfortunately the rules to enforce this ordinance could not be made till 2009.In 2009 protection of breastfeeding rules were formed and this Code came into force[21].

The federal Government has notified National infant feeding board in 2010. The function of this board is to enforce and implement breastfeeding protection rules. These rules make accountable health professionals/ workers who advice formula to mothers instead of supporting breastfeeding.

MATERIALS AND METHODS

This study was conducted at divisional Headquarter teaching hospital Mirpur from February 01, 2016 to July 31, 2016. It was a cross sectional study and convenient sampling method was used to collect the data. A written questionnaire was constructed to collect relevant information. 400 mother infant pairs were entered into study who visited pediatric department for their sick babies, routine examination and vaccination of their babies. Only those babies were entered into study who were feeding formula milk. The purpose of the study was explained to the mothers and a verbal consent of mothers was obtained. Mothers of babies from birth to two years of age were interviewed. A written permission of head of institute and head of department was also obtained. Data was analyzed for frequencies and percentages in SPSS programme. Knowledge/reading of the message was compared with motivation, readability of message, information source and suggestions about message.

RESULTS

Those mothers were considered literate who were able to read and understand the message. Table 1 indicates that most of the literate mothers did not read the message. It is also obvious from that majority of mothers who read the message on the container were motivated to breastfeed their babies.

Table 2 shows that none of the mother's mention of receiving this message through television, radio, newspapers or social media. The remaining others (3%) received this information through husband, grandmother, friends and relatives.

Table 3 indicates that the percentage of mothers who were motivated to breastfeed their babies after reading this message is statistically significant (P.value=0.00).

This result is encouraging that if breastfeeding advantages are communicated to all the mothers than breastfeeding promotion movement can gain momentum. Mothers said that font should be large and

it should cover a large area. This is more or less in accordance with the provisions of international code of marketing of breast milk substitutes. In Pakistan the message is very small and inconspicuous. According to the international code, the benefits of breastfeeding and disadvantages of formula feeding should cover one third of container and it should be on the central part of the container. In Pakistan the message is not in accordance with the provisions of international code. After 14 years of adoption of the international code, the message has not been made according to the provisions of code.

Table No.1: Comparison of educated and non educated females.

S. No	Variable	Frequency (n)	Percentage (%)
1	Maternal education		
	Literate	333	83.3
	Illiterate	67	16.8
2	Knowledge about Message	106	26.5
	Yes	294	73.5
	No		
3	Message Readable		
	Yes	83	22.3
	No	23	5.8
4	Suggestions		
	Big Font	71	17.8
	Cover Large area of container	50	12.5
	No Suggestions	279	69.8

Table No.2: Source of information for Breastfeeding Message

Source	Frequency (n)	Percentage (%)
Self	58	14.5
Doctor	16	4
Nurse	19	4.8
Others	12	3.0

Table No.3: Variables with percentage

Variable	Frequency (n)	Percentage (%)	p. Value
Read the Message	106(400)	26.5	
Motivated to feed	89 (106)	83.9	0.00
Not motivated to feed	17 (106)	16.1	

DISCUSSION

A message/notice about breastfeeding is printed in bold characters on the containers of all powdered infant formulas. This message/notice is in compliance with clause (b) subsection 04, section 08 of chapter 3 of protection of breastfeeding and child nutrition ordinance 2002(XC111). The exact message is reproduced as **"MOTHER'S MILK IS BEST FOR YOUR BABY AND HELPS IN PREVENTING DIARRHOEA AND OTHER ILLNESSES"**. The objective of this notice is to promote breastfeeding and protect it from the unnecessary and misleading marketing of the breast milk substitutes. The purpose of this study was to evaluate any impact of this message in the promotion of breastfeeding.

It is obvious from table 1 that an overwhelming majority of mothers both literate and illiterate were unaware of this message on the container of formula milk. It is unfortunate that most of the literate mothers did not read this message on the container. This study reveals that this message has been communicated to a small percentage of mothers. Table 2 indicates that the contribution of health personnel in communicating this message is also small. It means that maternity services, home based, health system based and community based interventions are not operative in communicating this message. There is also lack of social marketing of this message.

This study also points out that the campaign of breastfeeding promotion is very weak when it is compared with the contribution of breastfeeding is making in saving the lives of children and money of the country. The whole scenario of breastfeeding is very disappointing in Pakistan as has been reflected in the UNICEF breastfeeding report 2013[22].

I could not find any other study of this kind conducted within the country where the sole effect of this message would have been evaluated. This study covers very small part of the ordinance. Unfortunately this ordinance (code) could not produce the desired results in our country .In this context UNICEF has highlighted the situation in Pakistan regarding code violations in its report issued in 2013.This report is an eye opener that health professionals are promoting milk formulas which resulted in increased bottle feeding[23,24].

According to this report there is a contradiction in the knowledge and practice of breastfeeding. This aspect of the UNICEF report is in contrast to the result of this study. In our study majority of the mothers who read this breastfeeding message breastfed their babies. In contrast to breastfeeding the prevalence of bottle-feeding has increased because formula milk is promoted by practicing doctors in Pakistan. This report further states that there is complete disregard for this ordinance. There is gross violation of ordinance at the national level. So for the ordinance has been unable to produce the desired results in promotion, support and protection of breastfeeding. Under these circumstances a small notice on the container of formula milk cannot produce tangible effects.

In contrast to the ordinance, the baby friendly hospital initiative has produced positive results in settings where this intervention has been practiced in its true spirit. In an observational study conducted in some hospitals of Sind has led to an increase in breastfeeding practices of 98.97% where baby friendly hospital initiative interventions were applied[25]. In another study conducted in Switzerland at national level from 1994-2003, there was a generalized in breastfeeding practices. This was due to following the guidelines of baby friendly hospital initiative which was introduced

in Switzerland with the help of UNICEF[26]. Every intervention has some effect on improving breastfeeding but no single intervention can produce desired results. Any intervention can result in better outcome if it is built upon the existing health programmes or added to successful health programmes[27].

CONCLUSION

This study has revealed positive impact in promotion of breastfeeding. The percentage of mothers who were motivated to breastfeed their babies after the communication of this message is encouraging (83.9%).

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

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Original Article

Colorectal Cancer Surgery

Early Postoperative Complications and Mortality in Patients Undergoing Colorectal Cancer Surgery and its Relation with Nutritional Status

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ABSTRACT

Objective: The objective of this study was to determine the frequency of early postoperative complications and mortality in patients undergoing colorectal cancer surgery and its relation with nutritional status.

Study Design: Observational / descriptive study.

Place and Duration of study: This study was conducted at the Indoor Department of General Surgery, Nishtar Hospital Multan from 02-01-2016 to 01-12-2016

Materials and Methods: In this study, Sixty patients of either gender with 30-60 year of age admitted for major colorectal cancer surgery with cancer stage of ≤ IIA were included in this study. We utilized hypoalbuminemia to recognize dietary status. All patients having resection of their rectum underwent mesorectal extraction, and patients with colorectal or coloanal anastomosis had a twofold stapled anastomosis. A SSI case was recognized utilizing CDC, USA definition, which expresses that "Wound would be viewed as surgical site infection if it happens inside 30 days of procedure and has any one of the accompanying: purulent discharge from the injury, agony or delicacy, restricted swelling, redness, malodor, fever".

Results: Age range in this study was 30-60 years with mean age 48.500±5.37 years, mean BMI 28.116±1.84 Kg/m^2 and mean duration of procedure was 3.066±0.60 hours. Majority of patients according to age groups were belongs to 46-60 years and there was more males than females. Majority of patients were belongs to stage I of cancer 39(65%) and hypoalbuminemia was seen in 58.3% patients. Twenty-one (35%) patients developed surgical site infection. Mortality was seen in 7 (11.7%) patients. SSI and mortality was significantly seen in patients of IIA cancer stage ($p<0.05$). Patients with hypoalbuminemia showed more frequency of SSI and mortality ($p<0.05$).

Conclusion: Malnutrition is a more noticeable issue in colorectal cancer than other most basic cancer. Postoperative 30-day mortality and SSI were fundamentally connected with under nutrition in colorectal tumor.

Key Words: Colorectal cancer, Malnutrition, Surgical site infection, Mortality

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INTRODUCTION

Absence of appropriate nourishment is a critical issue in cancer patients because of the joined impacts of malignant disease advance, the host reaction to the tumor, and related anticancer treatments.[1] The occurrence of lack of healthy sustenance among cancer patients contrasts essentially in various disease sorts and when measured by various screening tools.[2]

Therefore, malnutrition has been related in all cancer sorts with poor anticipation and quality of life.[3]

Past studies had demonstrated that cancer has a significant physical and physiological effect in patients, particularly in what concerns to their nutritious status.[4] Cancer related under nutrition had been considered frequently, influencing up to 85% of the patients and different causes had been viewed as like systemic impact of tumor, host reaction or auxiliary impacts of anticancer therapies.[5]

Gastrointestinal cancer had indicated higher malnutrition predominance; 30 to 60% of colorectal patients had been considered under nutrition.[6] This can bring about longer hospital stay, diminished reaction to treatments, expanded complication to treatment and surgery procedures, reduced survival and higher expenses.[7]

Particular cancer treatments and surgery strategies could be a vital component influencing wholesome status of hospitalized patients. A few changes had been done incorporating into what refers to negligibly intrusive surgery systems like the alleged fast track. Current information on this strategy for colonic surgery

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had demonstrated enhanced body composition and additionally oral energy and protein consumption, when contrasted with conventional methods.

Moreover quick track surgery had been connected with less surgical stretch, bring down complication rate and decrease medical center stays which could add to prior rehabilitation.[8]

Research propose that ailing health is connected with antagonistic clinical results in patients with upper GI and colorectal cancer.[9] Malnourished patients with GI growth, as with all malnourished surgical patients, have expanded rates of complications and mortality and longer medical facility admissions than well nourished patients.[10] Apart from the clinical ramifications for the patient, these results eventually add to expanded healthcare costs.[11]

Since ailing health and its related complications are a significant issue for surgical patients with colorectal tumor, more research is required to figure out if particular perioperative dietary practices and protocol can enhance results. In this manner, the present study is planned to determine the frequency of early postoperative complications and mortality in patients undergoing colorectal cancer surgery and its relation with nutritional status.

MATERIALS AND METHODS

Sixty patients of either gender and 30-60 year of age admitted for major colorectal cancer surgery with cancer stage of ≤ IIA were included in this study. Pregnant women, patients with edema or ascites, amputees, and those with neurological and/or ostomized before the evaluated surgical procedure were excluded.

Colorectal tumor was analyzed by ICD-9 codes (V76.51).[12] We utilized hypoalbuminemia to recognize dietary status. Hypoalbuminemia was characterized as serum albumin levels under 3.5 g/dl. The essential result measures were postoperative complication in term of SSI and mortality in the 30-day after surgery.

The prophylactic anti-microbial regimen included cefoxitin 2 g IV 30–60 min preceding the procedure, and a second dosage of 1 g in the surgery room when the surgery was 4 hour or more. All patients having resection of their rectum underwent mesorectal extraction, and patients with colorectal or coloanal anastomosis had a twofold stapled anastomosis. The skin was shut with clips, which stayed for 7–10 days. Pain was controlled with an intravenous morphine sulfate, which was titrated by pain levels utilizing the Wong-Baker Faces torment scale. Patients were given feed when gas was passed, and routinely discharged on the ninth to eleventh post-surgery day. Wounds were covered in the operation room with a non-adherent spongy dressing.

A SSI case was recognized utilizing CDC, USA definition, which expresses that "Wound would be viewed as surgical site infection if it happens inside 30 days of procedure and has any one of the accompanying: purulent discharge from the injury, agony or delicacy, restricted swelling, redness, malodor, fever". Information with respect to SSI and mortality was recorded.

Data was analyzed with statistical analysis program (IBM-SPSS version 20). Frequency and percentage was computed for qualitative variables like age groups, gender, stages of cancer, SSI and mortality. Mean ±SD was presented for quantitative variables like age and duration of procedure. Stratification was done with regard to hypoalbuminemia and stages of cancer to see the effect of these variables on SSI and mortality. Post stratification using the chi-square test for both groups, p ≤0.05 was considered statistically significant.

RESULTS

Age range in this study was 30-60 years with mean age 48.500±5.37 years, mean BMI 28.116±1.84 Kg/m^2 and mean duration of procedure was 3.066±0.60 hours. Majority of patients according to age groups were belongs to 46-60 years and there was more males than females. Majority of patients were belongs to stage-I of cancer 39(65%) and hypoalbuminemia was seen in 58.3% patients as shown in Table 1.

Twenty-one (35%) patients developed surgical site infection. Mortality was seen in 7 (11.7%) patients as shown in Table-I

SSI was significantly developed in patients of IIA cancer stage (p=0.000) as shown in Table-3.

Table-I Demographics of patients n=60

Demographics	
Mean Age (years)	48.500±5.37
Mean BMI (Kg/m^2)	28.116±1.84
Age groups	
30-45	15(25%)
46-60	45(75%)
Gender	
Male	44(73.3%)
Female	16(26.7%)
Stages of Cancer	
0	8(13.3%)
I	39(65%)
IIA	13(21.7%)
Hypoalbuminemia	
Yes	35(58.3%)
No	25(41.7%)
Mean Duration of procedure (hours)	3.066±0.60

Patients with hypoalbuminemia showed more frequency of SSI (p=0.000) as shown in Table-4

Mortality was significantly seen in patients of IIA cancer stage (p=0.000) as shown in Table-4.

Patients with hypoalbuminemia showed more frequency of mortality (p=0.017) as shown in Table-4.

Table No.2: Surgical Site Infection and Mortality n=60

Out Comes	Yes	No	Total
SSI	21(35%)	39(65%)	60(100%)
Mortality	7(11.7%)	53(88.3%)	60(100%)

Table No.3: Stratification of SSI with respect to stages of cancer

Stages of Cancer	Surgical Site Infection		p-value
	Yes	NO	
0	2(25%)	6(75%)	0.000
I	8(20.5%)	31(79.5%)	
IIA	11(84.6%)	2(15.4%)	
Total	21(35%)	39(65%)	

Table No4: Stratification of SSI with respect to Hypoalbuminemia

Hypo-albuminemia	Surgical Site Infection		p-value
	Yes	NO	
Yes	19(54.3%)	16(45.7%)	0.000
No	2(8%)	23(92%)	
Total	21(35%)	39(65%)	

Table No.5: Stratification of Mortality with respect to stages of cancer

Stages of Cancer	Mortality		p-value
	Yes	NO	
0	0(0%)	8(100%)	0.000
I	0(0%)	39(100%)	
IIA	7(53.8%)	6(46.2%)	
Total	7(11.7%)	53(88.3%)	

Table No.6: Stratification of Mortality with respect to Hypoalbuminemia

Hypo-albuminemia	Mortality		p-value
	Yes	NO	
Yes	7(20%)	28(80%)	0.017
No	0(0%)	25(100%)	
Total	7(11.7%)	53(88.3%)	

DISCUSSION

In this study, the mean age was 48.500±5.37 years and the most occurrence of colorectal cancer was in males were similar to those reported in the literature.[13,14] But, different studies have demonstrated a higher rate of colorectal tumor in females.[14-16]

Physical idleness, overweight/corpulence and additionally insufficient eating methodologies are identified with the onset of colorectal cancer,[17,18] as in study by Arafa et al.[17] for a investigation of 220 patients with colorectal cancer who found that 81.8% of patients were inactive.

One of the reported difficulty is wound infection. Research sugest a rate of up to 26% in patients experiencing colorectal surgery. In the present study, we found a 35% rate of wound infection, exhibiting the impact of the few components required in the advancement of this issue—among them, the patient himself and his present pathologies, surgical method, and perioperative variables. Aguiar-Nascimento et al.[19] found a 7.1% rate of disease at the surgical site in 24 patients experiencing colorectal operations.

In our study, the malnutrition rate rate in colorectal tumor as characterized by hypoalbuminemia was same as the reports of other countries.[20-23] A uniform, easily measured and very much qualified screening metric is expected to decide nutritional status in disease patients, hence making the potential for cross examination of data. Past studies concentrating on the relationship amongst hypoalbuminemia and postoperative result concentrated on long term survival and critical contrasts were occasionally noted in their multivariate analyses.[20-23] In our study, hypoalbuminemia was fundamentally connected with postoperative 30-day mortality and general morbidity including sepsis, renal failure, and cardiovascular events that had not been demonstrated before.[24] Smith, et al. reported that underweight status was fundamentally connected with 30-day mortality and the event of postoperative sepsis.[25]

CONCLUSION

Malnutrition is a more noticeable issue in colorectal cancer than other most basic cancer. Postoperative 30-day mortality and SSI were fundamentally connected with under nutrition in colorectal tumor

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

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Original Article

Record Keeping in Dental OPD

Quality of Record Keeping by Dental Interns working in Dental Out-Patient Department of a Dental Hospital of Karachi

Shanila Faisal[1], Abdul Qadir[2], Aqeel Ahmed Shaikh[3], Muhammad Adnan Kanpurwala[2], Rabia Arshad[4] and Hina Riaz[1]

ABSTRACT

Objective: The aim of this study is to assess the record keeping done by the dental interns working in the outpatient department of a teaching dental hospital of Karachi.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Karachi Medical and Dental College, Karachi.February to September 2016.

Materials and Methods: was done on the dental records of patient's history took by dental interns during their house job from the patients visiting the dental outpatient department for dental care. 300 patients dental record were examined using the modified CRABEL score to assess the quality of data.

Results: The Mean (SD) CRABEL Score was 94.62% (9.4) with minimum score of 30% and a maximum score of 100%. A total of 227 (76%) records out of 300 had a CRABEL score of 95% or above whereas 26 (8.7%) recording scored 80% or below. The most frequently missing readings were Intern signature (22.3%), department name (14.3%), supervisor signature (11.7%) and history of presenting complain (11.3%). Male interns were found to be significantly (P-value=0.02) more reluctant in missing the department name as compare to their female colleague.

Conclusion: The quality of record keeping among dental interns in a teaching dental hospital of Karachi is above average in relation to modified CRABEL score. It is important to take academic measures as per need to improve the quality of record keeping.

Key Words: Dental Record, Students, CRABEL Score

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INTRODUCTION

Efficient record keeping is a cornerstone to an excellent clinical practice. Medical records have proven to be essential tools for concerned people with multiple interests[1] such as for treatment and management of patients, for reviewing during audit[2] or for the medico-legal implications. For appropriate and organized flow of treatment, precise and accurate record keeping is highly necessary. For this reason, efforts to develop standards for record keeping in dental hospitals have been made as early as in 1922.[3,4]

Clinical records play a vital role in the process of the provision of dental care as they are essential for the diagnosis, planning and correct sequencing of treatment. For that purpose, their legibility, accuracy, comprehensiveness and contemporaneousness is very necessary.[4]The records should be precise enough to deliver a complete and comprehensive picture of the advancement of the oral disease and of the consequent treatment given to the patient. Their foremost function is communication: from physician to associate, physician to or from another healthcare personnel, and for self- communication.[5]

The dental records have numerous functions and these have been widely documented. Some of these include research-based functions, for financial, administrative and quality assurance and also medico-legal concerns.[6,7] There is no denying the fact that the quality of care delivered can only be assessed through the maintenance of complete and accurate records, which in turn form the foundation for the evaluation of the outcome and effectiveness of the treatment. [8-11] However, where good records provide a better opportunity to evaluate the treatment procedure as compared to the poor records, they in no terms ensure or guarantee the adequacy of dental care.[12]

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The relatively inadequate reports in the literature related to clinical record keeping quality indicate that standard of record keeping has remained inadequate in the past.[13] However these inadequacies can be addressed to right from the beginning when the dentists are still under training. Making it a part of assessment of the quality of training will influence the methodology of training and supervision of the undergraduate students. There is evidence to prove that the undergraduates in the United Kingdom have proved to be better in record keeping than when the training had commenced.[14]

The practice of dentistry is highly influenced by the resourcefulness of the dental students during their training.[15, 16]For this reason, the future practice behavior can be predicted by the quality of records keeping. Improving the record keeping quality and standards will thus pave a way for improved dental care services offered globally. A standard or a baseline degree of accuracy and quality thus has to be formulated to fulfill this purpose. Dental schools have a major role to play in inculcating the record keeping skills of future practitioners. If proper academic measures are carried out dental record keeping competencies can be achieved as a result.

Currently, it has been observed that there is hardly any documentation about clinical records keeping. The situation thus demands the proper assessment of current practice with the prime objective of improving the healthcare quality extended to the patients by undergraduate students and to suggest changes which may bring about improvement, if it is found to be necessary. This study was undertaken with the objective to assess the quality and comprehensiveness of dental record keeping by undergraduate dental students of Karachi.

MATERIALS AND METHODS

A cross sectional study was done on the dental records of patient's history took by dental interns during their house job from the patients visiting the dental outpatient department for dental care.

300 patients record were examined using the modified CRABEL score.

Points for quality of record keeping were awarded in different areas including: "date of documentation, demographic data, presenting complaints, past dental history, past medical history, and drug history, examination findings (of the patient), diagnosis, treatment plan, procedure done,signatures of the student and the supervising dentist, and indication of the department where the patient was seen". Total scores were calculated as a percentage. The statistical analysis was carried out by using SPSS 20.0.

RESULTS

A total of 300 records of patient notes taken by dental interns were examined during the study. The records were marked against the modified CRABEL score in the areas of date, demographics, history, examination, procedure etc. The mean (SD) CRABEL Score was 94.62 (9.4) with minimum score of 30% and a maximum score of 100%. A total of 227 (76%) records out of 300 had a CRABEL score of 95% or above whereas 26 (8.7%) recording scored 80% or below. (Figure:1).

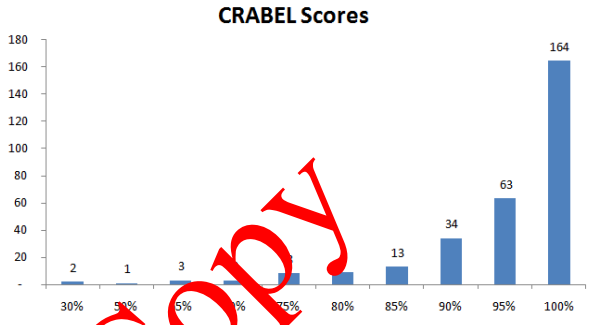

Figure No.1: Frequency of The CRABEL Scores for dental records

Figure No.2: Percentage of Recorded Variables as per modified CRABEL Score

The most frequently missing readings were Intern signature (22.3%), department name (14.3%), supervisor signature (11.7%) and history of presenting complain (11.3%) as shown in figure 2. The male to female comparison showed that 25 % of the males missed the signatures as compared to females which were 19 % out of 64 recordings. (Figure 3).

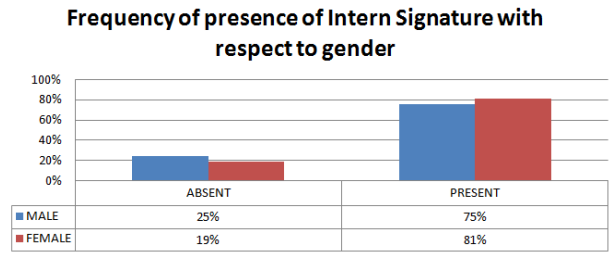

Figure No.3: Cross Tabulation between Gender and Student Signature

The second most commonly missed records was the name of department in which the patient was referred for procedure. Out of 300 records43 (14.3%) were identified which lacked the department name. The gender cross tabulation showed that 19 % of the males omitted the department name as compared to females who were 10 % of the 43 recordings. (Figure 3). This showed that male interns were found to be significantly (P-value=0.02) more reluctant in missing the department name as compare to their female colleague (mean difference with 95% C.I = 0.433; -0.84,-0.05).

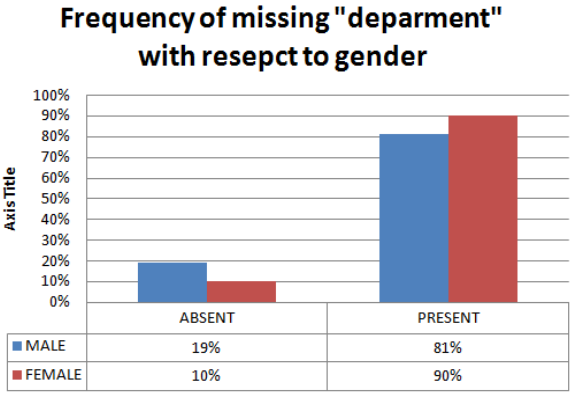

Figure No.4: Cross Tabulation between Gender and Department Name

DISCUSSION

It is an acknowledged fact that complete and accurate dental records and good patient care go hand in hand.[17,18] Good dental records provide an opportunity to evaluate the dental care extended to the patients. They not only provide a permanent record of the treatment procedure but also aid in the making of careful diagnosis and treatment planning. Continuity of care is also made possible by the dental records as it depends upon the communication between the physicians and their teammates.[19] It is a vital source of the patients' dental condition, treatment, and medical state relevant to treatment.[20, 21]

The results our study showed that about 76 % of the records had a CRABEL Score of 95% or above which was similar to a study conducted in Nigeria which showed that around 74 %.[22] The CRABEL Score ranged between 30 to 100 % which is comparatively better to a study conducted in Britain in which the score ranged between 10 to 100 %.[23]

CONCLUSION

The quality of record keeping among dental internsin a teaching dental hospital of Karachi is above average in relation to modified CRABEL score. The most frequently absent records were the intern's signature followed by department name,supervisor's signature and history of presenting complaint. The deficient areas highlighted by the study can be addressed by taking a few academic measures. Organizing training sessions on a regular basis that focus on the results of the study, enlighten the students about the benefits of accurate and comprehensive records and discuss the problems that might arise when records are substandard would greatly help in inculcating the trend of efficient and qualitative record keeping in the times to come.

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

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Original Article

Effects of LED Light on Peads Patients

Usefulness of Light-Emitting Diode (LED) Light in Transilluminating Superficial Venous System for Peripheral Venous Access in Paediatric Patients

Bilal Ahmad Sethi[1], Rizwan Anwar[2], Surriya Yasmin[3] and Muhammad Usman Anjum[4]

ABSTRACT

Objective: To study the utility and efficacy of LED light in venipuncture in pediatric patients,
Study Design: Experimental study.
Place and Duration of Study: The study was conducted at Shahina Jamil Teaching Hospital, Abbottabad from January to December 2016,
Materials and Methods: All pediatric patients between the ages of one to six months, requiring venous access and hemodynamically stable were included in the study. All those patients who were more than six months of age, or hemodynamically unstable or critically ill were excluded from the study. There were 140 study participants who were divided randomly into two groups. First group received venipuncture using light emitting diode (LED) device and the second group received venipuncture using conventional method and without LED. Primary endpoints were the number of attempts and time taken till successful venipuncture.
Results: There were 140 patients in our study with 70 patients in each group. There was a male preponderance in both groups. The venipuncture success rate was higher in LED group where 57.1% were successfully performed on first attempt as compared to conventional group where the success rate at first attempt was 21.4%. Similarly, the failure rate was quite low, (5.7%), in LED group as compared to conventional group where the failure rate was 27.1%. Most of the venipunctures, (54.3%), were performed in less than two minutes in LED group while only 8.6% took more than three minutes. Conversely, 44.3% of cannulation took more than three minutes while only 20% could be performed in less than two minutes in conventional group.
Conclusion: LED light provides an inexpensive yet very convenient and efficacious adjunct to conventional method of venipuncture in pediatric patients. This results in improved success rates and offers a cheap alternative to more expensive options available like near-infrared spectroscopy, especially in developing countries.
Key Words: Light-emitting diode (LED), venipuncture, venous access

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INTRODUCTION

Venipuncture is an important clinical procedure which is required to gain and secure intravenous access. The prevalence of this procedure is as high as 80% among in-patients based on the condition of a patient and the locality of health facility.[1,2] Rapid and successful venous access is of paramount importance for the safety and treatment of patients .i.e. to administer fluids, drugs or anesthesia and in cases of emergency.[3]

But, this is not routinely a case especially in pediatric patients where it is often difficult to gain venous access as well as the procedure is painful.[3] It usually takes between 02-10 attempts to secure venous access successfully.[4] Lack of care and adequate skills or clinical conditions with poor peripheral venous access are some of the reasons for these multiple attempts.[1,5,6] Excessive venipunctures are painful and time and resource consuming. Therefore, it is of paramount importance to develop ways to improve its success rate.[2] Different approaches have been used to improve the success of venipunctures. These approaches include: i) - use of chemicals to aid conventional way of venipuncture, but, this strategy is inappropriate for children and unsuccessful in dark-skinned people, ii) - ultrasound guided procedures, but they are expensive and resource consuming as they need extra trained personnel and dedicated and costly equipment, iii) - visualization of veins using "near infrared (NIR) spectroscopy", but this is a very expensive and hence, infeasible option for developing countries, and iv) - use of secondary lights e.g. light emitting diode (LED) to

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visualize veins in a darkened room to transilluminate the venous system.[7] As these light sources are cheap, they can provide a viable alternative to assist in pediatric venipuncture especially in developing countries. Therefore, we have conducted this study to determine the utility and efficacy of LED light in venipuncture in pediatric patients as compared to the conventional methods of venipuncture.

MATERIALS AND METHODS

This was an experimental study was conducted in Shahina Jamil teaching hospital, Abbottabad, Pakistan, from January to December 2016. All pediatric patients between the ages of one to six months, requiring venous access and hemodynamically stable were included in the study. All those patients who were more than six months of age, or hemodynamically unstable or critically ill were excluded from the study. There were 140 study participants and they were randomly divided into two groups. One group received venipuncture using LED device and the other group received venipuncture using conventional method and without LED. Primary endpoints were the number of attempts and time taken till successful venipuncture. Braun (gauge 24) cannula was used for venipuncture while the selection of hand (either right or left) to be cannulated was random. All data was entered, organized and analyzed using SPSS (version 20). P-value of less than 0.05 was considered significant.

RESULTS

A total of 140 patients were enrolled in the study with 70 patients in each group. There was a male preponderance in both groups. The venipuncture success rate was higher in LED group where 57.1% were successfully done on first attempt as compared to conventional group where the success rate at first attempt was 21.4%. Similarly, the failure rate was quite low, (5.7%), in LED group as compared to conventional group where the failure rate was 27.1%. Most of the venipuncture, (54.3%), took less than two minutes in LED group while only 8.6% took more than three minutes. Conversely, 44.3% of cannulation took more than three minutes while only 20% could be performed in less than two minutes in conventional group, (Table 1).

The result shows that the venous cannulation using LED light is more successful and less time consuming as compared to the conventional method, especially in over weight subjects, (Table 2).

Figure No.1. LED light used in the study to transilluminate the superficial veins

Table 1– Demographics and Comparison among attempts or cannulation time with and without an LED light

Characteristics		LED Used n (%)	LED Not Used n (%)	Total n (%)	P value
Gender	Male	39 (55.7)	40 (57.1)	79 (56.4)	
	Female	31 (44.3)	30 (42.9)	61 (43.6)	
Hand	Right	33 (47.1)	37 (52.9)	70 (50)	
	Left	37 (52.9)	33 (47.1)	70 (50)	
Weight	3.6 - 5 kg	16 (22.9)	19 (27.1)	35 (25)	
	5.1 - 6.5 kg	23 (32.9)	21 (30)	44 (31.4)	
	6.6 - 8 kg	31 (44.3)	30 (42.9)	61 (43.6)	
Attempts	One attempt	40 (57.1)	15 (21.4)	55 (39.3)	
	Two attempts	26 (37.1)	36 (51.4)	62 (44.3)	0.000*
	Failed	4 (5.7)	19 (27.1)	23 (16.4)	
Cannulation Time	Under 2 minutes	38 (54.3)	14 (20)	52 (37.1)	
	2-3 minutes	26 (37.1)	25 (35.7)	51 (36.4)	0.000*
	Above 3 minutes	6 (8.6)	31 (44.3)	37 (26.4)	

***p value < 0.05 – statistically significant**

Table No.2: Comparison among attempts or cannulation time with and without an LED light based on infant weight

Weight	Tasks	Groups	P Value
3.6 - 5 kg (n=35)	Attempts	One Attempt vs Two Attempts (n=34)	0.064
		One Attempt vs Failed (n=24)	0.709
		Two Attempts vs Failed (n=12)	0.909
	Cannulation Time	Under 2 min. vs 2-3 min. (n=32)	0.381
		Under 2 min. vs Above 3 min. (n=24)	0.319
		2-3 min. vs Above 3 minutes (n=14)	0.454
5.1 - 6.5 kg (n=44)	Attempts	One Attempt vs Two Attempts (n=38)	0.298
		One Attempt vs Failed (n=20)	0.080
		Two Attempts vs Failed (n=30)	0.320
	Cannulation Time	Under 2 min. vs 2-3 min. (n=31)	0.583
		Under 2 min. vs Above 3 min. (n=24)	0.041*
		2-3 min. vs Above 3 minutes (n=33)	0.086
6.6 - 8 kg (n=61)	Attempts	One Attempt vs Two Attempts (n=45)	0.003*
		One Attempt vs Failed (n=34)	0.000*
		Two Attempts vs Failed (n=43)	0.091
	Cannulation Time	Under 2 min. vs 2-3 min. (n=40)	0.017*
		Under 2 min. vs Above 3 min. (n=41)	0.000*
		2-3 min. vs Above 3 minutes (n=41)	0.036*

***p value < 0.05 – statistically significant**

DISCUSSION

Peripheral venous access is vital for administration of fluids and transfusion, medications, anesthesia and for collection of test samples.[2, 3] The major aim of securing venous access is to do it rapidly, in fewer attempts and without causing major pain to the patient. For this purpose, local anesthetics have been tried to reduce pain by applying them at the site before venipuncture. Repeated attempts and prolonged procedure time can lead to local trauma, pain and hemorrhages especially in pediatric patients. Therefore, attempts have been made to develop different systems which can help in visualizing the superficial veins and hence lead to successful venipuncture with minimal pain and trauma.[3, 9-12] Purpose of these systems is to visualize the veins directly before and during the procedure. This way, cannula can be inserted properly into the vein by directly visualizing it. There are several such systems available, for example, Accuvein® AV300, VeinViewer®, Veinsite® and VascuLuminator.[1] All these devices are based on NIR spectroscopy and they distinguish arteries from veins on the basis of different absorption patterns of oxygenated an deoxygenated blood.[13] The major disadvantage of these systems is the cost, they are costly.

LED light is a simple and cheap alternative which can be used to visualize superficial veins and help facilitate the venipuncture. Our study has shown that the success rate was quite high on first attempt in study subjects where LED light was used to facilitate venipuncture. Similarly, the failure rate was as low as 5.7% when LED light was used as an aide during venipuncture while the failure rate was quite high, 27.1%, when conventional method was used. In majority of cases, (54.3%), the procedure took less than two minutes with LED light while, 44.3%, of procedures took more than three minutes in conventional group. This means that use of LED light has not only significantly increased the success rate but also reduced the procedure time. This has clearly shown that LED light provides a better option for visualizing superficial veins of hand in newborns. This not only improves the initial success rate of the procedure and reduces procedure time but also significantly minimizes failure rate at the same time. Therefore, LED, being cheap and cost-effective, can be used in pediatric patients and provides a better alternative to more costly options like NIR based vein visualizing systems.

CONCLUSION

LED light provides an inexpensive yet very convenient and efficacious adjunct to conventional method of venipuncture in pediatric patients. This results in improved success rates and offers a cheap alternative to more expensive options available like near infrared spectroscopy, especially in developing countries.

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

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Original Article

Incidence of Post TB Bronchiectasis

Post TB Bronchiectasis

Jeando Khan Daidano, Mukhtar Ahmed Abro, Noor Nabi Siyal and Rafique Ahmed Memon

ABSTRACT

Objective: To determine the frequency of post TB bronchiectasis in the pulmonary TB treated patients at PMCH Nawabshah.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Medicine Department, PMCH Nawabshah from Jan 2016 to Dec 2016.

Materials and Methods: 100 patients were selected for this study. 100 patients were selected permission was taken from the patients; a written questionnaire was given to all patients in Urdu and Sindhi languages. Study was done according to the Questionnaire.

Results: Out of 100 patients 65 were male and 35 were females. All patients had completed anti tuberculosis therapy. Clinically wheezing and crackles were audible. Sputum was negative for AFB. -X-ray chest of pts with Bronchiectasis was clearly visible, for confirmation of Bronchiectasis CT scan chest was done.

Bronchoscopy was advised 6 patients who were resistant to antibiotic treatment.

Conclusion: Post TB Bronchiectasis is treated by antibiotics as early as possible and daily life of patient can be improved and further complications can be prevented.

Key Words: TB, Bronchiectasis, Acid fast bacilli, ATT, X-ray chest, CT Scan

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INTRODUCTION

Pulmonary tuberculosis is major health problem globally. In 2014 more than 9.6 million people were affected and 1.5 million died[1]. M. Tuberculosis is droplet infection lungs are commonly involved[2,3].

There are many complications of treated Pulmonary TB but commonly Bronchiectasis and COPD are reported[4,5].

Association of Bronchiectasis due to pulmonary TB is since the time of laenec, permanent enlargement of parts of the airways of the lung occurs in Bronchiectasis[6] symptoms include chronic productive cough, breathlessness Haemptysis, chest pain, whisiling sounds clubbing of nail and recurrence of pulmonary infections.[7-8]

Haemoptysis reported in 56% to 92% patients in Bronchiectasis. Haemptysis commonly observed in dry Bronchiectasis. Haemptysis associated with purulent sputum. For this reason patient goes to the physician. Bleeding occurs from dilated bronchial arteries which contain systemic pressure rather pulmonary pressure. Severe haemoptysis occur but not a cause of death [9,10]. Bronchiectasis is more common in females and old age. Repeated pulmonary infections and shortness of breath are markers of Bronchiectasis[11].

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Creptatics and expiratory bronchi are audible on auscultation rarely nail clubbing visible on on general physical examination [12]

Bronchiectasis is due to post TB involvement of bronchial wall and subsequent fibrosis 30%-60% is present with the active post primary form TB.

Wasting and loss of weight are reported in advanced disease. In more severe disease corpulmonale and right heart failure, edema, hepatomegaly, hypoxia and respiratory failure are observed.[13]

It can be diagnosed clinically and chest x-ray confirmed by CT Scan chest, if needed bronchoscopy is advised in sensitive cases.

Regarding treatment, general measures, smoking cessation in smokers, maintenance of nutrition. Broad-spectrum Antibiotics for controlling infection [14,15]. Amoxicillin, tetracycline, Azithromycin[16], Carithromycin[17,]

Second generation cephalosporin, floroquinolone. Dose of antibiotic daily for 7-14 days of each month, alternating antibiotics for 7-10 days, with antibiotic free period for 7-10 days, intravenous antibiotics are recommended in severe infections[18,19], Aerosolized antibiotics treating patients with infection from Pseudomonas aeuroginosa, currently tobramycin is used for Bronchiectasis. [20-21] Gentamycin[22] and colistin[23] are beneficial. postural drainage physiotherapy surgery can also be used to treat localized disease[24]

Inhaled steroids therapy is useful to decrease sputum production and dilate airway.[25] For mucus clearance flutter devices are available[26, 27].

MATERIALS AND METHODS

A cross sectional study was conducted in medicine department PMCH Nawabshah consent was taken from patients a Questionnaire was given to all patients translated in local languages Sindhi and Urdu. Data was collected according to this Questionnaire. Complete history including detailed present history, past history, treatment history, clinical examination and investigations including sputum examination, x-ray chest and CT Scan were done. This study was conducted from Jan 2016 to Dec 2016.

Inclusion criteria:

1. Completed therapy with anti TB drugs
2. Symptoms included chronic productive cough breathlessness Haemptysis, fever
3. Wheezing and creptations on auscultation
4. AFB negative sputum

Exclusion criteria:

1. Sputum positive for AFB
2. Uncooperative patient
3. Symptoms negative
4. Severe complications, collapse and fibrosis of lung

RESULTS

This study was conducted on 100 patients 65 were males 35 were females.

Married were 63 and unmarried 9 widow 20 divorce 8

Smoker were 57 and non smoker 43

Illiterate 35, primary 20, middle 15, matric 12, graduation 10, masters 8.

80 patients belong to rural areas and 20 belong to Arabian areas. Initial symptoms were cough productive in nature 87% breathlessness 93% haemoptysis 25% COPD 21% hypertension 22% type II diabetes 7% ischemic heart disease 2%

CT scan were done to confirm the Bronchiectasis.

Bronchoscopy was advised for 6 patients who were resistant to antibiotic treatment.

Most of the patients were diagnosed on x-ray 63%. 12% patients had fibrosis with bilateral lung involvement was 32%. right lung involvement was 46% and left lung was 30%

LUL involvement was 43% and right UL involvement was 39%

Table No.1: Lung involvement with percentage

Lung involvement	Percentage
Fibrosis	12%
Bil. Lung involved	32%
Right lung	46%
Left lung	30%
LUL	43%
RUL	39%
Spirometry mixed pattern	38%
Obstructive	20%
Restrictive	9%

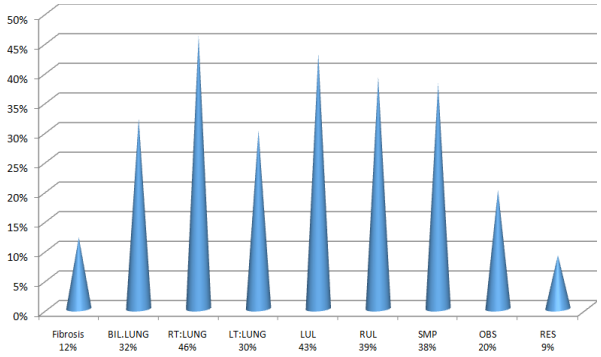

Figure No.1: Lung involvement with percentage

Table No.2: Number of patients with age.

Number of patients	Age
27	30-40 years
63	40-50 years
10	50-60

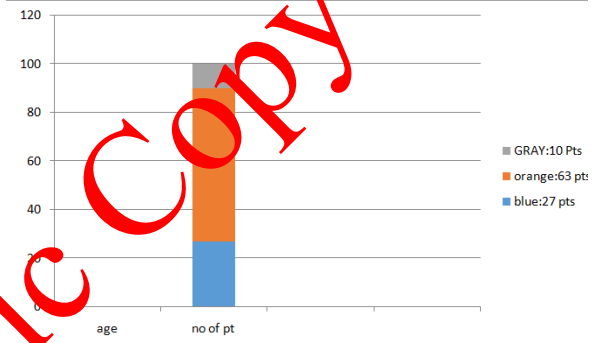

Figure No.2: Number of patients with age.

Table No.3: Ratio of smoker and non smoker among patients

No. of patients.	sex	smoker	Non smoker
17	females	positive	Negative
18	females	negative	Positive
40	males	positive	Negative
25	males	negative	Positive

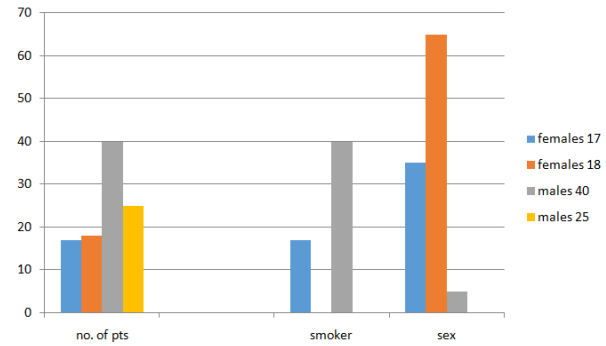

Figure No.3: Ratio of smoker and non smoker among patients

Table No.4: Marital Status

Married	63
Un married	9
Widow	20
Divorce	8

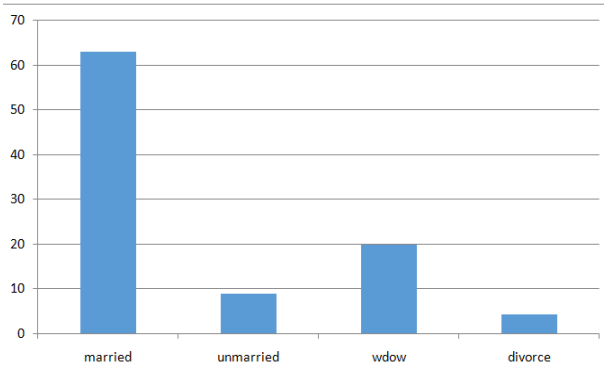

Figure No.4: Marital Status

Table No.5: Symptoms

symptoms	Percentage
Productive cough	87%
Breathlessness	93%
Haemoptysis	28%
COPD	21%
Hypertension	22%
Type 2 Diabetes mellitus	7%
Ischemic heart disease	2%

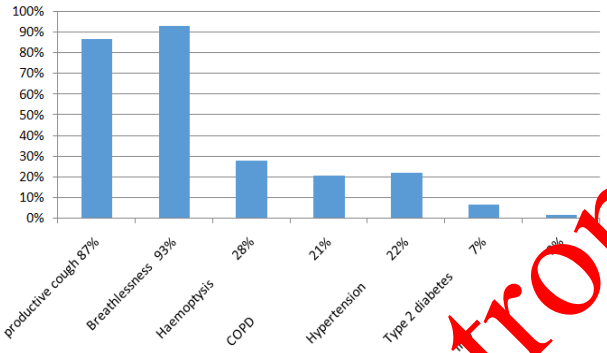

Figure No.5: Symptoms

Table No.6: Socio economical

No. of Patients	States
20	Lower
53	Lower middle
22	Middle
05	Upper middle

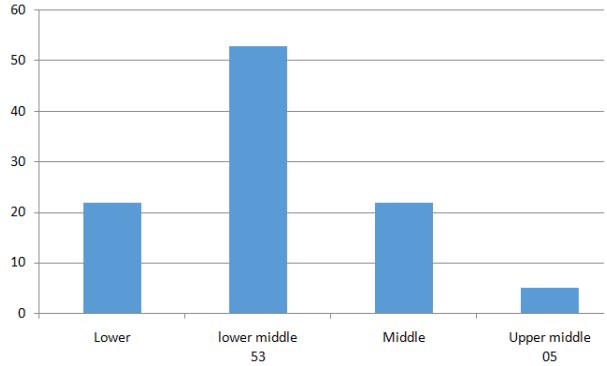

Figure No.6: Socio economical

Bilateral involvement was 32% on spirometry mixed pattern 38% cases obstructive 20 cases restrictive 9 cases. The Management maintain nutrition. Antibiotics (clarithromycin, moxifloxacin and and ceftriaxone) postural drainage.

Table No.7: Education

35	Illiterate
20	Primary
15	Middle
12	Matriculation
10	Graduation
O8	Masters

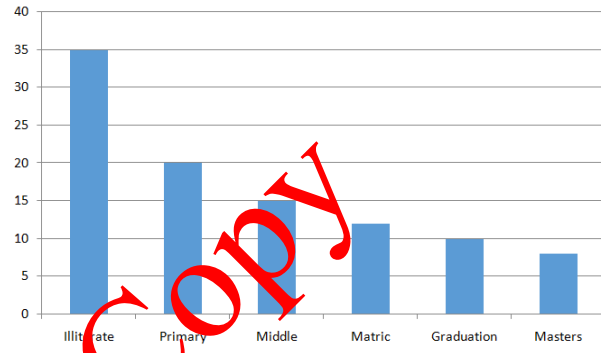

Figure No.7: Education

Table No.8: Occupation

Name of occupation	No. of pts.
Farmers	40
House wife	30
Unemployed	10
Service	3
Laborer	17

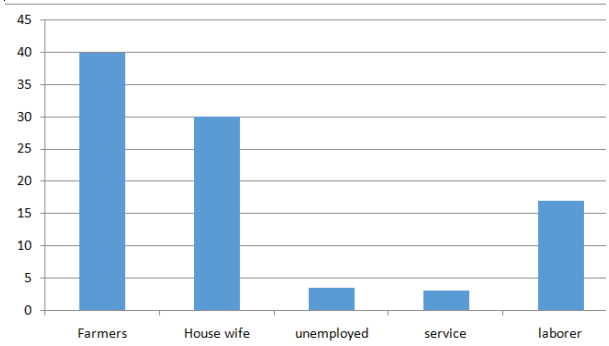

Figure No.8: Occupation

DISCUSSION

Bronchiectasis is defined as the permanent dilatation and distortion of airways. Toni jordan et al indicated that the incidence of post TB Bronchiectasis was in the range of 19%-65%. TB is the most common identified cause.[28]

Bronchiectasis can be considered as orphan lung disease. It is common in extensive pulmonary TB since

the time of osler.[29] In TB endemic countries it is observed that Bronchiectasis disease is high as 85% in TB treated patients.[30,31] For this reason non invasive test(CT Scan) is recommended.[32] In Nepal patients presented with Bronchiectasis most commonly in post TB treated patients. TB is granulomatous disease, complication can be develop even successful treatment or and off treatment occupational lung disease can play role in the development of Bronchiectasis, like coal workers mill workers farmers.

We can define Bronchiectasis as irreversible dilation of bronchi, destruction of elastic and muscular elements of bronchial walls. Secondary infection occurs commonly by staphylococci, klebsella, haemophilus influenza and pseudomonas in Bronchiectasis[33]

In Bronchiectasis there is granulomatous inflammation, caseation necrosis, scarring, peribronchial stenosis pooling of secretion.

Bronchiectasis was seen commonly in upper lobes (48%) in prospective study. According Brock et al upper lobes involvement was seen in 22% cases.[34] Middle lobe involvement was seen in 64% cases in their studies.

Smoking is aggravating factor in Bronchiectasis.

Major complications were noted pneumothorax and corpulmonale.

Similar complication were reported by Jones et al in active post TB Bronchiectasis[35]

According to Rajasekharan, et al pulmonary kocks was the main cause for destruction of lung in their studies.[36]

According to previous studies, Fungal colonization was noted in many cases.[37]

Bronchoscopy is useful in resistant cases to antibiotic treatment and postural drainage[38].

CONCLUSION

There are so many complications of untreated pulmonary TB,

Post TB Bronchiectasis is treatable disease mild Bronchiectasis with infections is treated with antiotic treatment and postural drainage. Complete treatment by DOTS in TB prevents complications and complete cure of disease. Fibre optic bronchoscopy and sputum examination are important to rule out disease severity in those patients where drug resistant is problem. Complication are increased with concomitant COPD. Only few cases needed anti TB treatment and rarely surgery. Maintenance of nutrition is necessary malnutrition was the main problem noted in this study. Proper education about disease diet and treatment is compulsory.

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

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Original Article

Dengue Outbreaks

Dengue Virus Outbreaks at a Tertiary Care Centre in Lahore

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ABSTRACT

Objective: To assess the incidence of dengue fever by anti-dengue IgM and IgG.
Study Design: Cross sectional study.
Place and Duration: This study was conducted at the Shaikh Zayed Hospital, Lahore from 5th October to 31st December 2010.
Materials and Methods: A total of 2681 persons presenting with high grade fever were brought to Sheikh Zayed Hospital. Complete blood count and anti-IgM and IgG tests were done on those patients.
Results: A total of 2681 persons presenting with high grade fever, males were 1687 and females were 994 suspected of dengue infection with ages raging from 1-85 years. Out of 2681 patients, 1075 were diagnosed as positive for infection. Primary dengue infection (IgM +ve) was 52.83%, out of which males were 62.14% and females were 37.86%, male to female ratio was 1.6:1. Secondary dengue infection (IgG +ve) was 8.74%, out of which males were 70.21%, females 29.78%, male to female ratio was 2.36:1. Co-infection (IgM+IgG +ve) were 37.48%, males were 68% and females 32% and male to female ratio was 2.2:1. Dengue infection was mostly seen in adult patients.
Conclusion: Mostly adults are affected, males twice as compared to females. At present the only method of controlling dengue fever and dengue haemorrhage fever is to combat vector e.g. mosquito by creating awareness through print and electronic media.
Key Words: Dengue virus, Primary and secondary dengue infection

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INTRODUCTION

Dengue fever and dengue hemorrhagic fever is a common public health concern in many countries all over the world.[1] According to WHO, nearly 2.5-3 million people are at risk of infection with this unique virus, which is nearly two fifth of the world population.[2] Dengue is a critical mosquito borne viral infection. It occurred sporadically till the 19th century. Recent year have seen epidemics of this arthropod born viral disease and currently it is endemic in 112 countries across the world.[3-4]

Dengue virus transmission has increased dramatically in the past two decades, making this virus one of the most significant mosquito borne pathogen.[5] There has been re-emergence of this disease in many tropical countries, including India, Bangladesh and Pakistan.[6] According to WHO, more than 100 million new cases of dengue fever occur world-wide including dengue hemorrhagic fever (500,000) cases and dengue shock syndrome with 2.5% mortality.[7-8]

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Dengue fever epidemic was first reported during 1779 in Asia, Africa, North America and its pan-endemic occurred after 2nd World War due to rapid urbanisation in South-East Asia, leading to an increase in transmission and hyperendemecity.[9-11] Global distribution of dengue fever is now compairable to Malaria and according to WHO estimates, 100 million new cases of dengue fever occur world-wide each year including a potentially lethal form of disease such as dengue hemorrhagic fever.[7,8,12] WHO classifies dengue as a major international public health concern because of the expanding geographic distribution of both the virus and its vector, increasing frequency of epidemics, co-circulation of multiple virus serotypes and occurrence of DHF and DSS in the developing areas of the world. Majority of dengue fever cases behave as self-limiting febrile illness, however, severe infection lead to potentially fatal dengue hemorrhagic fever and more severe Dengue Shock Syndrome.[13] Dengue is endemic in South-East Asia and in the Indian subcontinent and is also seen in Africa.[14] Some Asian countries e. G. Philippines, Thailand, Indonesia, Malaysia, India, Myanmar etc are dealing with this problem for the last few decades.[15]

Dengue virus constitutes the most common flavi virus infection in the world. The case fatlity rate of DHF and DSS is arround 5%.[16] Dengue is transmitted by the bite of mosquito vector Aedes Aegypti and sometime by Aedes albopictus specially in South-East Asia. Dengue virus is an arbo virus and has four serological forms (1, 2, 3, 4). Each serotype provides life long immunity and short term cross immunity. The hetro logos antibodies

from previous infection act as a non-neutralizing antibodies in any subsequent infection with a different serotype of virus, forming complexes with new infecting serotype. These complexes can cause the antibody dependent enhancement of heterotypic secondary dengue infection. The enhancement of severe disease upon secondary infection makes dengue almost unique among infectious pathogens.[17]

In Pakistan, dengue fever has been around for the past 60 years. The 1st major outbreak was in 1950 and then in 1994-95.[18] Dengue fever was also noticed in 1982 but the first documented report was in 1985.[19] Whereby dengue type 2 virus was isolated in sero-epidemiological study of encephalitis. Another outbreak was seen in 2005[20] and then in 2006.[21] In Punjab 21212 cases of dengue fever were reported in 2010-2011 and mortality was 1-5%.[22] The incubation period of dengue fever ranges between 3-15 days[10], clinical features are sudden onset of high-grade fever, chills, headache, retrobulbular pain, musculoskletal pain, relative bradycardia, lymphadonapathy prostration and depression vomiting and bleeding diathasis. WHO criteria for dengue fever is fever, headache, retro bulbular pain, body aches, vomiting and rash.

MATERIALS AND METHODS

This cross-sectional study was carried out at Shaikh Zayed Hospital, Lahore, from 5th October to 31st December 2010. A total 2681 persons presenting with high grade fever were brought to Sheikh Zayed Hospital. Complete blood count and anti-IgM and IgG tests were done on the patients. Data was analysed through SPSS-16.

RESULTS

A total of 2861 suspected cases of dengue fever patients were brought to Shaikh Zayed Hospital (male 62.92% and females 37.98%) age ranges from 1-85 years. In this study a total of 1075 patients (40.09%) were exposed to the dengue virus and confirmed by dengue specific antibodies detection test. Dengue IgM positive cases (52.35%) seen in this study, are more in age group 21-40 years while IgG positive cases were 8.74%, in 50-60 years of age. Both IgM and IgG positive (co-infection) was (37.48%) seen predominantly in males with age ranging from 41-69 years. Total cases turnout positive for dengue virus infection were 1075 (40.09%) out of which males were (63.06%) and females were (36.93%). Age ranges from 1-85 years. Highest number of patients were in 20-40 years of age (42%). Fever was the most common symptom (100%), Other symptoms were headache (90%), vomiting (56%), body aches (40%), abdominal pain (20%), and rash was in 10% of the patients. Bleeding manifestation were seen in two patients in the form of gum bleeding. Primary dengue infection was 52.83%, out of which males were 62.14% and females were 37.86%, male to female ratio was 1.6:1. Secondary dengue infection was 8.74%, out of which males were 70.21%, females 29.78%, male to female ratio was 2.36:1. Co-infection was 37.48% (both IgG + IgM^{+}), males were 68% and females 32% and male to female ratio was 2.2:1. Dengue infection was mostly seen in adult patients, twice more in males as compared to females. Almost all patients develop mild to moderate leucopenia and thrombocytopenia.

Table No.1: Gender-wise distribution of the patients (n=2681)

Gender	No.	%age
Male	1687	62.92
Female	994	37.92

Table No.2: Frequency of positive cases among genders (n=1075)

Gender	No.	%age
Male	678	63.06
Female	397	36.94

Table No.3: Distribution of positive cases in acute, chronic and co-infection cases

Gender	No.	%age
IgM +ve	**568**	**52.83**
Male	353	62.14
Female	215	37.85
IgG +ve	**94**	**8.74**
Male	66	70.21
Female	28	29.78
IgG+IgM +ve	**403**	**37.48**
Male	274	67.99
Female	129	32.0

DISCUSSION

Dengue fever is an old disease. Early recognization of clinical signs and symptoms and risk factors for dengue infection are helpful in early diagnosis of DSS is particularly important as patient may die within 12-24 hours, if early appropriate treatment is not administrated. Close monitoring of young children and elderly patients, especially in patient with nosocomal infection may lessen the case fatality. Secondary infection is also most important risk factor for DHF/DSS. Dengue virus is now endemic in Pakistan, circulating throughout the year with a peak incidence in the post-monsoon period.[21] This period of the study was from October to December with the peak level of incidences seen in the month of October. In this study majority of the patients were between 20-40 years of age, with highest number of patients between 28-30 years of age. This is comparable to study conducted in Sindh 2006, Saudi Arabia[17] and also in other studies conducted in Karachi[21] and Lahore. This is contrary to other reports which show that dengue mainly occurs in children less than fifteen years of age. It may represent

that dengue infection is asymptomatic in 80% of children. This illness is more severe and begins more suddenly in adults.

In this study dengue IgM was detected in 52.82% patients which is high as compared to previous studies 48.7%, 44.82% and 26.3%.[21] Second serum sample was not tested in undetected IgM patients because of varies reasons included financial problems, as faced by other researchers.[17] Analysis of the peak dengue cases were in the month of October ranging from October to December. This pattern is consistent with the reports from other endemic countries.

CONCLUSION

Dengue is a mosquito born viral infection which in the recent years has become a major public health problem. It is an acute febrial illness with manifestations ranging from asymptomatic to self limiting illness of short duration to grave bleeding tendencies and shock in rare occasions. The adult males are affected twice more than females. Most of the time patients recover spontaneously but the disease can be fatal especially as a secondary infection. At present the only method of controlling or preventing dengue and dengue hemorrhagic fever is to combat the vector i. e. mosquito, by creating awareness through print and electronic media.

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

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Original Article

Tracheostomy

Frequency of Complication During Percutaneous Dilatational Tracheostomy (PDT) Blind vs Bronchoscopic Guidance

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ABSTRACT

Objective: To evaluate the percutaneous dilatational tracheotomy procedure safety guided by bronchoscopy and without bronchoscopy in the ventilated critical patients.

Study Design: Descriptive study.

Place and Duration of Study: This study was conducted at the Medical ICU, Department of Pulmonary and Critical Care Medicine, Services Institute of Medical Sciences, Lahore from February, 2015 to December, 2016.

Materials and Methods: Fifty three Medical ICU patients underwent tracheostomy procedure through percutaneous dilatational using Bronchoscopic guidance and 50 tracheotomies were preformed blindly. Both type of procedures were performed at bed side using local anesthesia, sedation and systemic analgesia. Patients were monitored for intra-procedural and post-procedural complications like: hemorrhage, stomal infection, injury to adjacent structures, Paratracheal insertion, pneumothorax, sub-cutaneous emphysema, stomal infection, tracheal ring fracture and new lung infiltrate or atelectasis.

Results: A total of 53 Bronchoscopic guided and 50 blind procedures were performed**.** Intra-procedural complications were slightly higher in the blind group: Hemorrhage 3/53 (5.6%) VS 4/50 (8%). No procedure related mortality was noted in either group. Mortality due to primary causes was same (10/53 vs 9/50). Average Length of stay was higher in blind group 7 vs 8 days.

Key Words: Percutaneous dilatation tracheotomy, bronchoscopy, hemorrhage, tracheotomy

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INTRODUCTION

Tracheostomy is a well-known surgical procedure which was described earlier back in ancient Egypt.[1] In 19thcentury, it was considered among dangerous procedure and seldom performed.Jackson[2] in 1909, defined the surgical principles toperform this operation andcould able to avoid most of its(short and long term) complications[5]. Ciaglia in 1985[3], described the first percutaneous dilatational tracheostomy technique with a small skin incision and multiple dilators used over the Seldinger wire.

Percutaneous dilatational tracheostomy (PDT) is an invasive procedure in which a tracheostomy tube is placed after establishing a tracheal stoma through dilatation method, rather than the surgical dissection, cutting of trachea and placing tracheostomy tube under vision.

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Tracheostomy is commonlyperformed in the ICU settings especially in patients requiring prolong ventilation and to those who are unable to secure airways.[4]

Currently two percutaneous dilatational tracheostomy tube placement commercial kits are available:Griggs technique (Portex Ltd; Hythe Kent, United Kingdom) that used an "over the guide-wire" dilating forceps having a central opening, and the other kit which used Ciaglias method (Blue Rhino; Cook Critical Care; Bloomington. IN) that used a single curved conical dilator over the seldinger wire.[5] Both of these methods are safe, quick and simple. Most of percutaneous tracheostomies have been performed under Bronchoscopic guidance for site and successfully cannulation. But it require bronchoscopist, bronchoscopy technician along with intensivist and scrub nurse. This not only increase the cost but engage many persons and availability of team delays the procedure. Percutaneous dilatation tracheostomy have been performed blindly by many doctors including intensivist, thoracic surgeons and general surgeons showing good results in comparison with Bronchoscopic guidance.[6] We prospectively performed the percutaneous dilatational tracheostomies with and without bronchoscopic guidance in a tertiary care

hospital, among icu patients to evaluate the safety of both technique randomly.

MATERIALS AND METHODS

This prospective, randomized, comparative study that was conducted in the Medical ICU, Department of Pulmonary and Critical Care Medicine, Services Institute of Medical Sciences, Lahore, from February, 2015 to December, 2016. The study comprised of 103 icu patients who were intubated and ventilated for various indications including sepsis, tetanus, stroke, ARDS, COPD exacerbation, MOF, ACS and Post CPR vegetative states etc. All of these patients were either ventilator dependent or expected to require long term ventilatory support. Procedure was performed between 04 to 16 days of endo-tracheal intubation/ventilation. Patient with tracheal, neck and spinal abnormalities, previous tracheostomy or neck surgery, thyromegaly, soft tissue infection in the neck, severe hypoxemia, uncorrectable coagulopathy, thrombocyte count<50,000 severe hemodynamic instability or autonomic dysfunction, severe sepsis and status epilepticus were excluded.

All, 103 patients underwent tracheostomy procedure through percutaneous dilatational technique using both commercially available kits(Portex Ltd; Hythe Kent, United Kingdom, that used an "over the guidewire" dilating forceps with central opening -Griggs technique, and Blue Rhino; Bloomington, that uses a single curved, conical dilator with seldinger technique Ciaglias technique). The procedure was done at bedside in the setting of Medical ICU after obtaining an informed consent with and without bronchoscopy depending on availability of bronchoscopist. Sedation and analgesia was achieved using a bolus of both IV Nalbuphine 5-10mg or Tramadol 50-100mg andPropofol, until the adequate sedation was achieved. Atracurium 0.4 to 0.5mg/kg bolus was used as muscle paralyzing agent after adequate sedation and analgesia. Patient was kept on mechanical ventilation during the procedure using controlled mode and 100% Fio2. All patients had continuous ECG, BP, Spo2, Temperatureandend tidal carbon dioxide level (EtCo2) monitoring. Following sedation and muscle relaxation, the head was brought to extension by placing a roll pillow under the shoulders. Gastric emptying was achieved before the procedure by aspirating NG tube. Povidone-iodine was used to cleanse the region and the area was covered with perforated sheet and 2% lidocaine was used as local anesthesia. Patients were followed prospectively for complications like: hemorrhage, stomal infection, injury to adjacent structures, arrhythmias, transient hypoxemia, transient hypotension, Paratracheal insertion, pneumothorax, sub-cutaneous emphysema, loss of airway and new lung infiltrate or atelectasis.

Operative Technique: Patient was kept in supine position with neck mildly hyperextended, the local area was cleaned with alcohol followed by Povidone-iodine solution. The skin and subcutaneous planes were infiltrated with 2% Lidocaine. Simultaneously Olympus Fiberoptic Bronchoscope was inserted through ETT (#8) using "adapter for uninterrupted bronchoscopy" to avoid air leak from the circuit. After a brief endo-bronchial examination, ETT was pulled up in a fashion to keep the cuff immediately under the vocal cords. A 14-G cannula (using the commercially available, either Griggs or Ciaglias kits) was moved between the second and third tracheal rings until air was inspired and/or bronchoscopist confirmed the safe and central position of the tip of cannula inside the trachea.Tracheal space was determined through either through palpation of tracheal rings or endo-bronchially by trans-illumination of the FOB light inside the trachea.Cannula was slided over the needle further into the trachea and needle was withdrawn. After placing the guide wire in the tracheal lumen, cannula was removed. A 10mm transverseskin incision was made (5mm on each side of the tracheal puncture) and the track was dilated with 8-F dilator. Further dilatation was achieved using dilating forceps or blue Rhino dilator, depending upon the size of kit. Tracheostomy cuff was inflated after confirming the position of the tube with bronchoscopist. ETT was removed and ventilator switched to tracheostomy tube. Bronchoscopist, afterwards performed the endo-bronchial examination via tracheostomy tube to reassure the desired position of the tracheostomy tube in the trachea, to estimate the distance of the tracheostomy tube tip from the carina, and to reassure the patency of distal airways. A chest x-ray was ordered for every patient after the procedure, to rule out pneumothorax, surgical emphysema and atelectasis.

In blind technique all pre-operative measure was as above mentioned and patient was place supine with extended neck. 2nd and 3rd tracheal ring was located and needle placed in center applying negative suction. Guide was placed after free flow of air noted on suction via needle. Rest of dilation and placement of tracheostomy tube was same as mentioned above. Tube was confirmed by ambu bagging and auscultating both lungs and chest X-ray.

Data including the age, sex, cause for intubation and tracheostomy, days of intubation/ventilation, APACHE II Score, duration of procedure, lowest intraprocedural spo2, lowest intraprocedural BP, intraprocedural complications such as bleeding, loss of airway for more than 20 seconds, subcutaneous emphysema, tracheal ring fracture and paratracheal placement of the tube; postprocedural complications such as accidental decannulation, pneumothorax, hemorrhage, stomal granulation, infection of stoma or a new lung infiltrate within 48hours of tracheostomy; duration of

tracheostomy; length of ICU stay and mortality were recorded.

Complications were defined as below: Bleeding was classified to be mild (25 to 100mls), moderate (from 100 to 250mls) and severe (>250mls). A stomal infection was considered when there was afrank purulent discharge from the source with surrounding erythema of ≥1cm.

RESULTS

In our series, total 103 percutaneous dilatational tracheostomies were performed using Grigg's or Ciaglia's technique, from the period of February 2015 to December 2016.Fifty three patient had bronchoscopy guidance and was in bronchoscopy group while 50 were in blind group. Out of 53, 29 were females and 24 male patients with age ranges between 15 to 71 years while in blind group 26 were female and 24 were male. Mean age was 44±27years in bronchoscopy group and 45±20 in blind group.

Among the different indications for tracheostomy, prolonged ventilation due to reasons including tetanus, GBS, COPD, ARDS, and Myasthenia were most common 31/53(58.5%) vs 30/50 (60%)in both groups. Frequency of other indications given in table. Patients were tracheostomized on average at 10±6 days in Bronchoscopic and 11±6 in blind group.

No patient underwent a repeat tracheostomy after an elective decannulation and no patient died during the PDT due to any intraprocedural complications. A total of 10 patients (19%), out of 53 died during the ICU stay due to the original underlying disease with tracheostomy tube, and only one patient (≈2%) died after a successful decannulation, related to primary disease as well. Of the 36 patients (68%) out of 53, who survived successful decannulation, the time duration from the insertion of tracheostomy to decannulation ranged 10 to 96 days. Out of 53, six patients (11%) were directly discharged from ICU with tracheostomy in situ, for home nursing care, with or without domiciliary ventilatory support.

Among the intraprocedural complications transient hypoxemia was noted in 4/53 (7.5%) patients, transient hypotension in 3/53 (5.6%) patients and mild hemorrhage in 3/53 (5.6%) patients. There was no incidence of moderate or severe hemorrhage. Complications like loss of airway, sub-cutaneous emphysema and tracheal ring fracture were not encountered.

Table No.1: Patient's Characteristics

1.	Gender			Bronch group	Blind Group
	Male Female			24 29	24 26
2.	Age, yr, mean ±SD			44±27	45±20
3.	Indications for tracheostomy	a.	Prolonged ventilation: Tetanus ,GBS, COPD, ARDS, Myasthenia etc	31(58.5%)	29
		b.	Airway protection	3(5.6%)	3
		c.	Post CPR status/Persistent vegetative state.	5(9.4%)	5
		d.	Difficult weaning due to various reasons.	8(15%)	7
		e.	CVA/Low GCS state.	4(7.5%)	4
		f.	Sepsis/MOF/Polytrauma.	2(3.7%)	2
4.	Days of intubation prior to tracheostomy.			10 ±6	9±6
5.	Repeat tracheostomy after an elective decannulation.			0	0
6.	Mortality during the PDT procedure.			0	0
7.	Patients died with tracheostomy due to original disease.			10 (19%)	9
8.	Patients died after successful decannulation due to primary disease			1 (≈2%)	1
9.	Procedure duration, mins (time from local anesthesia till tracheostomy insertion)			9.5±4.5	6±5
10.AP	APACHE II score			19±6	18±7

Table No.2: Intraprocedural Complications

No.	Complications		Bronch group	Blind Group
1.	Transient Hypoxemia/Spo2 drop ≤ 90% for more than 2mins		4/53 (7.5%)	5/50
2.	Transient Hypotension/ BP < 90 systolic		3/53 (5.6%)	3/50
3.	Bleeding	Mild (25 to 100mls)	3/53 (5.6%)	6/50
		Moderate (100 to 250mls)	0/53	1/50
		Severe (>250mls).	0/53	0/50
4.	Loss of airway for more than 20 seconds		0/53	0/50
5.	Subcutaneous emphysema		0/53	1/50
6.	Tracheal ring fracture		0/53	0/50
7.	Paratracheal placement of the tube		1/53 (≈2%)	0/50

Table No.3: Postprocedural Complications

No.	Complications	Bronch group	Blind Group
1.	Accidental decannulation	0/53	0/50
2.	Pneumothorax	0/53	0/50
3.	Hemorrhage (Mild - 25 to 100mls)	1/53 (≈2%)	1/50
4.	Stomal granulation	0/53	0/50
5.	Stomal infection	0/53	0/50
6.	A new lung infiltrate within 48hours of tracheostomy	0/53	0/50

One case (≈2%) of paratracheal placement of tracheostomy was observed due to technical difficulty, which was corrected during the same procedure.

Postprocedural complications like accidental decannulation, pneumothorax, stomal granulation, stomal infection or new lung infiltrate with 48hours of tracheostomy were not observed in our case series. Only one case (≈2%) of mild post procedural hemorrhage was noted which was due to stomal skin bleeder. This required exploration of stoma and bleeding vessel was ligated.

DISCUSSION

PDT has several benefits over the routine surgical approach. It is simpler, quicker, less expensive and easy to perform at bedside without moving the patient outside the ICU premesis.[7] This is mostly important in cases where the patient's condition is critical, and displacing the patient from the unit is difficult and sometimes dangerous.[8]

The complications rate of ordinary surgical tracheostomy seems inordinately high in the context of being relatively simple surgical procedure.[9] Surgical tracheostomy complications rate ranges from 5 to 66% and mortality from 0 to 5% and the complications rate of procedure done in ICU are comparable to those performed in operating theater.[10] In contrast to "routine" tracheostomy, the PDT technique uses the tube of smallest possible size (and stoma) required for adequate air flow and suctioning, and moreover, this smaller size aids in minimizing the chance of hemorrhage.[11] When properly performed, the large blood vessels are avoided, and the slight ooze of blood from the small incision is tamponaded by the snug fit of the tracheostomy tube. In addition, the rate of infection is reduced, since less soft tissue is exposed for a possible contamination. One study[12] compared PDT and surgical tracheostomy and reported that PDT was more advantageous in terms of hemorrhage and complication, and so was preferred over surgical tracheostomy.

In our case series of 53 patients, in whom percutaneous dilatational tracheostomy tube was inserted, using both Grigg's and Ciaglia's methods, no procedure technique related mortality was observed. Intraprocedural complications rate was significantly low, which is comparable with internationally published data about the safety of PDT.[14,16] A single case of paratracheal placement, which was corrected during the same procedure uneventfully, was related to obesity and kinking of guide wire & guiding catheter. Transient hypotension and hypoxemia, occurring in 3 & 4 patients respectively, was related to either sedatives/muscle relaxants use or due to the preexistingcompromised respiratory status of a patient. Drug induced hypotension was controlled in successive procedures by injecting the sedatives/muscle relaxants in small & frequent boluses, and by improving the hydration status of patient before the procedure. Early tracheostomies were performed in our study especially for patients like tetanus, GBS and with low GCS state.[17,18]

We have found the PDT bedside procedure very useful and safe especially for patients in whom transportation carried more risk due to different reasons like: morbid obesity, polytrauma/axial skeleton fractures, unstable general status, difficult intubation and moderate to severe dysautonomias. Patients with minor coagulopathies, anemia or mild thrombocytopenia who had relative contraindication to blood products transfusion, e.g a patient with a recent history of transfusion related acute lung injury, were declared unfit for the procedure by surgeons and anesthetists for conventional surgical tracheostomy procedure. These patients underwent PDT without any increased incidence of intra or postprocedural complication rate emphasizing the ease and safety of the procedure. Same findings were noted by Karvandian et al[13] and Akyut S et al[14] that the complication rates of hemorrhage, pneumothorax, surgical emphysema, esophageal perforation and tracheomalacia were significantly less with percutaneous dilatational tracheostomy and was preferred for critically ill patients.

In other studies in which patients who were managed in an ICU of a tertiary care hospital[19-21] reported an overall 8.6% complication rate which included the cases of minor and major bleeding which is comparable with our case series where the overall intraprocedural complication rate was 10.7%.

CONCLUSION

In conclusion, percutaneous dilatational tracheostomy is a safe procedure with low complications rate and blindly performed tracheostomies have comparable complication rate with Bronchoscopic guided tracheostomies.

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Original Article

Bone Marrow Examination in Splenomegaly

Diagnostic Utility of Bone Marrow Examination in Patients with Splenomegaly Referred For Hematological Evaluation

Mariam Riaz[1], Iffat Naiyar[2], Uzma Faryal[3] and Madood-ul-Mannan[1]

ABSTRACT

Objective: To see the diagnostic utility of bone marrow examination in patients with splenomegaly that require hematological workup.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Pathology, Women Medical College, Abbottabad from Jan 2013 to Dec 2015.

Materials and Methods: Patients of both gender and all age groups with palpable spleen referred for hematological workup. Cases with haemolytic anemia were subjected to relevant investigations and excluded from the study. The patients underwent clinical evaluation & hematological investigations. These included peripheral blood smear, reticulocyte count, automated cell counts by cell counter and bone marrow aspiration or biopsy

Results: 80 patients were received. 47 were adults and 33 patients were of pediatric age group. In the adults anemias were seen in 38.2%, hematological malignancies in 27.6%, infective disorder in 17%, congestive splenomegaly in 10.6 % and chronic granulomatous disease in 2%.

In children, hematological evaluation revealed hematological malignancies in 33.3%, visceral leishmaniasis in 21.2%, nutritional anemias 18%, storage disorder in 9%, malarial parasite in bone marrow in 6% and congenital sideroblastic anemia in 3%. Five cases remained undetermined in both groups. Hypersplenism was observed in 21% adults and 27%pediatric patients with splenomegaly

Conclusion: Bone marrow examination is the key investigation to evaluate etiology of splenomegaly. Hematological malignancies constituted 27.6 % of the adult and 33.3% of pediatric age group patients. Hypersplenism was observed in about one fourth of patients with splenomegaly.

Key Words: Splenomegaly. Bone marrow examination. Malignancy. Hypersplenism

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INTRODUCTION

Spleen is a functionally diverse organ with active roles in immunosurveillance and hematopoiesis. The incidence and etiology of splenomegaly is strongly dependent on the geographical location.[1-2] Causes may vary with diseases prevalent in that area. The differential diagnosis of splenomegaly differs with the splenic size at presentation in addition to the age of the patient, clinical features, associated hepatomegaly and lymphadenopathy.[3]

Clinically, if a spleen is palpable it means it has undergone enlargement by at least 2 folds. The common conditions that result in splenomegaly can be divided into different diagnostic groups i.e. hematological, hepatic, infective and primary splenic conditions.[4] The differential diagnostic possibilities are much fewer when the spleen is massively enlarged. The vast majority of such patients will have hematological diseases.[5] Evaluation of etiology of splenomegaly is also stressed in developed countries as its presence may be an indicator of hematological malignancies.[6,7]

Hypersplenism may present withoutsplenomegaly and vice versa.[8]

Our study was aimed to determine hematological profile in cases of clinically palpable splenomegaly and to find out the role of bone marrow examination as a diagnostic tool in elucidating etiopathogenesis of splenomegaly and associated hypersplenism

MATERIALS AND METHODS

Present Cross sectional study of splenomegaly was conducted at Department of Pathology, Women Medical College, Abbottabad from the year Jan 2013 to Dec 2015

Inclusion criteria: Patients with clinically palpable splenomegaly referred to Pathology Dept. for hematological work up including bone marrow examination.

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Exclusion criteria: Patients with splenomegaly due to haemolytic anemia were excluded as they are readily diagnosed on clinical grounds and pertinent investigations.

The patients were evaluated clinically for grading and etiology of splenomegaly. Results of pertinent investigations mainly USG, X-ray, CT scan (if done) were noted. Laboratory investigations including peripheral blood smear, complete blood count and bone marrow examination were performed.

All peripheral blood smears were stained using leishman stain and bone marrow aspiration and imprint slides were stained using leishman-Geimsa stain. Special stains including retic stain, periodic acid schiff, leucocyte alkaline phosphatase, myeloperoxidase, reticulin stain were used if required.

The criteria to diagnose hypersplenism in patients with splenomegaly included a peripheral blood picture of anemia, neutropenia and thrombocytopenia either singly or in combination with a cellular bone marrow picture.

RESULTS

Table No. 1: **Bone marrow evaluation of splenomegaly in adults (n=47)**

Diagnosis	No. of patients	Spleen > 10 cm palpable (Massive splenomegaly)	Hyper-splenism (n=11)
Hematological Disorders	**31(65.9%)**		
Megaloblastic anemia	10(21%)	-	03
Mixed deficiency Anemia	05(10.6%)	-	01
Anemia of chronic disorder	03(6%)	-	-
Chronic myeloid leukemia	04(8.5%)	02	02
Acute myeloid Leukemia	02(4%)	-	-
Chronic lymphocytic leukemia	02(4%)	01	-
Non Hodgkin Lymphoma	03(6%)	01	01
Polycythemia vera	01(2%)	-	-
Myelofibrosis	01(2%)	01	-
Non Hematological Disorders	**14(29.7%)**	-	-
Infective disorders	08(17%)	01	01
Congestive	05(10.6%)	01	02
Tuberculosis	01(2%)	-	-
Undetermined	**02(4%)**	-	01

Eighty patients with palpable spleen below left costal margin were received from Jan 2013 to Dec 2015. Forty seven patients were adults with age range of 16 years to 70 years, median age 36 years. Male to female ratio was 2:1. Thirty seven patients were of pediatric age group with age range of 06 months to 14 years, median age 06 years. Male to female ratio was 4:1. Associated hepatomegaly was present in 15/47 (32%) adults and 16/33 (48%) children. Associated lymphadenopathy was detectable in 6/47(12%) adults and 5/33 (15%) children. All the patients underwent bone marrow aspiration. 05 cases remained undetermined.

Hematological malignancies constituted 27.6 % of the adults and 33.3% of pediatric age group that required bone marrow examination. Result of hematological evaluation in adults is shown in Table No 1 and that of children is shown in Table No 2.

Table No 2: Bone marrow evaluation of splenomegaly in children (n=33).

Diagnosis	No. of patients	Spleen > 10 cm palpable (Massive splenomegaly)	Hyper-splenism (n=09)
Hematological Disorders	**18(54.5%)**		
Megaloblastic anemia	04(12%)	-	01
Mixed deficiency Anemia	02(6%)	-	01
Congenital sideroblastic anemia	01(3%)	-	01
Acute lymphoblastic Leukemia	07(21%)	-	-
Acute myeloid leukemia	02(6%)	-	-
Hodgkin's disease	01(3%)		
Myelodysplastic syndrome	01(3%)	-	-
Non Hematological Disorders	**12(36.3%)**		-
Visceral leishmaniasis	07(21%)	03	03
Storage diseases	03(9%)	01	01
Malaria	02(6%)	-	01
Undetermined	**03(9%)**	-	01

On critical clinico-hematological evaluation it was found that element of Hypersplenism was present in 10 cases (21%) in adults and 09 cases (27%) in pediatric group.

Hematological findings in total 19 cases with hypersplenism reveal moderate to severe anemiawith Hb less than 8 gm% in 11 cases (63%). Moderate to severe leucopenia with total Leucocyte Count /cmm less than 3000 in 07 cases (31.5 %). Severe

thrombocyopenia with platelet count less than 50000/cmm.in 08 cases (42 %).Bone marrow is hypercellular in all and normocellular in 05 cases of due to infection, liver disease and leishmaniasis.

Hematological findings in cases of hypersplenism are shown in Table No 3.

Table No. 3: Hematological findings in cases of hypersplenism (n=19)

Parameter	Adults n=10	Children n=09	Total n=19
Hb (gm %)			
Normal	02	01	03
>8 to11	03	02	05
>5 to 8	03	04	07
<5	02	02	04
T L C (/cmm)			
Normal	02	03	05
>3000 to 4000	04	03	07
>2000 to 3000	02	02	04
>1000 to 2000	02	01	03
Platelet count (/cmm)			
Normal	02	01	03
>1,00,000 to 1,50,000	03	01	04
>50000 to 100,000	02	02	04
<50000	03	05	08
Bone marrow findings Cellularity			
Erythroid Series			
Normocellular	01		01
Hypercellular	09	09	18
Myeloid Series			
Normocellular	03	01	04
Hypercellular	08	07	15
Megakaryocytes			
Increased	10	09	19

DISCUSSION

Given the multitude of functions of spleen, it is not surprising that splenomegaly occurs in variety of conditions. The significance of hematological investigations in cases of splenomegaly is multidimensional. On one hand etiology of splenomegaly is elucidated and on the other hand an enlarged overworking spleen results in cytopenias which need to be investigated with hematological tests. Occurrence of multiple organ enlargement is an important feature of infections and myeloproliferative and lymphoproliferative disorders and plasma cell dyscrasia.This consideration should help in clinical decision of etiology of splenomegaly. Splenomegaly is detectable in 86% of patients with acute Lymphoblastic leukemia; associated hepatomegaly may be present in 74% and lymphadenopathy in 76% patients.[9]

In our study bone marrow examination was performed in 80 patients. It is inconclusive in five patients with moderate splenomegaly. Bone marrow examination excluded the possibility of acute leukemia, infiltrative disorders, myelofibrosis and visceral leishmeniasis in these cases. However history of malaria in the past could not be elicidated and immunological investigations for malaria were not performed. Thereby diagnosis of tropical splenomegaly could not be offered in these cases.

In the present study, hematological disorders formed the most frequent cause of splenomegaly in 66% adults and 54.5% pediatric cases. This is comparable to other studies.[10.11]

Infectious causes were reported as predominant cause of splenomegaly by Dabadghao VS and Nadeem et al.[12,13]

Malignant disorders comprised of 27.6 % adults and 33.3% pediatric patients. Agarwal et al reported malignancies in 38% cases from all age groups.[14]

Leukemias and hemolytic anemias formed an important cause of splenomegaly in pediatric age group in a study conducted at CMH, Quetta.[15] In our study Chronic myeloid leukemia is the most frequent hematological condition in adults (04 cases) and acute lymphoblastic leukemia (07 cases) in children.

The size range of splenomegaly varies with varying disease entity. In general, various chronic conditions like chronic myeloid leukaemia, myelofibrosis, chronic liver disease, leishmaniasis, and chronic malaria have moderate to massive splenomegaly, while most acute disease processes like infections, including malaria and hepatitis along with various anaemias have mild splenomegaly.[16] In present study all of the acute leukemia patients presented with mild splenomegaly while 03 patients of chronic leukemia, 01 case of myelofibrosis and 03 cases of Visceral lieshmaniasis presented with spleen palpable >10 cm.Hematological diseases had significant positive associations with massive splenomegaly, lymphadenopathy and blood cytosis in a study by Swaroop, et al.[11] Preponderance of hematological diseases in massive splenomegaly is also noted by O' Reilly R A.[17]

In the present study nutritional anemias were frequent cause of splenomegaly in adults. Anemias were observed in 29% cases by Nadeem et al.[13] In our study we found 14 cases (17%) of splenomegaly due to megaloblastic anemia in both age groups.The high occurrence of megaloblastic anaemia is attributed to dietary lack of Vitamin B12 and the presence of Helicobacter pylori in unsafe drinking water leading to atrophic gastritis

In non-hematological group, infections other than malaria and tuberculosis were found to be a causative factor in 08 cases. Enteric fever, gram negative septicemia and bacterial endocarditis are common in our setup. Majority cases of enteric fever or septicemia which had splenomegaly were diagnosed on clinical grounds and pertinent investigations. We have evaluated only those cases of splenomegaly which were

referred to us by clinicians for bone marrow examination. We found bone marrow examination helpful in diagnosis where peripheral film and blood cultures were non-diagnostic.

We have come across only two cases of malarial infection in children with a very low density parasitemia missed on peripheral blood smear and thus called for bone marrow study.

While there were 48 cases of malaria, diagnosed on peripheral smear during study period. The extensive haematological work up was done in this case and the malarial parasites were picked up in bone marrow examination.

In present study 05 patients were diagnosed with congestive splenomegaly due to liver diseases and portal hypertension. In a study conducted at Lahore, Hussain et al.found cirrhosis of liver was the commonest cause of splenomegaly (69%). Out of the non-cirrhotic causes, hematological malignancies constituted 43% that agrees to our study.[18]

Visceral leishmaniasis was reported in 21% of pediatric patients. The higher prevalence of leishmaniasis in Hazara Division Abbottabad has also been reported by Mannan M et al.[19] The disease is endemic in this area of Hazara. Splenomegaly was the most prominent and frequent sign of VL whereas it was reported in hundred percent of affected patients.[20,21]

In present series hypersplenism was found in 10 cases (21%) in adults and 09 cases (27%) in pediatric group. Hypersplenism has been reported in 20% and 28.6% casesby O'Reilly and Sundaresan et al respectively in different studies.[17,22] The splenic enlargement noted in these cases was predominantly moderate to severe. A significant association between increasing spleen size and occurrence of hypersplenism has been reported.[23,24]

Visceral lieshmaniasis was the frequent cause of hypersplenism followed by congestive splenomegaly due to liver disease in our study. Two studies on hypersplenism done in two different countries have shown that the main causes of hyperspenism were non-cirrhotic portal hypertension, visceral leishmaniasis, liver cirrhosis and Tropical splenomegaly syndrome.[22,25]

CONCLUSION

Splenomegaly is a subject of considerable clinical concern. When palpable, it may be associated with serious disorders from which no age is exempted. Bone marrow examination is the key investigation to evaluate etiology of splenomegaly. Hematological malignancies constituted 27.6 % of the adult and 33.3% of pediatric age group patients. Hypersplenism was observed in about one fourth of patients with splenomegaly.

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

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Original Article

Awareness about Diabetes

Awareness and Behavior Regarding Diabetes in Diabetic Patients and Their Glycemic Status at Tertiary Care Hospital

Muhammad Iqbal, Suhail Ahmed Almani, Shafak Nazia and Syed Jhanghir

ABSTRACT

Objective: The objective of this study was to assess the awareness and behavior regarding diabetes in diabetic patients and to know their own glycemic status.

Study Design: Descriptive / cross-sectional study

Place and Duration of Study: This study was conducted at the Medicine Ward of LUMHS, Jamshoro during 1 year from 2014-2015.

Materials and Methods: Total 200 diabetic patients were selected for study. All cases after diagnosis of diabetes were included in study after taking informed consent while all other patients who were not diabetic were excluded. All the information was recorded on self designed proforma. Patients sugar level, blood pressure and BMI was checked. They were asked questions regarding awareness and behavior of diabetes, its sign and symptoms, complications and their glycemic status etc.

Results: When questions were asked from diabetic patients regarding behavior towards their disease than 60(30%) patients said that they had not changed their lifestyle because of diabetes while 55(27.5%) responded that they change their lifestyle sometimes. Diabetes was affecting the married life of couples in 72(36%) of cases, however it is not affecting in 71(35.5%) of cases. Regarding clinical aspect of the glycemic status of the patients in present study found as; HBA1c 06.15 ± 1. 61, Random blood sugar of patients was 12[illegible]15 ± 4. 61 mg/dL.

Conclusion: It is concluded that patients showed poor knowledge regarding diabetes, and had not proper positive behavior regarding diabetes and glycemic status was not properly controlled.

Key Words: Diabetes, awareness, glycemic status

Citation of article: Iqbal M, Almani SA, Nazia S, Jhanghir S. Awareness and Behavior Regarding Diabetes in Diabetic Patients and Their Glycemic Status at Tertiary Care Hospital. Med Forum 2017;28(1):61-64.

INTRODUCTION

Type II diabetes is the commonest chronic metabolic illness linked with significant premature morbidity and mortality requiring complete diagnosis medically, proper treatment and positive lifestyle changes. Diabetes is one of the most usual disorders worldwide, the prevalence for which was estimated (globally), in 2013, 382 million people live with diabetes and this is expected to rise to 592 million by 2035. According to International Diabetes Federation, currently 6.6 million people live with diabetes in Pakistan, and in 2025 total quantity of diabetic population with diabetes is estimated to be 14.5 million; Pakistan has the eleventh largest population of diabetes[1]. Research has demonstrated that enhanced glycemic control diminishes the complication rate due to DM. Confirm recommends that patients who are more aware regarding diabetes self-care might probably accomplish better glycemic control.

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Though education of diabetic patients essential diabetes control component, there remain instabilities with respect to the adequacy of various strategies and methods of training.[2] A review from Pakistan highlighted the way that an appropriate educational and awareness programs may change the behavior of general population about diabetes,[3] as the big gap amongst attitude and awareness among the diabetic patients.[4] Diabetes mellitus is associated with significant rates of morbidity and mortality due to micro and macro vascular complications[5]. As a result of associated complications, diabetes intensifies the economic burdens both on Health departments and patient itself in non-developed countries like Pakistan. Patient awareness about diabetes, complications, medications adherence, diet plans and life style modifications can establish patient specific goals, like effectiveness of medications.

It is confirm that appropriate educational and awareness programs can changes the attitude of the masses in regards to diabetes while tolerant instruction is the foundation to reduce diabetic complication and its treatment. Other than appropriate awareness and education, early diagnosis and good care can decrease the severity and complications of diabetes.[6] The aim behind this review was to evaluate the awareness and behavior of diabetic patients regarding diabetes and to

knew their own glycemic status at tertiary care hospital.

MATERIALS AND METHODS

This was a descriptive cross-sectional study and was carried out at medicine department and OPD of Liaquat University Hospital Hyderabad, within 1 year of duration from April 2014 to March 2015 on the known diabetic patients. Total 200 diabetic patients were included in the study. All the patients who were diagnosed as diabetics were included in the study after taking informed consent while all other patients who were not diabetic were excluded from the study. All the information was recorded on self-designed proforma. Patient's glycemic status, blood pressure and BMI were noted. A proforma was established and questions were included regarding awareness of diabetes, behavior to the diabetes and glycemic status etc. All the information was entered in the designed proforma and was analyzed in SPSS version 18.

RESULTS

Total 200 patients were included in the study. In this study, 67(33.5%) patients belonged to age group of <30 years, 89(44.5%) belonged to age group of 30-40 years and 44(22.0%) patients were in age group of >40 years.Table:1

56(28%) patients were illiterate, 61(30.5%) had received primary education, while 24(12%) were graduate. 67(33.5%) patients belonged to low socioeconomic class while 71(35.5%) belonged to middle class and 62(31%) belonged to upper class Table:1

When questions were asked from diabetic patients regarding behavior towards their disease than 60(30.0%) patients said that they had not changed their lifestyle because of diabetes while 55(27.5%) responded that they change their lifestyle sometimes. 65(32.5%) patients find it difficult to discuss about their disease with their family so they never discuss about their disease while 60(30.0%) patients discuss sometimes and 75(37.5%) patients always share with family, friends and coworkers. Diabetes was affecting the daily performance at workplace in 83(41.5%) patients while it affects sometimes in 69(34.5%) and it never affects performance in 48(24.0%) patients. Diabetes was affecting the married life of couples in 72(36.0%) of cases, however it is not affecting in 71(35.5%) of cases. due to diabetes , patients suffered from depression in 76(38.0%) patients while 55(27.5%) patients had never developed depression. 67(33.5%) patients always scared because of diabetes while 61(31.5%) patients never scared.Table:2

68(34%) patients knew about correct method of diagnosing diabetes while only 71(35.5%) patients knew that high blood pressure can worsen the diabetes. Only 65(32.5%) patients knew that after diabetes, patient needs life style modification. 121(60.5%) patients knew what is diabetes but only 58(29%) answered correctly about sign and symptoms of diabetes. 61(31.5%) patients knew about complications of diabetes. 159(79.5%) patients were un aware about etiology of diabetes and 158(79%) patients did not knew that regular exercise is helpful in diabetic patients. Table:3

Regarding clinical aspect of the glycemic status of the patients in present study found as; HBA1c 06.15 ± 1. 61, Random blood sugar of patients was 129.15 ± 4. 61 mg/dL. BMI was found to be 32.24 ± 4.13Kg/m2 while systolic BP was 139 ± 4.43 mmHg and diastolic BP was 87 ±4.31 mmHg. Table:4

Table No.1: Demographic characteristics of the patients (N=200)

Characteristics	Frequency/(%)
Age groups	
< 30 year	67(33.5%)
30-40 year	89(44.5%)
>40 year	44(22.0%)
Educational Status	
Illiterate	56(28.0%)
Primary	61(30.5%)
Secondary	59(29.5%)
Graduate	24(12.0%)
Socioeconomic Status	
Low Sec	67(33.5%)
Middle class	71(35.5%)
Upper class	62(31.0%)

Table No.2: patients behavior towards their Disease n=200

Behavior	Never	Sometimes	Always
Has your lifestyle changed because of diabetes?	60 (30.0%)	55 (27.5%)	85(42.5%)
Do you find it difficult to discuss about diabetes with your family, friends and co-workers?	65 (32.5%)	60(30.0%)	75(37.5%)
Has diabetes affected your Performance at your workplace?	48(24.0%)	69(34.5%)	83(41.5%)
Does diabetes have an adverse effect on your married life?	71(35.5%)	57(28.5%)	72(36.0%)
Have you ever gone through depression ever since you were diagnosed diabetic	55(27.5%)	69(34.5%)	76(38.0%)
Are you scared from diabetes?	61(31.5%)	72(36.0%)	67(33.5%)
Does your employer/co-workers see you as a liability?	63(31.5%)	68(34.0%)	69(34.5%)

Table No.3: Awareness about diabetes n=200

Questions	Yes	No
Do you know about accurate method of monitoring diabetes?	68(34%)	132(66%)
In a diabetic patient, high blood pressure can increase or worsen?	71(35.5%)	129(64.5%)
Lifestyle modification is needed for diabetic patients?	65(32.5%)	135(67.5%)
What is diabetes?	121(60.5%)	79(39.5%)
Do you know about sign and symptoms?	58(29.0%)	142(71.0%)
Do you know about dietary management?	61(31.5%)	139(69.5%)
Do you know about diabetic complications?	55(27.5%)	195(97.5%)
Do you know about diabetic etiology?	41(20.5%)	159(79.5%)
Do you know regular exercise is very important during diabetes?	42(21.0%)	158(79.0%)

Table No.4. Clinical aspects of diabetic patients n=200

Clinical Aspects	Mean ± SD
HBA1c	06.15 ± 1. 61 mg/dL
FBS	108.24 ± 4.13 mg/dL
Random Blood glucose level	129.15 ± 4. 61 mg/dL
BMI	32.24 ± 4.13Kg/m^2
systolic BP	139 ± 4.43 mmHg
diastolic BP	87 ±4.31 mmHg

DISCUSSION

Diabetes type II is preventable disease by making positive behavior and proper exercise activities. Awareness methods can be used to improve the outcomes of diabetes.[7] In our study 30% patients said that they had not changed their lifestyle because of diabetes while 27.5% responded that they change their lifestyle sometimes. 32.5% patients find it difficult to discuss about their disease with their family so they never discuss about their disease while 30% patients discuss sometimes and 37.5% patients always share with family, friends and co-workers. Diabetes was affecting the daily performance at workplace in 41.5% patients while it affects sometimes in 34% and it never affects performance in 24% patients. Diabetes was affecting the married life of couples in 36% of cases, however it is not affecting in(35.5% of cases . due to diabetes , patients suffered from depression in 38% patients while 27,5% patients had never developed depression. 33.5% patients always scared because of diabetes while 31.5% patients never scared.

Similar results are seen in the study conducted by Javeed A [8]. (author) in which 25% patients never changed their life style, 25% patients never discuss their disease with their friends or family members and only 30% patients share their disease with their family members. In 15% of patients diabetes affected their performance at workplace while in 40 % patients it was not affecting their performance. 27.5% patients had always depression due to diabetes. The greater part of the general population who create diabetes in the creating nation have a place with working age groups in this way inter association of illness influencing their work and work influencing the illness consequently is a critical aspect for them.[9] There is proof of the negative effect of diabetes on the capacity to work, subsequently making an expansion in prevalence for society.[10] It is demonstrated that there is a relationship amongst depression and the occurrence of diabetes type II with an inconsequential association amongst diabetes and risk for depression.[11] It has additionally been demonstrated that there is an expanded risk of having another depressive assault in individuals with DM when contrasted with normal cases and this risk of depressive may increase for those cases having complicated diabetes.[12] Though the risk of psychosocial stress is more common in patients with DM.[13] In our study, 34% patients knew about correct method of diagnosing diabetes. Only 32.5% patients knew that after diabetes, patient needs life style modification. 60.5% patients knew what is diabetes but only 29% answered correctly about sign and symptoms of diabetes. 31.5% patients knew about complications of diabetes. Pardhan et al.[18] demonstrated that a significant little knowledge regarding DM and its complications, to prevent its complications and appropriate dietary practices optimal diabetes management are needed and patient's awareness and good behavior may decrease the burden diabetic complications.

In this study 79.5% patients were unaware about etiology of diabetes and 79% patients did not knew that regular exercise is helpful in diabetic patients. Similar results are seen in the study conducted by Upadhyay DK et al,[14] whose results also showed that only 58.24% patients were aware about accurate method of controlling of diabetes and only 25.82% patient knew that life style modification is necessary after diabetes while very few patients i.e. 8.79% patients had knowledge that exercise is helpful in diabetic patients. Another study conducted by Rehman U had similar results.[15]

Regarding clinical aspect of diabetic patients in present study was, mean random blood sugar of patients was 129.15 ± 4. 61 mg/dL which was higher than normal range. And mean of HBA1c level was 06.15 ± 1. 61 mg/dL. Similar results are seen in the study conducted by Rajul D et al.[16] whose results showed that mean RBS was 126.12±3.57 mg/dL, mean BMI was

30.49±5.23 kg/m2, mean systolic BP was 143±5.58 mmHg and mean diastolic BP was 89±5.13mmHg. For the management of diabetes, patients need positive change in their behavior along with proper medication medications. Majority of the diabetic patients preferred fast food, soft drinks, and mayonnaise as they considered them healthy food. Such eating preferences result in the development of obesity among patients and evidence suggests that prevention intake of fat and the sugar to prevent the obesity,[17] which can lead diabetic complication.

CONCLUSION

It is concluded that patients showed poor knowledge regarding diabetes, and had not proper positive behavior regarding and glycemic status was not properly controlled. Awareness program should be performed regarding diabetes, and diabetic control clinics should be developed in all general populations' areas.

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

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Original Article

Role of Folic Acid Supplement in Reduction of Methotrexate's Side Effects in Treatment of Plaque Psoriasis

Side Effects of Methotrexate

Muhammad Yasir Qureshi[1], Naheed Memon[2] and Ramesh Kumar Suthar[3]

ABSTRACT

Objective: To determine the role of folic acid (FA) supplement in reduction of methotrexate's side effects in treatment of plaque psoriasis.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Dermatology at Liaquat University Hospital Hyderabad from January to June 2016.

Materials and Methods: Cases>18 years age, and diagnoses withchronic plaque psoriasis ofsevere-to-moderate intensity were selected in the study after clinical examination. Each of the patients underwent oral methotrexate treatment along with folic supplementation. Cases were divided in two groups according to folic supplementation as 5mg and 10mg FA, and side effects of methotrexate were noted in both groups. All the information was recorded in the proforma.

Results: Mean age of the patients in this study was 44.34+3.14 years. Male were found in the majority 69.10%. In this study cases were divided in two groups according to folic acid supplementation, 41.80% cases were on 5mg, and 58.20% cases were on 10mg folic acid out of 55 patents. Side effects were noted in 40 cases out of 55,6 patients were not come for follow-up and 9 cases were without complains of side effects. Side effects were note as; uneasiness, loss of appetite, nausea and vomiting, fatigue, dizziness and others with percentage of 28(70.0%), 31(77.5%), 18(45.0%), 31(77.5%), 27(67.5%) and 20(50.0%) respectively. As well as reduction of the side effects were found in cases under supplement of 10mg folic acid as compare to 5mg, while no significant difference was found, P-value 0.09.

Conclusion: It is concluded that side effects of Methotrexate were decreased due to folic acid supplement but not significant.

Key Word: Plaque psoriasis, Methotrexate, folic acid.

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INTRODUCTION

Psoriasis is primarily ask in inflammatory problem with reactive irregular epidermal discrepancy as well as hyper proliferation prevalent 2.3 % peoples worldwide.[1] Pathophysiology of disorder includes mostly the stimulation of migration of T cells towards dermis triggering the cytokines release (specifically TNF-α, tumor necrotic factor) which causes inflammation as well as quick formation of skin cells.[1]

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Incidence of psoriasis within 7500,000cases which were enrolled to a general medical practitioner in UK remained 1.5%[2]. In a research carried out in America through national psoriasis established an incidence of 2.1% in adults, as well as survey established that 25% peoples had psoriasis and possibly graded as moderate to severe psoriasis[3]. Almost1/3rd of peoples had psoriasis family history, and investigators have detected genetic loci correlated with the disorder.[4]

Methotrexate is the effective therapy choice for cases suffering from moderate-to-severe of psoriasis. As psoriasis is an incurable disease, the target of the Methotrexate therapy is the suppression of psoriasis, accomplishing lasting diminutions with least therapeutic side effects.[4] Methotrexate is a well proven, time tested drug applied for severe psoriasis. Its application yet comprising low dose, once per week plan for psoriasis is frequently correlated with unfavorable side effects; particularly substantial, are side effects concerning gastrointestinal functions observed in up to 30% cases.[5] The process by which methotrexate treatment with low dose instigates these symptoms hasn't been entirely explained. The therapy option for such adverse effects as well stayvague.

Supplementation with folate either folic acid (FA) or folic acid can possibly lessen side effects form ethotrexate treatment. There are no consistent, evidence-based guidelines for folate supplementation in this clinical setting. Data concerning the impact of folic supplementation on the safety and efficacy of MTX therapy for psoriasis has been done.[6] Therefore currant study was performed to evaluating the reduction in side effects by folic supplementation in patients with psoriasis treated by methotrexate.

MATERIALS AND METHODS

Currant cross sectional case series study was conducted in department of dermatology at Liaquat university hospital Hyderabad. Study duration was 6 months through January to June 2016.Every case with >18 years age, both the genders, having chronic plaque psoriasis with moderate – severe condition and had not previously been provided methotrexate treatment, were selected for currant study. Cases were underwent complete clinical examination &medical history. Each patient having severe comorbidities history for example cerebral, or neurologic disorder, DM, liver disease; anemia, serologic positive test in terms of HBV or HCV, CVD, cancer, pulmonary disease, thrombocytopenia, leukemia, hematological disorders, and hypertension were not selected for study. Diseased women was also not included such as: breast-feeding, on contraceptive therapy. All the selected caes underwent oral methotrexate treatment, and further these cases were divided in two groups according to folic acid supplement 5mg and 10 mg. Overall data was recorded through a pre-intended proforma for each diseased personas well as included demographic profile (age &gender), duration of disorder in addition to side effects of treatment. Medical history per week, routine skin and laboratory examination were held to perceive the side effects of methotrexate. Data was analyzed in SPSS version 16.0.

RESULTS

The current study contributingpatients mean age as 44.34+3.14 years, with range of 18 to 76 years. Table:1
Men were observedto be in majority 69.10% ascontrasted to women 30.90 %. Fig: 1
In this study cases were divided in two groups according to folic acid supplementation, 41.80% cases were on 5mg, and 58.20% cases were on 10mg folic acid out of 55 patents. Fig:2.
In present study side effects were noted in 40 cases out of 55,6 patients were not come for follow-up and 9 cases were without complains of side effects. Side effects were noted as uneasiness, loss of appetite, nausea and vomiting, fatigue, dizziness and others with percentage of 28(70.0%), 31(77.5%), 18(45.0%), 31(77.5%), 27(67.5%) and 20(50.0%) respectively. As well as reduction of the side effects were found in cases under supplement 10mg folic acid as compare to 5mg, while no significant difference was found, P-value 0.09.Table:2.

Table No.1: Cases distribution according to age n=55

Mean	44.34 years
Std. Deviation	4.64 years
Minimum	18.00 years
Maximum	76.00 years

Table No. 2: Side effects comparison according to folic acid supplement=40

	FA 5mg n=19	FA 10mg n=21	Total n=40	**P-value**
Uneasiness	15	13	28(70.0%)	
Loss of appetite	16	15	31(77.5%)	0.09
Nausea and vomiting	12	08	20(50.0%)	
Fatigue	17	14	31(77.5%)	
Dizziness	14	13	27(67.5%)	
Other	10	08	18(45.0%)	

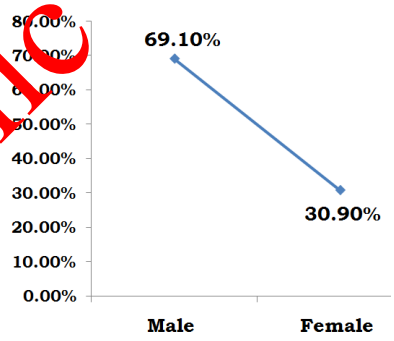

Figure No.1: Cases distribution according to gender n=55

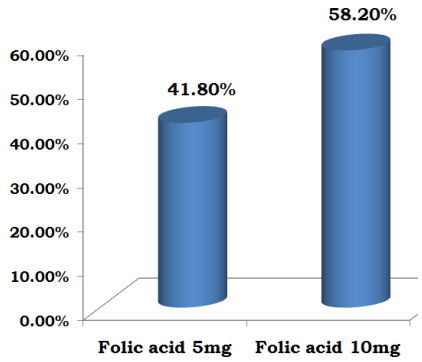

Figure No.2: Cases distribution according to Folic acid supplement n=55

DISCUSSION

Methotrexate as foliate antagonist is an established treatment for inflammatory &autoimmune situation.[7] In

certain cases, methotrexate is correlated with substantial toxicity & side effects.[7] We found mean age of the patients in this study 44.34+3.14 years, with range of 18 to 76 years. Similarly Chládek J et al[8] reported that mean 45.6 years, with range of 37–59 years. Likewise Karn D et al[9] demonstrated that most of cases 31.25% were with age group of 40 &49 years, and> 80% patients had infected in the age of 49 years. Haider S et al[10] reported that mean age 40.0±12.6 years and male gender was most common 45(61.6%) and 28 (38.4%) female. As well in this study male were found in the majority 69.10% as compare to females 30.90 %.

In our study side effects were noted in 40 cases out of 55,because 6 patients were not come for follow-up and 9patients were without complains of side effects. Side effects were noted as uneasiness, loss of appetite, nausea and vomiting, fatigue, dizziness and others with percentage of 28(70.0%), 31(77.5%), 18(45.0%), 31(77.5%), 27(67.5%) and 20(50.0%) respectively. Duhraet al[11] found similar results, they were capable of using methotrexate without gastrointestinal problems. It is as well tricky to explain that how non-gastrointestinal side effects can be dealt with supplementation of folic acid. A folic acid dosage of l0mg /day did not cooperation methotrexate's efficacy. These findings are in accordance with the findings of the other controlled studies.[12] In many other studies it is reported that the MTX application is interruption due to intolerance "fatigue, diarrhea, nausea, and headache" as well as organ toxicity (bone-marrow suppression, hepatotoxicity, pulmonary fibrosis). Furthermore, the antipsoriatic outcome intensity varies among individuals because of numerous factors comprising a huge inter-patient inconsistency in MTX pharmacokinetics.[7,13,14]

In this study reduction in side effects were found in cases underwent supplement 10mg folic acid as compare to 5mg, while no significant difference was found, P-value 0.09. This may due to short sample size as well as short period of study. Similarly in the findings of Salim A et al[15] concluded that due to small sample size and little time duration, cannot reported accurately the FA may decrease side effects of methotrexate. While Strober BE et al[10] stated that supplements of folate in casesmanaged with methotrexate drops the prevalence of gastrointestinal intolerance & hepatotoxicity without impaired methotrexate efficacy. Chládek J et al[8] reported that antipsoriatic effect of the methotrexate treatment can influenced through FA and can reduced with its combined therapy. This supports that the methotrexate may precede the beneficial effects in psoriasis through mechanism except dihydrofolate reductase. Neutrophil chemotaxis is inhibited by Methotrexate,[16] and effectsthe. Activity/production of interleukin 1 & 2, leucotriene B4, T8 - positive cells and natural killer cells.[5] Though insolvent of methotrexate on these controlling side effects independently in psoriasis is not clear till now.[5]

CONCLUSION

It is concluded that side effects of Methotrexate were decreased due to folic acid supplement but not significant. More big sample size studies are required to achieved the more accurate findings. Additionally folic acid should be advised with methotrexate treatmentin the much better way.

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

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Original Article

Serum Ferritin in Helicobacter Pylori Infected Young Adult Female

Inayatullah Memon

ABSTRACT

Objective: To determine serum iron (Fe++), serum ferritin and total iron binding capacity (TIBC) in Helicobacter pylori (H. pylori) infected young adult female.
Study Design: Case control study
Place and Duration of Study: This study was conducted at the Department of Pathology, Indus Medical College Tando Muhammad Khan from September 2015- August 2016.
Materials and Methods: A sample of 50 healthy controls and 50 H pylori positive female was studied. 5 ml of venous blood was collected after aseptic measures from ante cubital vein. 2 ml was shifted to EDTA mixed tubes for blood cell counts, and 3 ml was centrifuged at 3000 x rpm for ten minutes. Sera were separated to estimate serum iron profile. Helicobacter pylori stool specific antigen (HpSA) was detected by Elisa assay kit (Fortess). SPSS 22.0 (USA) was used for data analysis at 95% CI ($P \leq 0.05$).
Results: The hemoglobin (Hb), hematocrit (Hct), RBC counts, serum Fe++, and serum ferritin were decreased with raised TIBC in H.pylori infected female ($P<0.05$). Serum ferritin in controls and cases (H.pylori +ve) was noted as 140.8 ± 20.09 and 126.5 ± 35.02 ng/dl respectively ($P=0.014$).
Conclusion: The present study reports low serum iron, low serum ferritin and low hemoglobin and raised total iron binding capacity in Helicobacter pylori infected young adult female.
Key Words: Helicobacter pylori, Serum iron, Serum ferritin, Young female

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INTRODUCTION

Helicobacter pylori (H. pylori) are microaerophilic, Gram-negative bacteria. H. pylori infect >50% of the World population and has proved a notorious pathogen. H. pylori are capable of survival in acid pH of stomach.[1] Mode of transmission of H.pylori is by oral route. Transmission occurs with families and community.[2] Over 80% of H.pylori infected subjects are asymptomatic and remaining complains of symptoms suggestive of acute and chronic gastritis, pangastritis, peptic ulceration and risk of developing gastric cancer.[3] H. pylori survive in the acidic environment by ammonia production by Urease enzyme.[4] H.pylori colonizes the mucosa cells and resides in superficial layers but may invade and enter into mucosal epithelial cells.[5] H.pylori persists for long durations and elicits host immune responses.[6] H.pylori induces autoimmune phenomena against the parietal cells of the stomach thus impair the hydrochloric acid secreting capacity.

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Lack of acid impairs the digestion of food in the stomach. Iron needs presence of acid for becoming soluble from ferric to ferrous form which is absorbed easily, thus its absorption is impaired resulting in iron deficiency.[7] Previous studies suggest link of H.pylori and iron deficiency anemia with low serum ferritin levels.[8] Eradication of H. pylori was reported to improve the total blood iron profile in children and adults.[9] Mechanism of how H.pylori causes iron deficiency anemia is not well established.[10] One suggested mechanisms is alteration of intra-gastric pH which impairs iron absorption. Other possibilities include defects in the expression of iron transporters, and iron consumption by H. pylori itself.[11] Another previous study reported the H.pylori interferes with iron chelation from lactoferrin. H.pylori expresses lactoferrin binding protein which helps in iron chelation resulting in iron deficiency anemia.[12] Ferritin is iron binding storage and transport protein. H.pylori takes up iron form circulating ferritin necessary for bacterial growth.[13] As the H.pylori is prevalent in the country, it needs more studies on the iron deficiency anemia and its effect on serum ferritin levels. In this context, the present study was conducted to determine serum Fe++, total iron binding capacity (TIBC) and serum ferritin levels in H.pylori infected young adult female reporting at our tertiary care hospital presenting with the symptoms of dyspepsia.

MATERIALS AND METHODS

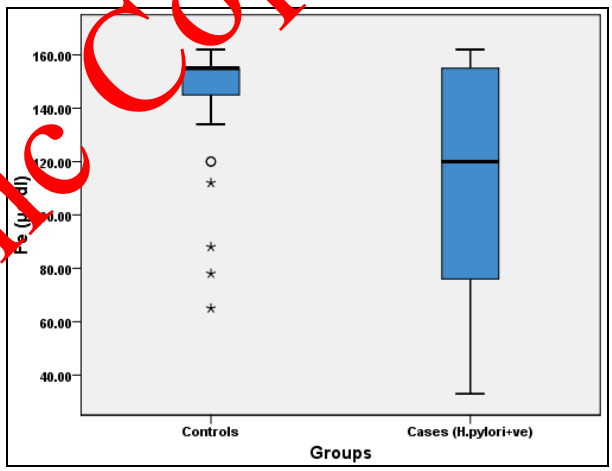
The study was carried out in the Department of Pathology, subjects of present case control study were selected from the indoor patients admitted in the medical wards of Indus Medical College Tando Muhammad Khan, from September 2015- August 2016. Prior permission was taken from the ethical review committee of the institute. Fifty controls and fifty cases (H.pylori positive) were selected for study. Study subjects were age matched, selected through non-probability (purposive) sampling. Inclusion and exclusion criteria were exercised. Adult female complaining of Epigastric complaints and dyspepsia and H.pylori positive of young age was the inclusion criteria. All volunteers were examined by female medical officer followed by a consultant physician. Volunteers were asked for blood sampling. 5 ml of venous blood was collected after aseptic measures from ante cubital vein. 2 ml was shifted to EDTA mixed tubes for hemoglobin, hematocrit and blood cell counts, and 3 ml was centrifuged at 3000 x rpm for ten minutes. Sera were separated to estimate serum ferritin, serum iron and total iron binding capacity (TIBC). Helicobacter pylori stool specific antigen (HpSA) was detected by Elisa assay kit (Fortess). Immulite immunoassay kit (Chemiluminnescent system, UK) was used for serum ferritin detection. Reference range of serum ferritin was 5- 148 ng/ml for females. A young pregnant female taking multi vitamin and multi mineral pill was strict exclusion criterion. Female suffering from major systemic diseases was excluded. Female facilitators were appointed for complying with the study protocol. Cobas e 411 analyzer (Roche Diagnosis GmbH, Mannheim, Germany) was used for biochemistry analysis. A pre-designed pre structured proforma was used for data collection. Written informed consent was mandatory for study protocol. SPSS 22.0 (USA) was used for data analysis. Independent sample Student's t-test was used for comparison between groups for continuous variables. Confidence interval was defined significant at 95% ($P \leq 0.05$). Results were presented as mean ± standard deviation (SD) and graphs.

RESULTS

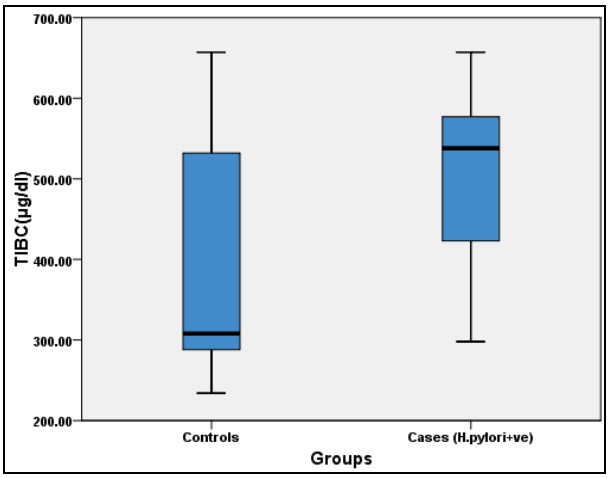
The present study included 100 normal healthy adult aged matched female. Table 1 shows the age distribution, hemoglobin (Hb), hematocrit (Hct), RBC counts, serum Fe++, TIBC and serum ferritin levels in controls and cases. The Hb, Hct, RBC counts, serum Fe++, TIBC and serum ferritin levels were decreased in H.pylori infected female compared to controls. Serum ferritin in controls and cases (H.pylori +ve) was noted as 140.8 ± 20.09 and 126.5 ± 35.02 ng/dl respectively (P=0.014). Box plot graph 1-3 show the serum Fe++, serum TIBC and serum ferritin levels in controls and cases (P<0.05).

Table No.1: Clinicopathological findings in study population (n=100)

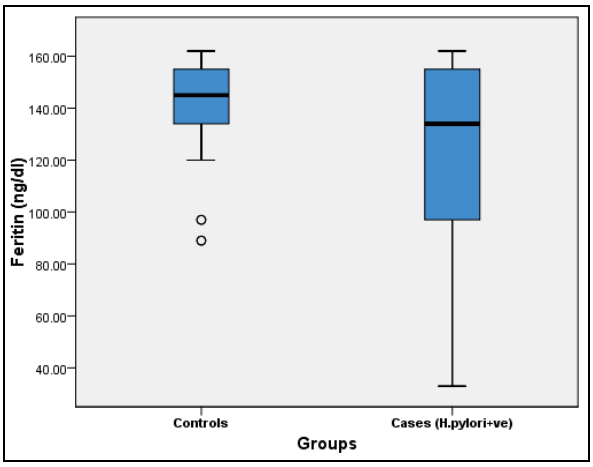
	Groups	Mean	SD	P-value
Age (years)	Controls	35.48	8.83	
	Cases	33.30	3.97	0.15
Hemoglobin (g/dl)	Controls	13.15	2.50	
	Cases	12.51	3.82	0.039
Hematocrit (Hct.) (%)	Controls	41.92	5.29	
	Cases	39.16	8.19	0.048
Red Blood Cell (106/µL)	Controls	4.25	0.22	
	Cases	3.95	0.53	0.0001
Serum Fe++ (µg/dl)	Controls	152.72	6.11	
	Cases	116.92	42.39	0.0001
TIBC (µg/dl)	Controls	394.34	137.20	
	Cases	321.36	108.95	0.0001
Serum Ferritin (ng/dl)	Controls	140.80	20.09	
	Cases	126.55	35.02	0.014



Graph No.1: Serum iron levels in controls and cases



Graph No.2. Serum TIBC levels in controls and cases



Graph No.3. Serum ferritin levels in controls and cases

DISCUSSION

The present is the first study being reported on the serum ferritin in Helicobacter pylori (H. pylori) infected young adult female from our tertiary care hospital. H. pylori are considered a risk factor of iron deficiency and low serum ferritin.[14] H. pylori now infect 50% population of World and are prevalent in the Pakistan and similarly the iron deficiency is very common in developing countries.[15] The present study reports low Hb, Hct, RBC counts, serum Fe++, serum TIBC and serum ferritin levels in H.pylori infected female compared to controls (P=0.014). The findings of present study are in agreement with previous studies.[16,17] H. pylori stool specific antigen indicates the study subjects were suffering from active infection, this adds to the strength of present study. Previous studies[18,19] from developing countries have reported iron deficiency in H. pylori infected subjects; the findings support the present study. H. pylori infection is prevalent in developing countries, the reasons include poor sanitary conditions, poverty related problems, poor contaminated nutrition and life style habits. A previous review has indicated high prevalence of H. pylori infection from different Gulf countries. Studies from various countries reported high prevalence of H. pylori infection in developing countries.[20] The serum ferritin is major storage protein, also circulating in the body fluids, was found low in H. pylori infected young adult female in the present study. Serum ferritin is marker of iron status of body.[21] Concomitant inflammation is reported to affect the serum ferritin. In severe inflammatory conditions the serum ferritin, being an acute phase protein, is elevated may be >50 ng/mL.[22] In present study, the serum Fe++, serum TIBC and serum ferritin levels were found decreased in H.pylori infected female, this occurs due to the disturbed gastric pH and hypochlorhydria resulting in defective iron absorption. Gastric atrophy and parietal cell damage induced by H.pylori add to the problem of iron deficiency.[23] Serum ferritin was found significantly low in H.pylori infected young adult female, which is in agreement with previous studies.[16,17] However, a few studies[24,25] reported no such association of low serum ferritin and H.pylori; these conflicting results are most probably due to different demographics, dietary habits, and research bias. The findings of low serum ferritin in H.pylori infected cases are in agreement with previous studies.[16-20] The findings point towards the positive association of H.pylori infectivity and iron mal absorption in the present study. The major limitations of the present research study are; a small sample size and a particular ethnic group, hence the findings cannot be generalized to other settings. Also the inflammatory markers were not analyzed, but this was because of inclusion of young adult healthy study population. The strength of present study lies in its; first- young adult healthy female, 2nd – case control design, and 3rd – the H.pylori stool specific antigen was evaluated. The H.pylori stool specific antigen is a marker of active infection. The present study concludes much information has been accumulated on the issue and H.pylori infected female should be treated with H.pylori eradication therapy by physicians and be prescribed iron supplements.

CONCLUSION

The present study reports low serum iron, low serum ferritin and low hemoglobin in Helicobacter pylori infected young adult female. Timely, therapeutic and preventive measures against H.pylori infection may prevent the iron deficiency, iron deficiency anemia and anemia related morbidities in female.

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

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Original Article

Anemia among Children

Prevalence and Associated Factors of Anemia among Children Age 6 To 59 Months of Age

Muhammad Humayun[1], Habibullah Babar[3], Salah-ud-Din Qureshi[4] and Tehmina Anjum Bashir[2]

ABSTRACT

Objective: To know the prevalence of anemia and associated factors among children age 6-59 months.
Study Design: Cross-sectional study design.
Place and Duration of Study: This study was conducted at Bolan Medical Complex Hospital Quetta, Pediatric Unit-2 in collaboration with Department of Medical Entomology and Parasitology, Institute of Public Health, Lahore over a period of six months from 1st January 2016 to 30th June 2016.
Materials and Methods: Children age 6 to 59 months of age who presented with palmar pallor along with hemoglobin levels less than 11 g/dl were included in the study for associated factors of anemia.
Results: The anemia was found in 395 (78.27%) children. Among 395 children, 210 (82.4%) were males and 185 (74%) were females. Important risk factors associated with anemia were gender, age, malnutrition, illiteracy and unemployment of caregivers.
Conclusion: Factors most strongly associated with anemia included malaria, parasitaemia, unemployment among caregivers, habit of taking tea with meals, malnutrition, low level of education and iron deficiency anemia.
Key Words: Prevalence, Associated factors, Anemia

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INTRODUCTION

Anemia is one of the major public health problems worldwide .It affects 1.62 billion people worldwide and preschool children are affected most, with a prevalence of 47.4%.[1] The global data about the prevalence of anemia during childhood indicates that 293.2 millions of children are under five years of age, out of which 43% are anemic all over the world while 28.5% of these anemic children are from the Sub Saharan Africa.[2] Another study showed the prevalence of anemia as 43% in the developing countries and of 3% in the developed nations.[3] Anemia is one of the largest killers of children admitted to hospitals in Sub-Saharan Africa. Even where blood transfusions are available there is a significant case fatality rate of 6-18%.[4]

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Anemia is a multi-factorial health problem in which the risk factors could be nutritional (iron, folate and vitamin B12 deficiencies), clinical (infectious diseases such as malaria, helminthes infections, tuberculosis and general inflammatory disorders), socioeconomic factors (educational levels of parents and low household income), and demographic factors (age, gender, and family size).[5-7] In another study important risk factors of anemia were a large family size and number of children per family, when more than 3 children in a family have been positively associated with anemia and moderately to severely stunted children were 2.3 times more prone to be anemic than normal children.[8] In another study the overall prevalence of anemia was 66.6% and important factors associated were male sex , 9–11 months of age, poor dietary diversity, stunting, diarrhea, no formal education, early initiation of complementary food and lowest wealth quartile were significantly associated with anemia.[9]

Anemia is an important cause of morbidity and mortality in many parts of the world. At Paediatric department of Bolan Medical College Hospital Quetta there is an increased number of admissions due to anemia. The presence of infections, haemoglobinopathies, malnutrition and poverty increase the number of cases of anemia, but the disease burden and its associated factors have never been documented in this region. The results of this study will help to determine the prevalence of anemia and frequency of associated factors of anemia in the region. . Findings of this study will help us to set prevention

programs against those factors, update the treatment protocols for proper management, follow up and care of children with anemia. Also results can be used to make public awareness regarding anemia in this population and its factors.

MATERIALS AND METHODS

This cross-sectional study was carried out among children age 6-59 months at Paeds Unit-2, Bolan Medical College Hospital, Quetta in collaboration with Department of Medical Entomology and Parasitology, Institute of Public Health, Lahore from 1st January 2016 to 30th June 2016. Children age 6 to 59 months of age who presented with palmar pallor along with hemoglobin levels less than 11 g/dl were included. Patients with any bleeding disorder such as Hemophilia, VonWillebrand disease, idiopathic thrombocytopenic purpura, leukemia), history of blood transfusion within two months prior to admission and history of surgery in last two months were excluded. In selected participants the data was obtained by interviewing parents/guardians, according to specifically designed questionnaire. Data was collected about study subject's age, gender, area of residence, any history of blood transfusion and history of treatment for anemia in the past, history of child's breast feeding including its duration, age at introduction of other type of food, any type of complementary foods intake during the first year of life along with the habit of tea intake, history of being treated for malaria or given malaria prophylaxis were obtained from parent/guardian. Additional information on caretaker occupation family information about family size, main source of income, education level of the parents. A detailed history and thorough physical examination of these children was performed. Anthropometric measurements including weight and mid upper arm circumference were taken for assessing nutritional status which was classified into mild, moderate and severe malnutrition according to modified Gomez classification. All of our study subjects with hemoglobin equal to or less than 11g/dl by haemocue were further investigated for complete blood count test using an automated machine of MS 9-5H or CELL DYN 3700. Serum ferritin (Ferritin Elisa Genwa) was done in all children with anemia to detect iron deficiency. Study participant's blood smears for malaria parasite were also carried out using Giemsa Stain and the number of asexual parasite using 100X magnification under oil immersion lens were counted. Stool analysis was done by microscopic examination to find out parasites, ova or other forms of intestinal helminthes. Data was entered to SPSS version 20.0 for analysis. To determine factors associated with anemia univariate followed by binary logistic regression analyses was done. Risk factors with p-value of ≤0.1 were subjected to binary logistic regression analysis and its corresponding 95% confidence interval was determined as a risk factor with p-value less than 0.05 was statistically significant.

RESULTS

During period of six months a total of 1250 children were admitted in Paediatric Ward.

Table No.1: Distribution of cases by anemia status and associated risk factors

Variable	Group					
	Anemic n = 395 (78.2%)		Non-anemic n = 110 (21.8%)		Total n=506 (100%)	
	No.	%	No.	%	No.	%
Gender						
Male	210	82.4	45	17.6	255	100.0
Female	185	74.0	65	26.0	250	100.0
Age (years)						
<24 months	225	79.8	57	20.2	282	100.0
>24 months	170	76.2	53	23.8	223	100.0
Caregiver occupation						
Unemployed	235	83.9	45	16.1	280	100.0
Employed	160	71.1	65	28.9	225	100.0
Weaning period						
Before 6 months	285	82.8	59	17.2	344	100.0
At or after 6 months	110	68.3	51	31.7	161	100.0
Education						
Illiterate	176	98.3	3	1.7	179	100.0
Literate	219	67.2	107	32.8	326	100.0
Nutrition						
Malnourished	330	84.8	59	15.2	389	100.0
Normal	65	56.0	51	44.0	116	100.0

Table No.2: Comparison of Effect of various risk factors on anemia, when considered independent and in presence of other confounding factors

	Un-adjusted Odds ratio	95% CI	P-value	Adjusted odds ratio	95% CI	P-value
Gender (male)	1.64	1.07 – 2.52	0.030	0.20	0.07-0.53	0.001
Age <24 years	1.23	0.81 – 1.88	0.394	0.17	0.06-0.50	0.001
Unemployed	2.12	1.38 – 3.26	0.001	10.36	2.98-36.03	0.000
Weaning <6 months	2.24	1.45 – 3.46	<0.001	1.00	0.47-2.13	0.998
Malnutrition	4.39	2.77 – 6.95	<0.001	580.266	60.47-5567.93	0.000
Un-educated	28.66	8.95 – 91.84	<0.001	6288.444	498.27-79363.02	0.000

Of these 715 were out of age limit and 531 children aged 6 to 59 months were eligible. Among these 531, 18 had blood transfusion prior to admission, 3 underwent surgery, 4 diagnosed as having leukemia and 5 had active bleeding, so overall 30 cases were excluded. Out of 506 children male to female ratio was almost 1:1 (255 males and 256 females).Amongst the mentioned group 395 (78.2%) children were anemic and 210 (82.4%) were males and 185 (74.0%) were females. In the children aged <24 months 225 (79.8%) and those aged >24 months 170 (76.2%) had anemia. Among caregivers being employed, 235 (83.9%) were unemployed and 160 (71.1%) were employed, while 285 (82.8%) of those who were weaned before six months were anemic and 110 (68.3%) who were weaned after 6 months were anemic. Illiterate parents were almost all (98.3%) had anemic children and among those who were malnourished (84.8%) had anemia (Table 1).

When gender, age <24 months,employment status, weaning status, nutritional status and education were considered independently as a risk factor for anemia. The male gender had high risk of anemia 1.64 (1.07-2.52) times. Unemployed parents, weaning before six months, malnutrition and being illiterate had significantly higher odds of being anemia with values of 2.12 (1.38-3.26), 2.24 (1.45-3.46), 4.39 (2.77-6.95) and 28.66 (8.95-91.84) respectively. When all factors were linked with anemia by using binary logistic regression analysis. Interestingly, the odds of gender changed to 0.20 (0.07-0.53) of age <24 to 0.17 (0.06-0.50) and both became significant. The odds of unemployment rasied to 10.36 (2.98-36.03), malnutrition 480.27 (60.47-587.9) and uneducated to 6288.44 (498.27-79363.02) respectively. The weaning period odds turned insignificant to 1.00 (0.47-2.13) (Table 2).

DISCUSSION

This is the first study conducted in collaboration between Institute of Public Health and Bolan Medical College to determine prevalence and different factors thought to be associated with anemia. The findings of this study indicate that anemia is a major health problem among children aged 6 to 59 months admitted at Bolan Medical Complex Hospital Quetta. The prevalence of anemia was found to be 79.4% among children age 6 to 59 months of age. The overall prevalence of anemia in this study was higher than a study that was conducted in industrialized countries such as Austria 10.5%, Belgium 8.7% and South Asian countries such as India 74.3%, Bangladesh 47% and is also high in comparison to other studies in Pakistan which was 50.9%.[1] In our study the prevalence of anemia was higher because in this region the causes are multiple such as nutritional deficiencies, malaria infection, iron deficiency and poor socio-economical conditions with illiteracy as also found in our results. From the results of a study reported that malaria is one of the most important causes of anemia among children aged 6-59 months.[11] Malaria is an important risk factor being the cause of anemia. As in malaria anemia occurs due to red blood cell lysis with spleen sequestration and the destruction of erythrocytes along with the phagocytosis of un-infected and infected red blood cells.[12] In this study malaria was strongly associated with anemia. Unemployment and illetercy has also been associated with anemia in other studies.[13,14] Same result was also obtained in our study. This is likely to reflect nutritional deficiencies and recurrence of infections due to poor family or low level of education which more likely increases the prevalence of anemia. An important finding from a study reported that the habit of taking tea along with meal came out to be significantly associated risk factor for anemia due to its interferences of absorption in intestine.[15, 16] From the results of our study, the univariate analysis were statistically significantly associated with the habit of tea in take with normal daily routine meals and development of anemia. Nutritional deficiencies, sickle cell disease and multiple blood transfusions in these children could be some of the confounders.

From the results of another study it is evident that children above the age of 2 years were at a higher risk of developing anemia as compared to those below 2 years of age.[11] In the present study we found a significant association between age below two years and anemia in univariate analysis but not in

multivariate. Malnutrition is among the causes of anemia as reported by the researchers.[17,18] In this study, there was significant association between nutrition status and anemia. The Serum ferritin levels were checked among all children and the morphological types of anemia, whereby 85% of study subjects with microcytic hypochromic anemia in their peripheral smears had low serum ferritin level, while more than 72% of our study subjects were also suffering from weaning at the age of less than 6 month. Majority had supplementary feeding with wheat based food that lack both iron which likely contributes to iron deficiency during infancy and childhood.

CONCLUSION

Prevalence of anemia in children admitted at Bolan Medical Complex Hospital Quetta is high (79.4%). Factors most strongly associated with anemia included malaria parasitic infestation, unemployment among caregivers, habit of taking tea with meals, mal-nutrition, low level of education and iron deficiency anemia. This study has shown that there is high prevalence of anemia in children 6 to 59 months of age. This study also has shown a significant contribution of above mention factors to the prevalence of anemia. Therefore, we suggest that the approach to preventive strategies must be targeted. Routine screening for anemia in all admissions and during attendance should be done by using simple tests for hemoglobin estimation such as haemocue method should be made available. Continuous health education program should be done. Iron supplements to all infants and child, fortification of food, counseling on type of weaning food and intermittent anti-malarial treatment.

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

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Original Article

Bronchoscopic Interventions

An Audit of Complications during Various Flexible Bronchoscopic Interventions: A 4 Years Experience in a Tertiary Care Hospital

Muhammad Hussain, Syed Mazhar Ali Naqvi and Muhammad Javed Bashir

ABSTRACT

Objective: To study the complication rate during a variety of bronchoscopic interventions.
Study Design: Observational / descriptive study.
Place and Duration of Study: This study was conducted at the Pulmonology Department, Services Institute of Medical Sciences/ Services Hospital Lahore from August 2012 to June 2016.
Material and Methods: 592 patients undergoing flexible bronchoscopic interventions for different indications in our department and severe complications associated with the bronchoscopic interventions were studied.
Results: A total of 592 patients were included. The major indication remained persistent lung infiltration in 85% patients, mediastinal lymphadenopathy in 4%, 3% had interstitial lung disease, hemoptysis in 2%, foreign body in 2%. Significant hemorrhage >50mls, occurred in 20 (3.37%) patients, mostly during endobronchial biopsies. Two out of total three pneumothorax occurred during TBB. Bronchospasm occurred in 22 (<3.7%) cases, mostly during BAL. Seizures and drowsiness occurred in 02 (0.5%) patients. Hypoxemia (SpO_2 <90%) was observed in 18 (3%) patients, mostly during BAL and EBB. 04 (0.67%) patients had supra-ventricular arrhythmias. 14 (2.4%) cases reported fever within 24 hours of procedure, out of which 07 (1.2%) had a new infiltrate/pneumonia on chest x-ray. One patient suffered myocardial infarction after 4 hours of the endobronchial biopsy.
Conclusion: Flexible bronchoscopy is a safe procedure with a low complication rate even during a variety of diagnostic and therapeutic interventions.

Key Words: Flexible bronchoscopy. Indications. Complications

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INTRODUCTION

Flexible bronchoscopy (FBS) is a widely performed procedure that is generally considered to be safe and effective. Bronchoscopy was first performed by Gustav Killian in 1897 but Shigeto Ikeda in 1964 had revolutionized the clinical sciences of bronchoscopy by developing flexible fiberoptic bronchoscope[1].

Bronchoscopy is a procedure to visualize the tracheo-bronchial tree. There are three types of bronchoscopy: rigid, flexible, and virtual. Flexible bronchoscopy is the most common type of bronchoscopy. It visualizes the trachea, proximal airways, and segmental airways out to the third generation of branching and can be used to sample and treat lesions in those airways. Flexible bronchoscopy is generally performed in a procedure room with conscious sedation[2]

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Indications of flexible bronchoscopy can be divided into diagnostic and therapeutic. Major diagnostic indications include: Hemoptysis, chronic cough, unexplained breathlessness or wheezing, hoarseness of voice, persistent infiltrate, hospital acquired pneumonia, pneumonia in an immunocompromised host, persistent atelectasis, parenchymal nodules or masses, mediastinal lymphadenopathy, suspected airway obstruction, suspected lung transplant rejection, suspected tracheomalacia, smoke inhalation, interstitial lung disease, chest trauma, suspected tracheo-esophageal and broncho-pleural fistula etc[3].

Therapeutic indications include: bronchoscopic suction of sputum, tracheal intubation via bronchoscope, bronchoscopic hemostasis, a retrieval of foreign body, microwave thermotherapy, laser photoresection, electrocautery, argon plasma coagulation, balloon dilatation, bronchial thermoplasty and tracheobronchial stenting[4].

Inspection of the airways is just one reason to perform a bronchoscopy; other reasons include diagnostic sampling and therapeutic interventions. Diagnostic procedures include: Brushings, Bronchoalveolar lavage (BAL), Bronchial washings, Endobronchial biopsy, Transbronchial biopsy and Transbronchial needle aspiration (either endobronchial lesion or mediastinal pathologies)[5].

The major advantages of flexible bronchoscopy over rigid include detailed examination of tracheo-bronchial tree, ease of performance and no requirement of general anesthesia. Flexible bronchoscopy is safe in the hands of an experienced operator but certain complications do occur and rare fatalities have been recorded with major complication rate between 0.03-0.08% and mortality rate between 0.01-0.04 percent[6].

A "Bronchoscopic complication" is defined as any adverse event directly related with the bronchoscopic procedure performed. Complications are classified as[7]:

- Complications that occur during preparation, (local anesthesia and pre-medication, if any),
- Complications that occur during bronchoscopic procedure and,
- Complications that occur within 2 hours of procedure.

Major complications encountering during bronchoscopy are: Hemorrhage (mild<50mls, moderate<200mls, severe>200mls), hypoxemia, pneumothorax, surgical emphysema, pneumomediastinum, pulmonary edema, bacteremia, fever, pneumonia laryngospasm, cough, bronchospasm, respiratory depression or arrest, dyspnea, TIA, vasovagal episodes, drowsiness, fits, airways fire, cardiac arrest, hypertension, arrhythmias, sinus tachycardia and bradycardia, which is attributed to low dose of atropine used, vagal stimulation or severe hypoxemia occurring during procedure[8].

MATERIALS AND METHODS

This study was a hospital based observational and descriptive study. It was carried out in the department of Pulmonary, Critical Care Medicine and Thoracic Surgery, Services Hospital Lahore on 592 patients over the period of 4 years from August, 2012 to July, 2016.

Inpatients and outpatients from pulmonology and medical departments of age >10 years were enrolled (as children under 10 years mostly require deep sedation or general anesthesia), irrespective of gender and occupation.

Following patients were excluded from study:

- Patients with unstable ischemic heart disease, severe hypoxemia, advanced respiratory failure, shock and toxic-metabolic encephalopathy.
- Bleeding diathesis.
- Thrombocytopenia <60,000.
- Uncooperative before or during procedure.

A detailed, explained consent was obtained including the risk of various complications like respiratory failure, massive bleeding and death etc.

Patients were kept without oral intake either overnight or atleast 8 hours before procedure. Atropine 0.6mg intramuscularly was given to all patients 30mins before procedure, except in patients with obvious contraindication.

Conscious sedation using injection Midazolam 1-10mg was given to all patients as needed. 4% atomized lignocaine was used as topical anesthesia to oral cavity and throat. 2% and 1%, 1-2mls instillations were used via bronchoscope for larynx and endo-bronchial tree respectively. The total dose of lignocaine for a 50-70kgs and above patient was kept less than 800mg. The maximum permissible dose was reduced by 20% for patients under 50kgs.

A Proforma was filled for each patient, which included patient data, history, clinical examination, relevant investigations, procedure detail, a list of complications which occurred during procedure, their management and outcome.

All outpatients without obvious procedural complication were monitored for 4 hours after the intervention and those with complications were admitted in pulmonology or ICU wards for follow up care, monitoring and a possible second intervention. Discharged patients were followed up in OPD.

All procedures were performed on Olympus Video bronchoscope system CV-260 in a dedicated bronchoscopy suite. Patients received supplementary oxygen to maintain Spo2 more than 90% during and after the procedure. Cardiac monitoring and pulse oximetry was performed in all patients. A chest x-ray was performed in those patients who underwent trans-bronchial needle aspiration (TBNA), trans-bronchial biopsy (TBB), stricture electro cauterization or experienced chest pain and unusual shortness of breath. ECG was done in patients, who developed; hypotension during or after the procedure, central chest pain and arrhythmias etc.

RESULTS

A total of 592 patients were included in this study. Out of those, 385 (65%) were male and 207 (35%) were female patients. See table: 1. Majority of patients; 355 out of 592 (60%) were above 50 years of age. 178 out of 592 (30%) were between 25-49 years age group, and finally 59 out of 592 (10%) patients were between 10-24 years of age. See table: 1.

The major indication of bronchoscopy remained persistent lung infiltration on chest x-ray or CT chest in a symptomatic or asymptomatic patient. Approximately 85% (503 out of 592) of patients had a persistent lung infiltration including pneumonia, granulomatous infection, neoplastic process and atelectasis. 24 patients (4%) had mediastinal lymphadenopathy, 18 patients (3%) had interstitial lung disease, 12 patients (2%) had unexplained hemoptysis, 11 out of 592 (2%) had a suspected foreign body, 6 (1%) had hoarseness of voice, 4 out of 592 patients (0.67%) had suspected tracheo-esophageal fistula, 6 patients (1%) had mucus plugging, 3 (0.5%) had unexplained cough and 5 out of 592 patients (0.84%) had tracheal stenosis. See table: 2

Out of 592, 22 (3.7%) patients underwent inspection of airways, 26 (4.39%) patients had bronchial washings, 306 (52%) patients had bronchoalveolar lavage (BAL),

128 (22%) patients had endobronchial biopsies (EBB), transbronchial biopsy (TBB) was performed among 64 (11%) patients, 24 (4%) patients had transbronchial needle aspiration (TBNA), 11 (2%) patients had retrieval of foreign body, 5 (0.84%) patients had tracheal stricture electrocauterization and 6 (1%) patients underwent removal of mucus plugs with the help of negative suctioning. See table: 3

Table No. 1: Age groups of patients

Age group	10-24yrs	25-50yrs	>50yrs	Total
No. of patients	59	178	355	592
% age	10%	30%	60%	100%
Gender	Male	385	65%	
	Female	207	35%	

Table No. 2: Indications of bronchoscopy

Indications of bronchoscopy	No. of patients	% age
Persistent lung infiltration	503	85%
Mediastinal lymphadenopathy	24	4%
Interstitial lung disease	18	3%
Unexplained hemoptysis	12	2%
Suspected foreign body	11	2%
Hoarseness of voice	06	1%
Suspected tracheo-esophageal fistula	04	0.67%
Mucus plugging	06	1%
Tracheal stenosis	05	0.84%
Unexplained cough	03	0.5%
Total	592	100%

Table No. 3: Distribution of total Procedure/ interventions performed among patients with percentage.

Distribution of total Procedure/interventions performed	No. of Patients	% age
Inspection of airways	22	3.7%
Bronchial washings	26	4.39%
Bronchoalveolar lavage	306	52%
Endobronchial biopsy	128	22%
Transbronchial biopsy	64	11%
Transbronchial needle aspiration	24	4%
Retrieval of foreign body	11	2%
Stricture electrocautrization	05	0.84%
Removal of mucus plugs	06	1%
Total	592	

Total 102 (17.23%) patients out of a total of 592 experienced a variety of complications. See table: 5. Significant hemorrhage; >50mls, occurred in 20 (3.37%) patients, mostly (10 patients) during endobronchial biopsies of neoplastic or inflammatory lesions. Pneumothorax remained among the rare complications of FBS. Only 03 (0.5%) cases were noted and 02 out of 03 happened during TBB. Out of three, only one patient required tube thoracostomy, the other two patients improved on oxygen therapy. Bronchospasm was not a rare complication of FBS. Total 22 (3.7%) cases were documented out of which 12 occurred during BAL. Most patients improved spontaneously at the end of procedure but few of them required salbutamol nebulization. Only 03 (0.5%) patients had laryngospasm which required repeated boluses of sedation. All cases occurred during BAL. See table: 6

Table No. 4: No. & % age of complications recorded.

Complications	No.	% age of 102 complications	% age of 592 procedures
Hemorrhage>50mls	20	19.6%	3.37%
Pneumothorax	03	2.94%	0.5%
Bronchospasm	22	21.6%	3.7%
Laryngospasm	03	2.94%	0.5%
Seizures	02	1.96%	0.34%
Drowsiness	03	2.94%	0.5%
Hypoxemia	18	17.6%	3.0%
Arrhythmias	04	3.92%	0.67
Fever	14	13.7%	2.4%
Pneumonia	07	6.86%	1.2%
MI/ACS	01	0.98%	0.17%
Hypotension	05	4.9%	0.84%
Total	102	100%	17.23%

Table No.5: Distribution of no. of complications by bronchoscopic procedures

Procedure performed	No. & % of complications out of total 102 cases	% out of total 592 cases
Inspection of airways	01(0.98%)	0.17%
Bronchial washings	02(1.96%)	0.34%
Bronchoalveolar lavage	47(46.1%)	7.94%
Endobronchial biopsy	20(19.6%)	3.37%
Transbronchial biopsy	11(10.8%)	1.86%
Transbronchial needle aspiration	02(1.96%)	0.34%
Retrieval of foreign body	10 (9.8%)	1.69%
Stricture electrocauterization	02(1.96%)	0.34%
Removal of mucus plugs	05(4.9%)	0.84%
Total	102(100%)	17.3%

Seizures and drowsiness, two of the serious complications of FBS, which were related to topical anesthesia, sedation and hypoxemia, occurred in 02 (0.34%) patients each during BAL. Patients with seizures required discontinuation of procedure and sedation and they subsequently improved uneventfully. Patients with drowsiness were observed for 24 hours

and discharged in a conscious state. Hypoxemia (SpO2<90%) was observed in 18 (3%) patients mostly during BAL and EBB. All patients responded to increased supplementary oxygen during procedure. 04 (0.67%) patients had supraventricular arrhythmias which were probably related to Atropine, hypoxemia or advanced lung disease. No active management was done for these cases as arrhythmias settled spontaneously at the end of procedure.

14 (2.4%) cases reported fever within 24 hours of procedure, out of which 07 (1.2%) had a new infiltrate/pneumonia on chest x-ray requiring antibiotics. Majority of cases occurred during BAL. All patients improved within 3-10 days with or without antibiotic therapy. One patient suffered myocardial infarction after 4 hours of the endobronchial biopsy. She had severe coronary artery disease which probably worsened on discontinuing antiplatelet therapy 7 days before the procedure. Patient required admission and improved in 5 days.

Hypotension was encountered in 5 (0.84%) patients mostly during BAL which responded to intravenous fluid replacement. It was the result of sedation in the patients with slightly low hydration status. Most of the complications occurred during BAL, EBB, TBB and retrieval of foreign body. See table: 5. No patient died during or within 02 weeks of FBS due to the complications related to the procedure.

Table No. 6: Distribution of Complications during different bronchoscopic procedures with procedure performed

Distribution of Complications during different bronchoscopic procedures	Procedure performed (n=592)									
	Inspection of Airways n=22	Bronchial Washings n=26	BAL n=306	EBB n=128	TBB n=64	TBNA n=24	Retrieval of Foreign Body n=11	Stricture electro-cauteri-zation n=5	Removal of mucus plugs n=6	Total
morrhage>50mls	-	1	2	10	4	1	2	-	-	20
Pneumothorax	-	-	1	-	2	-	-	-	-	03
Bronchospasm	1	2	12	2	1	-	1	-	3	22
Laryngospasm	-	-	3	-	-	-	-	-	-	03
Seizures	-	-	2	-	-	-	-	-	-	02
Drowsiness	-	-	2	-	-	-	1	-	-	03
Hypoxemia	-	1	7	3	2	-	2	1	2	18
Arrhythmias	-	-	2	1	-	-	-	-	-	04
Fever	-	-	7	2	1	1	2	1	-	14
Pneumonia	-	-	6	-	-	-	1	-	-	07
MI/ACS	-	-	-	1	-	-	-	-	-	01
ɔotension	-	-	3	1	-	-	1	-	-	05
Total	01	04	47	20	11	02	10	02	05	102

DISCUSSION

This study was performed to find out the frequency of various complications during a variety of bronchoscopic interventions. In our study which was conducted on 592 patients, 102 (17.3%) patients had various complications during different bronchoscopic interventions. Among 26 (4.39%) patients, serious complications were observed including: hemorrhage >50mls (3.37%), pneumothorax (0.5%), seizures (0.3%), and ACS (0.17%). All these patients required hospital stay (1-5days) for observation, treatment and a second intervention. No patient was died and all patients were discharged subsequently. (Tab: 4, 5, 6)

Persistent lung infiltration remained the most common (85% patients) indication for different bronchoscopic interventions proceeded by mediastinal lymphadenopathy (4%) and interstitial lung disease (3%). Hemorrhage (3.37%), bronchospasm (3.7%), hypoxemia (3.0%) and fever (2.4%) remained the most commonly encountered complications.

Charles A et al[9] performed 4273 diagnostic and therapeutic bronchoscopies. Complication rate was observed to be 1.2% including minor and major complications. Major complications included; pulmonary hemorrhage, pneumothorax and respiratory failure, comprising 0.6% of the total complications which is low if compared with our results (4.39%). Among the total 173 trans-bronchial biopsies, pneumothorax and pulmonary hemorrhage were observed to be 4.0% and 2.8% respectively where as among 64 TBB cases in our study, pneumothorax rate was 3.1% and hemorrhage 6.2%, which are comparable.

Facciolongo N, Patelli M et al[10] conducted a multi-center prospective study including 20,986 bronchoscopies. The overall incidence of complications was found to be 1.08% (227 cases in total) with a mortality of 0.02%. Among the major complications (out of 227 cases) including hemorrhage, hypoxemia and pneumothorax the incidence remained 23.78%, 11.0% and 9.69% respectively which was 19.6%, 17.6% and 2.94% respectively in our study.

Out of total 23.78% (54) cases complicating with hemorrhage, 9.2% occurred during EBB and TBB each and 0.88% during BAL which were 9.8%, 3.92% and 1.96% respectively in our study. Among 11% (25) cases of hypoxemia, 1.76% occurred during EBB, 1.32% during TBB and BAL each, which was 2.94%, 1.96% and 6.86% respectively in our study. A relatively higher incidence of hypoxemia during BAL in our study was probably due to increased no of cases undergoing BAL (306 cases out of 592) and use of larger volumes of normal saline for BAL.

Out of 9.69% (12) cases of pneumothorax, 4.4% occurred during TBB and none during EBB and BAL, where as in our study 1.96% and 0.98% cases complicated with pneumothorax during TBB and BAL respectively. Geraci G, Pisello F et al[11] performed a meta-analysis which included the literature review of 50 scientific articles from 1974 to 2006 by the name of flexible fiberoptic complications. On 107969 bronchoscopies the incidence of complications was studied. They have concluded that overall incidence of complications for hypoxemia, hemorrhage and pneumothorax remained 0.2-21%, 0.12-7.5% and 1-6% respectively which are comparable to the results of our study which were 3%, 3.37% and 0.5% for hypoxemia, hemorrhage and pneumothorax respectively.

Kaparianos A, Argyropoulou E et al[12-14] conducted a retrospective study from 2003 to 2007. A total of 4098 bronchoscopies were performed for diagnostic and therapeutic indications. Hemoptysis was the most common indication for FFB (21%), followed by fever (19%), chronic cough (18%) and an abnormal chest x-ray or CT-chest (14%). Major complications occurred in the form of pneumothorax (0.07% of all FBSs), pulmonary hemorrhage (0.17% of all FBSs) and hypoxemia (0.13% of all FBSs) which remained 0.5%, 3.37 and 3.0% respectively in our study. A relatively higher incidence of complications in our study is probably related to difference of indication and variety of interventions other than the smaller size of patients however the incidence of pneumothorax and pulmonary hemorrhage was 2.65% and 6.19% respectively out of total 113 trans-bronchial biopsies performed which was 3.12% and 6.25% respectively for total 64 TBB in our study. Hence the results are similar and comparable as long as complications related to TBB are concerned.[20]

Faguang Jin, Deguang Mu, Dongling Chu et al conducted a retrospective review of clinical records of 23,862 patients who underwent bronchoscopic examination from 1993 to 2016 in the department of respiratory diseases in a military hospital. 152 (0.64%) cases experienced severe complications including hemorrhage, bronchospasm, pneumothorax and death.[15-19]

During EBB bronchospasm and hemorrhage occurred in 0.04% and 0.07% of cases respectively, out of total 23,862 patients, which were 0.34% and 1.69% respectively in our study. Incidence of bronchospasm, hemorrhage and pneumothorax was 0.008%, 0.03% and 0.016 respectively during TBB which remained 0.16%, 0.67% and 0.33% respectively in our study. Again a relatively higher incidence of complications in our study is related to a smaller patient size and more invasiveness of interventions now.

CONCLUSION

Flexible bronchoscopy is a safe procedure with a low complication rate even during a variety of interventions including EBB, TBB, TBNA and BAL etc. Results of our study are comparable with the international data. A larger prospective analysis seems inevitable.

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

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Original Article

Piriformis Syndrome

Epidemiologic Study and Role of MRI in Piriformis Syndrome Observed in Pakistani Population

Mian Azhar Ahmad[1], Ibrahim Khalil[2], Safdar Hussain Arain[3]

ABSTRACT

Objective: To investigate role of MRI in piriformis syndrome as a possible cause of lumbago and sciatica in Pakistani population.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at Department of Neurosurgery, Lahore General Hospital Lahore, DHQ Hospital Sahiwal and Department of Neurosurgery Unit-1, Bolan Medical College Quetta from 1st July 2013 to 31st December 2015.

Materials and Methods: This study was conducted on 2000 cases who presented with moderate to severe low backach. Out of them eighteen patients of piriformis syndrome were selected after relevant general physical examination, neurological examination and investigations. Amongst them, thirteen were women, and five men, average age thirty six years. Planned surgery was performed in three cases, during follow up of one to two years following start of clinical presentation of patients. Rest of fifteen patients received corticosteroids injections in their piriformis. Magnetic Resonance Imaging was done in all individuals patients.

Results: Three cases executed successful outcomes with medical management. Out of three patients in which surgery was performed, two patients gave favourable clinical presentation, only single patient continued complaining of discomfort. 3 additional findings were demonstrated presenting as unusual pressure on sciatic nerve due to piriformis muscles. We obtained these results after keeping patients under observations for one to two years. The highest incidence of Piriformis syndrome was seen predominantly in females.

Conclusion: The important possible reason of lumbago and sciatica is positional variations of sciatic nerve with piriformis muscle. Low backach should be investigated in association with other environmental factors to look into causes of piriformis syndrome.

Key Words: Incidence, Therapy; Sciatica; MRI; Piriformis syndromee

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INTRODUCTION

Piriformis syndrome is a cause of lower back pain and sciatica secondary to sciatic nerve entrapment at the greater sciatic notch.[1] It is usually caused by an abnormal condition of the piriformis muscle such as hypertrophy, inflammation, or anatomic variations.[2] Piriformis syndrome may be possible cause of intractable sciatica is frequently misdiagnosed or the correct diagnosis is delayed because of its rarity, nonspecific clinical symptoms, and absence of definite diagnostic tests.

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Yeoman[2] stated the reason of low backach as sacroiliac joint infection, in association with anatomical morphological variations in tomography of piriformis muscle. He gave special considerations to course, relations and branches of the sciatic nerve in this regards. Literature review discloses Freiberg and Vinke[3] presenting view about sacroiliac arthritis n first triggers discomforts to piriformis muscle on instance later deep connective tissue covering of piriformis muscle is involved. This series of events further cause pressure on lumbosacral nerve plexus located on piriformis fascia to bring about irritation of this nerve plexus. Indexed literature depicts Beaton and Anson[4] putting forwards results of their work in dissection hall teachings. They postulated that sudden contraction of piriformis muscle may be most likely cause of irritation of lumbosacral plexus. The headline piriformis syndrome was suggested by Robinson.[5] He advocated specifically an injury of piriformis muscle as underlying reason of low backach. The electro-diagnostic test precisely diagnose piriformis impingement.[6-7] Clinical testing of lumbosacral plexus particularly peroneal nerve examination as H-reflex

clearly shows relevant signs and symptoms. We suggest more strong emphysis on general physical examination and relevant neurologic testing as MRI, CT scans and other radiologic techniques inflict heavy financial burden to patients. More over these investigations are required again and again. Importantly authority full objective test to investigate piriformis muscle syndrome are not yet available. So a lot of time wastage is there looking for cause of very severe backach. Piriformis syndrome secondary to an anomalous sacral attachment of an otherwise normal piriformis muscle has been reported that was revealed on MRI and confirmed at surgical repair.[8] Familiarity with this syndrome and its imaging findings is important for making the correct diagnosis.

MATERIALS AND METHODS

This descriptive cross sectional hospital based study was carried out in Department of Neurosurgery, Lahore General Hospital Lahore, DHQ Hospital Sahiwal and Department of Neurosurgery, Bolan Medical College Quetta. This research work was conducted on 2000 cases who presented with lumbago sciatica, aches and pains on back, were thoroughly investigated, with age range between 16-78 years. They were admitted through out patient departments of recommended hospitals from 1st July 2013 to 31st December 2015. Patient's age was between 18-70 years, with female dominance. Eighteen patients of piriformis syndrome were selected, fifteen were females and three males, ten patients had a pain left while eight on right side. Operative work was done in six cases in which medical treatment was not successful or those patients had diseases related to muscles or nerves. Amongst fifteen patients who were managed medically, ten were females and five males, ten patients had pains mainly on left side while in five on right side. Not a single patient gave any past history of injury to the back. Three patients were basically sportsmen, a single patient was a professional cricketer, second patient was a national level hockey player third patient was soccer payer in a club. Many patients had complaint of pain but did not take any medications few patients did start taking drugs. Mean time period between start of symptoms and initiation of therapy was calculated to be from two months to four years, single patient gave history of unsuccessful operation on lumbar spine for low backach. In 5 patients we gave intramuscular corticosteroids injections in their piriformis which produced excellent results and patients were symptoms free. In three patients in which surgery was done, two were females and one was male, two patients had complaints more on left side and one on right side. Seventy two kilogram was the average weight of he patients. Detailed scrutiny of 3 sportsmen in current study group, showed that, only one patient had a previous history of a fall onto a buttock, 3 months before the onset of the symptoms. All patients had followed a preoperative medical treatment including painkillers and muscle relaxants; three have also had intrapiriformis muscle steroids injection. The time average from the beginning of the pain to surgery was: range, 1 to 3 years. The preoperative and last followup evaluation concerning the clinical status and the results of the MRI images and the H-reflex of the peroneal nerve. In one patient complete nervous system testing before surgery demonstrated foot drop on right side, In another case we found that patient was assisted to stand up in a triple flexion position while he was directed to stand for a longer deuration. In four cases we demonstrated variable sensations in association with changing reflexes. Wasting of muscles in gluteal region was demonstrated in yet another individual and in another patient, had wasting of muscles in back leg muscles. Magnetic resonance imaging was done in all the patients and no patient was found to have lesions like nerve root compression or any other disease involving vertebral column which could trigger low backpack in these patients. A pelvic Magnetic resonance imaging was done in all study group individuals clear cut increase in size of piriformis muscle was found in five patients, three patients we found little engorged veins in the vicinity of sciatic nerve. Variability of "H reflex of the tibial nerve was demonstrated in three patients. In 7 cases, we decided to investigate H reflex of the common peroneal nerve.

RESULTS

These are results of study on 2000 patients, amongst whom 18 patients of piriformis syndrome were selected. 15 patients were conservatively managed. Follow up of patients continued for period ranging from one year to four years. Conservatively managed single patient showed successful clinical out comes. Two cases gave excellent results with intra muscular injections in piriformis muscle. Medical treatment was not helpful in 5 cases. One case did not report and was declared as left against medical advised. Excellent clinical outcomes were achieved in three patients in which surgery was done. We kept following them till four years and these cases remained totally symptoms free. Proper favorable results were received in 4 cases even long duration of sitting episodes, they did not complain of any kind of pain. Mild to moderate low back ach was documented in 3 cases after really exertional exercises. One woman patient looked dissatisfied with surgery. Somehow we did not investigate and did any neurological testing on to her. Sensory deficit was noted in 3 cases prior to surgery. Tinnel sign was observed in these patients till six months. In one individual sensory and motor deficit was found in the vicinity and area of distribution of deep peroneal nerve. Complete physical recovery was observed in that patient with a drop foot within duration

seven months. No walking aids were not needed by any patient after surgery. Transitory limp and one superficial cutaneous infection after operation were found in one patient.

Neurosurgical steps included Kocher-Langenbeck incision in a prone position, the piriformis muscle was approached via the fibers of the gluteus maximum and was cut after the safety of nerve was ensured. Whole of surgical technique did pivot around sciatic nerve in all the patients. Bifid sciatic nerve was documented coursing behind hypertrophied piriformis muscle. It was observed. A bifid piriformis muscle and a bifid sciatic nerve, particularly a single branch of the nerve was found coursing proximal to the muscle and the other one through the split (Fig. 1).

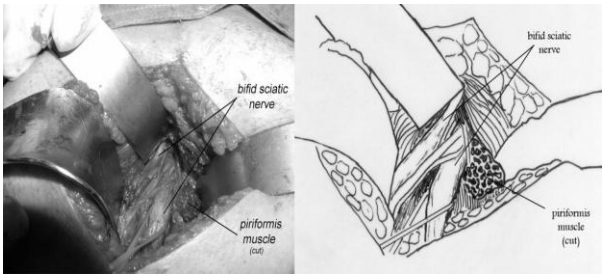

Figure No. 1: Bifid piriformis muscle and bifid sciatic nerve

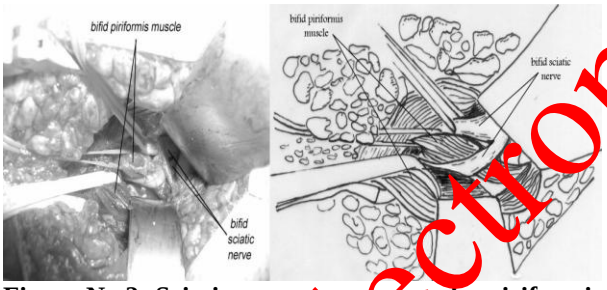

Figure No.2: Sciatic nerve entrapment by piriformis muscle and the sacrosciatic ligament

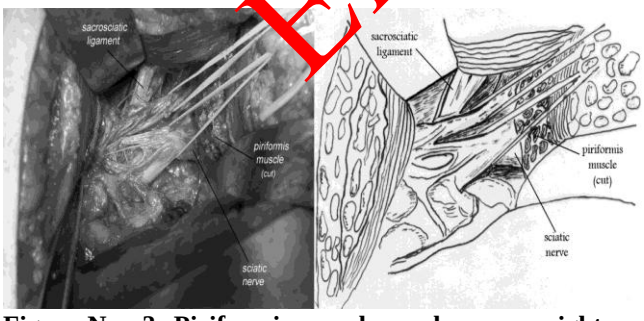

Figure No.. 3: Piriformis muscle syndrome on right side

The piriformis muscle was hypertrophied, squeezing the sciatic nerve which passed directly below it, 2 cases. A transverse fibrous band compressed the sciatic nerve, 1 case (Fig. 2).In one case. A sciatic nerve and the inferior gluteal nerve were found to have interconnected by enormous tissue, 1 patient, sciatic nerve compression was not noted in any of the patients in which surgery was done in three cases. Engorded varicosed venous channels were demonstrated in the vicinity of sciatic nerve in all study group cases.

This woman presented with piriformis muscle syndrome on right side of four years duration. We noted intraoperatively a bifid sciatic nerve was found during operation coursing under more than normal size piriformis muscle (Fig. 3).

DISCUSSION

Sciatic nerve impingement at the buttock,precipitating the piriformis syndrome, can present as low back pain could have. MRI being principal investigation to investigate spinal disease. The etiology of piriformis muscle syndrome is is unknown, diversified symptom complex is a feature of this disorder even characteristic physical signs on neurologic examination are not specific. Adequate diagnosis of this syndrome at primary health and secondary health care level is rare except high index of suspicion, and patients then are referred to specialist centers, reported cases were sporadic having unusual incidence, from 0.33%[8] to 6%[9] but this is related as to which point patients are referred to specialist neurological centers. However, once medical management is not successful, 5% patients were received in higher centers, Adams[10] and Robinson.[5] Beauchesne et al[11] recorded high objection to that aggravated rate and proposed patients sent to specialist neurological centers must not be greater than 1%. Importantly this in agreement to results of our research work documented as 0.7%, further we did not receive any referred patients. This stated that it is yet not confirmed whether exact cause of Piriformis muscle syndrome is within muscle or primary cause is located in a nerve. It is recommended that clinical presentation must be combined with radiological investigations to reach at a diagnosis.

Current research work has confirmed lack of any links of sacroiliac joint syndrome with piriformis syndrome, more over we have proved that when patient is not complaining of sacroiliac pain and it is proved also on physical examination and investigations, piriformis syndrome turns to be basically a diagnosis of exclusion. An insight into literature reveals that many authors disagree with our findings but results of work by Bernard and Kirkaldy-Willis[12] coincide with our results. According to Robinson[5] piriformis syndrome, is characterized by classical clinical presentation where low back ach, pain in vicinity of sacroiliac joint, greater sciatic notch is main feature, and because piriformis muscle inserts onto femur, its spasm cause painful movements. This pain is aggravated by bending and heavy weight lifting with a strong history of injury to back, sacroiliac and gluteal area. On physical and neurological examination, a tender mass palpable, on

piriformis muscle on damaged side, Lasègue sign can be elicited. Wasting of muscles in gluteal region extent of which is linked with time period. Indexed literature strongly advocates positive past history of injury as principal reason of piriformis syndrome which is contrary to our findings where only one patient gave history of injury.[4-6,12] Exaggerated rotators muscles over work in patients strenuous exercises, sportsmen, hockey players, sprinters, professional soccer players where sciatic nerve is most likely to be injured in patients who sit for longer periods. Our results are similar to work done by Freiberg and Vinke[3], in those series of patients pain was triggered by passive internal rotation and hip adduction. Our results were in contradiction to work by Pace[13] pain was triggered by resisted abduction and external rotation of damaged thigh as a salient feature of syndrome. Magnetic resonance imaging plays an important role in diagnosing Piriformis syndrome, Pecina et al[14] has documented piriformis derrangment seven out of ten patients. This is stated that magnetic resonance imaging main investigation for piriformis syndrome, more so in cases who have long standing sciatica. However, and apart from, we did not apply magnetic resonance neurography and piriformis blocks,[15,16] pelvic magnetic resonance imaging remained chief investigation with current research work, more over topography of Piriformis muscle is variable as documented in our study, and is frequently found in heathy population. Pelvic T1-weighted magnetic resonance imaging is relevant investigation and was done in one hundred patients.[17] Nerve conduction and electromyographic are another means to reach at is diagnosis, can be considered but these are not easy tests to be performed, and their contribution to diagnosis is not yet established, though these taste have been mentioned in literature. However, it is well admitted that the tibial component of sciatic nerve division of the nerve in piriformis syndrome is normally unaffected[6] while inferior gluteal nerve which innervates gluteus maximum can be involved leading to wastage of piriformis muscle mass and reduction of muscle size which has been documented in current research work also. Fishman et al[17] has stated that sciatic nerve entrapment weakens H-reflex bur many researchers do not agree with this observation[5,6] as they receive diversified outcomes regarding tibial nerve. We believe H reflex of the peroneal nerve is more authorityful as compared to tibial nerve. Morphological and topographic research work regarding piriformis muscle conducted in past doe not prove any links between physical findings and structure of and variable shapes and size of piriformis syndrome. Reseach work on cadaver dissections of two hundreds and forty has documented that in 90% of cases sciatic nerve exits at lower border of piriformis muscle, in 7%, piriformis and sciatic nerve appear split, single ramification of sciatic nerve courses via split while second travels distal to the muscle, and in 2% cases sciatic nerve was found to be split, in 1% piriformis was documented to be split by sciatic nerve.[3] Tofighi[18] proposed that in 6.15% of cases, peroneal nerve courses through piriformis tendon and suggested a strong association between this anomaly and initiation and progression of piriformis syndrome. Literature review reveals the cadaveric[3,19] and surgical illustrations[5,19-21], three findings already stated (Fig. 1-3). So we hypothesize that morphological, anatomical and topographical variations of piriformis and sciatic nerve are of paramount significance in causation of piriformis syndrome as compared to just relation between sciatic nerve and piriformis muscle. This is recommended that proper emphysis must be given environmental factors like routine exercise, athletic activity of the individual which contribute to clinical presentation of piriformis syndrome.

CONCLUSION

Current research work has presented topographical variants of piriformis syndrome and also documented characteristic clinical presentation with radiological features which may be of utmost practical importance to prevent diagnostic errors and uncertainties regarding many spinal diseases. Environmental factors with anatomical variations must be considered to illustrate real etiology of low back ach. Our recommendations are of significance to meet advanced trends regarding recent treatment of piriformis syndrome.

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

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Original Article

Vitamin-D Deficiency

Frequency of Vitamin-D Deficiency in Female Health Care Workers of Child Bearing Age

Muhammad Raheel Anjum[1], Javeid Iqbal[1], Sadia Anjum[2], Muhammad Ammad Haider[3] and Aziz-ur-Rehman[1]

ABSTRACT

Objective: To determine the prevalence of vitamin D deficiency in healthy female health care workers of child bearing age.

Study Design: Cross-sectional descriptive study

Place and Duration of Study: This study was conducted at the Services Hospital, Lahore from 1st July 2014 to 31st December 2014.

Materials and Methods: Two hundred seventy healthy female doctors and nurses were recruited by random consecutive sampling. 25(OH) vitamin D and intact parathyroid hormone (PTH) levels were measured, and effects of different variables were noted on vitamin D level.

Results: Three subjects out of 270 were excluded because of abnormal PTH levels. Median age was 28±4 years. Mean value of 25(OH) vitamin D was found to be 13.94±6.91. 254 (95.13%) were found to be deficient in vitamin D. Significant correlation was found between vitamin D deficiency and use of veil, obesity/malnutrition, married females, fish intake and lack of sun exposure.

Conclusion: Vitamin D deficiency has very high prevalence even in educated and relatively higher socioeconomic groups, even those having enough medical knowledge about its pathophysiology and effects.

Key Words: Vitamin D deficiency, Health care worker, Prevalence

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INTRODUCTION

Vitamin D is a fat soluble vitamin involved in bone mineralization. It is unique in that it cannot only be ingested in the diet as cholecalciferol (vitamin D3) or ergocalciferol (vitamin D2) but can also be synthesized in the skin when sunlight exposure is adequate. Despite dual mechanisms of attainment, vitamin D deficiency is not uncommon in many countries throughout the world and can lead to disease. Vitamin D has many functions in humans including calcium and phosphate homeostasis. Once absorbed from the gut or produced in the skin, it is then hydroxylated in the liver into 25-hydroxyvitamin D (25(OH)D) and then in the kidney and in extrarenal tissues to 1,25-dihydroxyvitamin D (1,25(OH)2D) and 24,25-dihydroxyvitamin D (24,25(OH)2D). Thereafter, the active metabolite can enter cells and bind to either the vitamin D-receptor or to a responsive gene, such as that of calcium binding protein, and thus assist in calcium absorption.[1] Vitamin D also regulates parathyroid hormone (PTH) levels which in turn reduces bone loss.[2] Severe vitamin D deficiency causes new bone, the osteoid, not to be mineralized. This can lead to rickets in children and osteomalacia in adults. Vitamin D deficiency has been associated with lower BMD in individuals without frank osteomalaciA.[3,4] It is not surprising therefore that in cases of severe vitamin D deficiency causing rickets or osteomalacia, a myopathy can develop and when severe, it presents with marked proximal muscle weakness with a predilection for the lower limbs.[5] Recently vitamin D has also been linked with several other conditions. Associations have been shown with colorectal cancer[6], diabetes mellitus[7], infection[8], multiple sclerosis, cardiovascular disease, breast cancer, autoimmunity and allergy[9], depression[10], and postural instability.[11] Foods that provide vitamin D include: fatty fish like tuna, mackerel, and salmon, foods fortified with vitamin D, like some dairy products, orange juice, soy milk, and cereals, beef liver cheese and egg yolks.

There are many causes of vitamin D deficiency. Generally, they can be divided into two groups: UVB-related deficiency and medical/physical condition-related deficiency. UVB-related deficiency is found in the elderly[12,13] dark skin people[14], sun screen users[15]

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and also depends upon season, latitude, and the time of day. Medical conditions causing vitamin deficiency include fat malabsorption[16], chronic kidney disease[17], obesity[18] and drugs like anticonvulsants[19].

The aim of our study was to highlight the prevalence of vitamin D deficiency in a cohort of women of child bearing age and correlate them to certain demographic variables. Most of the published literature on Vitamin D levels in Pakistanis performed in smaller outpatient settings, involving low socioeconomic groups of the population. There is a dearth of published data on prevalence of vitamin D deficiency in asymptomatic population of middle and high socioeconomic group like health care workers including female doctors and nurses and to highlight importance the lack of awareness even in medical field workers.

MATERIALS AND METHODS

The cross-sectional study was conducted at Services Hospital, Lahore over a period of six months from 1st January 2012 to 30th June 2012. The sample size was calculated to be 270 assuming an anticipated population proportion of 85%, a relative precision of 0.05 with 95% confidence. This study was funded by Services Institute of Medical Sciences, Lahore (SIMS) and was approved by Institutional Review Board of SIMS. Healthy adult female doctors and nurses, without any comorbidities, aged between 18 years to 45 years, were recruited by non-probability random consecutive sampling and informed consent was taken. Subjects who had vitamin D supplementation in last 6 months were excluded. Data was recorded on a predesigned proforma including demographic and socioeconomic details, BMI, marital status, lactation status, number of children, exposure to sun light, milk intake, use of veil, fish intake, source of water and any history of musculoskeletal problems.

Venous blood samples of 10 ml were collected by trained health care workers in plastic serum tubes for each respondent. The samples were placed in ice boxes at the site of the camp and were sent to the lab in batches. There was a time lag of approximately 60 minutes between venous puncture and serum separation after centrifugation at 3000 bpm. After centrifugation the serum was stored in the laboratory freezer at -20°C, until further analysis. Serum markers measured included 25(OH) vitamin D, intact parathyroid hormone (PTH) measurements. Vitamin D deficiency was taken as 25-hydroxyvitamin D blood level below 30 ng/ml and severe deficiency was defined as 25-hydroxyvitamin D blood level below 20 ng/ml. Levels above 75 ng/ml were taken as toxicity.

The data was entered and analyzed in SPSS v17. Descriptive statistics were calculated and effect of different factors on vitamin D level was analyzed.

RESULTS

The sample comprises of 270 females of child bearing age. 267 subjects' data was analyzed further. Median age was 28±4 years. 3 females were excluded from the results because of abnormality in intact PTH level. The minimum age in the sample was 23 years, with a maximum age of 45 years being reported. Mean value of 25(OH) vitamin D was 13.94±6.91. only 13 (4.87%)subjects had the level in sufficient range, i.e., ≥ 30 ng/ml. Rest of the sample population which is 254 (95.13%) were found to be deficient in vitamin D. Demographic, social and behavioral determinants of vitamin D status in healthy adult females are described in table 1.

Table No.1: Demographic, social and behavioral determinants of vitamin D status

Determinant Factor	Subgroups of Determinant Factor	Mean 25(O) vitamin D level ±SD	p-value
Age	18-30	16.94±6.91	<0.05
	31-45	12.94±3.81	
BMI	<18.5	10.24±2.71	<0.05
	18.5-24.9	18.33±6.13	
	>25	14.34±3.54	
Marital status	Single	19.94±5.61	<0.05
	Married	13.25±5.32	
Lactation status	Lactating	17.94±5.91	>0.05
	Non lactating	18.34±6.91	
Children	Yes	13.72±4.81	>0.05
	No	15.64±7.31	
Exposure to sun light	<30 min	11.54±4.22	<0.05
	≥ 30 min	22.64±7.32	
Use of veil	Yes	11.94±3.52	<0.05
	No	16.94±6.71	
Daily milk intake	Yes	18.74±2.64	>0.05
	No	17.98±3.42	
Fish intake	Yes	19.56±6.96	<0.05
	No	16.31±3.91	
Water source	Tap	14.94±5.11	>0.05
	Boiled	14.74±6.83	
	Mineral	17.94±6.91	
Open space in home	Yes	16.33±7.41	>0.05
	No	14.44±3.93S	
Monthly income	<10000	14.94±2.61	>0.05
	10000-30000	15.54±4.33	
	>30000	16.48±1.95	
H/O musculoskeletal problem	Yes	10.94±3.95	<0.05
	No	18.94±2.81	

DISCUSSION

Our study found very high prevalence of vitamin D deficiency and insufficiency in Pakistani female population which is consistent with reported values of vitamin D deficiency in a few earlier studies carried out in Pakistan.[20-22]

Significant correlation was found between vitamin D deficiency and use of veil, obesity/malnutrition, married females, fish intake and lack of sun exposure, keeping in view with other studies.[23] Milk intake was not significantly related to vitamin D deficiency in our study. It has also been reported previously that serum calcium does not predict serum 25(OH)D levels.[24] Also it has been noted that vitamin D deficiency becomes more severe with advancing age[25], and it was also the case in our study.

Unique point in our study is that it estimated the prevalence of vitamin D deficiency in an educated and relatively good socioeconomic status population. Apart from this, the study population was healthy adult health care worker females, doctor and nurses, who are supposed to have education about high prevalence of vitamin D deficiency. It was found that an alarming 95% of them are deficient in vitamin D.

CONCLUSION

Very high rates of vitamin D deficiency among healthy female doctors and nurses of a tertiary care hospital and showed that even health care workers need awareness about alarming levels of vitamin deficiency, probably due to changing life styles. It is recommended that women who are not in a position to increase their sun exposure can significantly reduce their risk of vitamin D deficiency by taking a multivitamin tablet containing vitamin D.

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

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Original Article

Cholecystectomy

Revisiting Factors Predicting Conversion to Open Cholecystectomy

Syed Sheeraz ur Rahman[1], Zahid Habib[1], Rufina Soomro[1] and Omer Bin Khalid[2]

ABSTRACT

Objective: To identify peri-operative risk factors leading to conversion in patients undergoing laparoscopic cholecystectomy.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the Liaquat National Hospital & Medical College, in Karachi from Jan 2009 to Dec 2011.

Materials and Methods: The Study was started after formal approval of General Surgery faculty. Theater records of all patients who underwent Laparoscopic to open conversion admitted to the department, Liaquat National Hospital & Medical College, from January 2009 to December 2011 were retrieved & reviewed. All data was entered into a designated proforma and SPSS ver 19.0 was used for statistical analysis.

Results: During the period from January 2009 to December 2011 (3 years), total 1281 patients admitted for cholecystectomies. Out of which 156 patients had planned open cholecystectomies and were therefore excluded from the study. 1125 patients underwent laparoscopic cholecystectomies out of which n=45 were converted to open cholecystectomies with the conversion rate of 4%. In our series, males were 20 and females were 25 with mean age of 48.20 ± 13.048. 36 patients were admitted through the OPD with the mean hospital stay was 8.56 ± 5.294 days. Pre-surgery 28 of the patients had acute symptoms and 31 patients had normal liver function tests at the time of admission. 33 patients did not show any ultrasound evidence of acute cholecystitis. All patients were operated in direct supervision of the consultant with minimum experience of performing > 500 laparoscopic cholecystectomies. Intraoperative causes leading to conversion were difficult anatomy in 44 patients, empyema in 17, perforated gall bladder in 5) , bleeding in 4 and instrument failure in 1. 17 of the patients required per-operative cholangiogram (POC)for deranged LFTS and for delineation of difficult anatomy.

Conclusion: Laparoscopic cholecystectomy in a tertiary care hospital has acceptable conversion rates as compared to local and international standards. In our series, patients with difficult per-operative anatomy and empyema gallbladder were significant risk factors for conversion.

Key Words: Open conversion, laparoscopic cholecystectomy, risk factors

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INTRODUCTION

Laparoscopic Cholecystectomy is the standard care for symptomatic gallstones since 2 decades but open conversion or classical open cholecystectomy can at times be inevitable as required for complicated or difficult gallbladders. Many consider conversion to be morbidity or a failure on part of the surgeon as technical error but should be taken as an accepted surgical practice[1,2]. This is in the best interest of the patient and operating surgeon with the sole intent to do no harm to the patient.

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Different studies have shown various predictors and risk factors[3] that can lead to conversions in their setup which include age, gender, presentation[4], surgeons experience[5,6], center volume and timing of surgery[7,8] technical difficulties in terms of identifying biliary anatomy to power breakdowns.

Every center should have the understanding of its own conversion rate and peri-operative risk factors of conversion. Knowing own conversion will greatly help in patient counseling and comparison of existing practices with the available literature. Incorporating this routine into an audit also helps to control such factors and improve surgical care.

Therefore the purpose of the study is to identify peri-operative risk factors leading to conversion in patients undergoing laparoscopic cholecystectomy at our hospital.

MATERIALS AND METHODS

This observational / descriptive study was conducted in January 2009 to December 2011. All patients admitting to Department of General Surgery, Liaquat National

hospital & Medical College with symptomatic gallstones either through out patient or emergency.

Inclusion Criteria:

1. All adults between the ages of 18-70 years of age
2. ASA ≤ 3
3. Patients having laparoscopic to open conversions

Exclusion Criteria:

1. Patients having planned open cholecystectomies
2. ASA ≥4
3. Consent for laparoscopy not given

The Study was started after formal approval of General Surgery faculty, Liaquat National Hospital & Medical College. Theater records of all patients who underwent Laparoscopic to open conversion admitted to the department, Liaquat National Hospital & Medical College, from January 2009 to December 2011 were retrieved &reviewed. All data was entered into a designated proforma and SPSS ver 19.0 was used for statistical analysis.

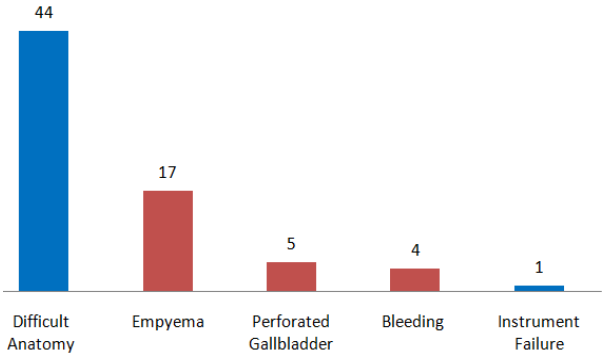
Cases were reviewed in terms of age, gender, total hospital stay, symptoms, ultrasound findings, pre-operative LFTS, and reasons of conversion using descriptive statistics.

RESULTS

During the period from January 2009 to December 2011 (3 years), total 1281 patients admitted for cholecystectomies. Out of which 156 patients had planned open cholecystectomies and were therefore excluded from the study.

Table No.1: Comparison of Patient Volume to Conversion rate

Ser no.	Study	Patient Volume /year	Conversion rate
1.	Genc V et al [10]., CLINICS 2011.	>400 cases	3.16 %
2.	Sakpal, S. et al. JSLS 2010.	>400 cases	4.9 %
3.	Our study	>350 cases	4%
4.	R. Azmi et al, J Postgrad Med 2005.	<300 cases	7.5%
5.	Pervaiz Iqbal et al, Pak J Surg 2008.	<100 cases per year	9.4 %
6.	Rashid T et al[9]. J Ayub Medical College, Abbottabad, 2016	<100 cases per year	7 %



Graph No.1: Intraoperative Causes of Open Conversion

1125 patients underwent laparoscopic cholecystectomies out of which 45 were converted to open with the conversion rate of 4%. In our series, males were 20 and females were 25 with mean age of 48.20 ± 13.048. 36 patients were admitted through the OPD with the mean hospital stay was 8.56 ± 5.294 days. Pre-surgery 28 patients had acute symptoms and 31 patients had normal liver function tests at the time of admission. 33 patients did not show any ultrasound evidence of acute cholecystitis. All patients were operated under direct supervision of the consultant with minimum experience of performing > 500 laparoscopic cholecystectomies. Most common cause of conversion was difficult anatomy (44 patients) which was associated with empyema in 17, perforated gall bladder in 5 , bleeding in 4 and instrument failure in 1. 17 patients required per-operative cholangiogram (POC)for deranged LFTS and difficult anatomy.

DISCUSSION

Laparoscopic cholecystectomy (LC) is the treatment of choice for symptomatic gallstones, but possibility of unexpected operative findings and complicated preoperative course in some cases induces necessity of conversion[10,11]. Knowledge of the rate and impact of the underlying reasons for conversion could help surgeons during preoperative assessment and improve the informed consent of patients. The need for conversion is not the failure of operating surgeon but an attempt to avoid complications which might ensue if expeditious surgery is performed[12].

The conversion rates according to the studies do show geographical variations from 1-19%[13-16] and some have shown increase propensity towards male gender [1] however in our series, females were predominant with P value 0.106. The main reasons for conversion in our series were difficult per-operative anatomy, empyema gallbladder, and hemorrhage[17] as shown in Graph 1.

In our study, rate of conversion was 4% which is comparable with the international literature and one of the lowest among the local literature. It is also observed that centers with high volume surgeries (>400 cases per

year) have a conversion rate of about <5% as opposed to those with lower volume[5]. Hence centers with high volumes are able to maintain a reasonable low level of conversion. Comparison of volume on conversion rate is shown in table 1.

Pervaiz et al[18] in his study showed presence of adhesions as a sequel of repeated previous attacks as the leading cause of conversion among empyema gall bladder and instrument failure. In our study, it was observed that there were no pre-operative significant risk factors leading to conversion in fact majority of the patients did not show any evidence of the acute cholecystitis as evident by peri-cholecystitic fluid, impaction of stone at the neck of gall bladder and increased wall thickness.

In Tayeb et al[19], they evaluated the pre-operative risk factors esp. age and the per-op ultrasound findings in predicting the conversion. In their study by using regression analysis, it was observed that age> 60 years and pre-operative ultrasound findings features suggestive of acute cholecystitis and gall bladder thickness > 3mm were the independent risk factors leading to conversion. In our series, the mean ages of the patients were 48.7 years ±2.7.

In our series, neither the pre-op ultrasound nor the lfts helped in predicting the conversion. In our series, 33.3% of the patients required additional POC to confirm the anatomy. There were no reported bile duct injuries in our series. Kumar et al[20] in his study noted to have <1% of patients had conversion leading to instrument failure while Pervaiz et al had 2.94%.

CONCLUSION

Laparoscopic cholecystectomy in a tertiary care hospital has acceptable conversion rates as compared to local and international standards. In our series, patients with difficult per-operative anatomy, and empyema gallbladder were significant risk factors for conversion.

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

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Original Article

Effects of Drugs on Prostatic Hyperplasia

Comparative Study of Clinical Outcomes of Monotherapy and Combination Regime of Doxazosin, Finasteride on Benign Prostatic Hyperplasia in Pakistani Citizens

Abdul Saboor Soomoro[1], Sultan Mohammad Tareen[2] and Mian Azhar Ahmad[3]

ABSTRACT

Objective: To investigate better clinical success with combination regime of doxazosin, finasteride or when either of the two drugs used as monotherapy on benign prostatic hyperplasia.

Study Design: Descriptive / cross sectional study.

Place and Duration of Study: This study was conducted at the DHQ Hospital Sahiwal & Ghulam Muhammad Mahar Medical College & Teaching Hospital Sukkur from January 2014 to March 2016.

Materials and Methods: This descriptive cross sectional study was done on 3000 patients with symptomatic BPH (benign prostatic hyperplasia). Amongst them, initial 100 patients were recruited for pilot study and 2900 patients were involved in the full-scale study. Total number of patients was divided into four groups, placebo, patients taking doxazosin, monothery with finasteride, combination therapy group. Medication was classed into two groups; first group drugs with potential clinical benefits, second group comprised 'placebo' drugs, mimicked shape wise and taste similar to doxazosin or finasteride.

Results: After a follow up 1 to 3 years, in all men of more than fifty years coming with signs and symtoms specific for BPH where surgery was not the consideration, the highest incidence of successful clinical outcomes were noted with patients taking combination regime of Doxazosin, Finasteride on benign prostatic hyperplasia.

Conclusion: Successful clinical outcomes were achieved in our research work when combination regime of Doxazosin, Finasteride on benign prostatic hyperplasia were used, rather than when either of the two drugs were used as monotherapy

Key Words: Doxazosin, Finasteride, Benign prostatic hyperplasia

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INTRODUCTION

In old age, one of the very important causes of complications of lower urinary tract is benign prostatic hyperplasia (BPH).[1] The quality and mode of life is badly influenced by these complications. These complications may include the recurrent UTIs, the blockage of the urethral pathway, the incontinence and retention of urine, or maybe a need of surgical interventions.[2]

The alpha blockers are usually given to such patients with symptomatic hyperplasia of prostate gland, as they act on alpha adrenergic receptors present on prostate and antagonizes them hence decreases the tone of bladder neck and smooth muscles present in prostate.[3] The other drug class given in such cases is 5α-reductase inhibitor (5-ARIs), which inhibits the 5 alpha reductase enzymes and which has antiandrogenic nature as they inhibits the conversion of testosterone to dihydrotesto-sterons and decreasing the prostate volume by causing the atrophy of prostate epithelium. Variety of modalities of applied research proved the benefits of alphablockers to facilitate the better clinical outcomes and facilitating the passage of urine out of the urinary tract.[4] Literature survey reveals research work of 48 months duration states that BPH considering its clinical follow-up, patients continue to complain frequency of urine, urgency of urine, urinary tract infections and at times obstruction to the flow of urine.[5,6] Patients may end up complaining the obstruction to the normal flow of urine, or may require surgical interventions. The 5a reductase inhibitor (finasterides) decreases the possibility of complications of benign prostatic hyperplasia. It has been proved by another research that when 2 drugs are administered to the patient , the relief of symptoms regarding improvement in the clinical

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symptoms were just similar to when only one drug was given to the patient.[7,8] Two terminologies are synonymous namely, benign prostatic hyperplasia and benign enlargement of prostate. It must be noted here that this increase in gland is not actually the carcinoma of the gland but an increase in size of gland due to the increase of the gland's parenchyma and connective tissue cells that leads to increase in size of the prostatic discrete collection of cells which results in alteration in normal anatomical architecture of the gland featured by collection of cells as compact discrete masses within the normal domains of the gland.[9] This all leads to the enlargement of all lobes of the gland in general and median lobe enlargement in particular. This causes pressure symptoms to the prostatic urethra precipitating the local urinary tract infection and obstruction to the flow of urine which is troublesome to the patient.[7,8] Though obstruction is misnomer here as the intra urethral diameter is transiently compromised. When there is obstruction to the urethra, the first outcome is the over excertion of the detrusor muscle of bladder wall, micturition becomes troublesome, the clinical setting is progressive meriting conservative management and surgery is the last resort.[9] It must be noted here that benign prostate hyperplasia is actually the increase in the number of cells and not the increase in size of the cell. The level of PSA may gets elevate due the hyperplasia of the gland or maybe due the infection in the gland, BPH is a benign condition, this is as they say when the hair turn grey, when the wrinkles come on the face, this is the age for prostate gland and this is the normal component of aging scenario in men, When there is increase in parenchymal cells in any lobe of the gland and this is common in age group of over 50 years.[10] in diabetic patients lesser age groups ie lesser that 40 years of age may get this clinical. Secretions of prostate gland are liquid form and become component of semen. Patients complained nocturnal frequency that they had repeated desire at bed time to micturate. Clinical presentation of the patient also involved painful and troublesome micturition, patients experiencing drops of blood continued passing through urethra.[11] Actually management of benign prostatic hyperplasia should only be considered when start complaining of moderate to severe specific clinical picture of this problem. Benign prostatic hyperplasia can be managed conservatively and then operative option is also there. The prostate gland is present around the urethra in the area just under the bladder. It is a very tiny organ present only in men which makes a fluid that helps to nourish sperm as part of the semen. Treatment results in successful decrease in symptoms in majority of people without affecting the sex drive of the person. Best clinical method to diagnose benign prostatic hyperplasia is through digital approach per rectum and a very relevant investigation is by applying a cytoscope.[12]

MATERIALS AND METHODS

This descriptive cross sectional study was done on 3000 patients in DHQ Hospital Sahiwal & Ghulam Muhammad Mahar Medical College & Teaching Hospital Sukkur from January 2014 to March 2016. Amongst them, initial 100 patients were recruited for pilot study in which follow up was maintained till two years and 2900 patients were involved in the full-scale study where follow up was done for four years. Total number of patients was divided into four groups, placebo, patients taking doxazosin, monotherapy with finasteride, combination therapy group. Medication was classed into two groups, first group drugs with potential clinical benefits, second group comprised 'placebo' drugs, mimicked shape-wise and taste similar to doxazosin or finasteride.

All patients gave written informed consent. Patients irrespective of their age, sex, past history of BPH signs and symtoms were involved in this study. The patients of more than 50 years of age with classic BPH symptoms score were admitted through out patients departments. Demographical variables included age, name and sex of each patient and complaints presented by the patients. We did not include in current research work the patients with severe pathological deformities, cases who had surgery on prostate or this gland was treated conservatively, and those with unclear documents Exclusion criteria from study included patients having previous abdominal surgery, very low blood pressure, bleeding diathesis and the patients not fit for general anaesthesia. All those patients having elevated serum PSA (prostate-specific antigen) level of greater than 10-12 ng per milliliter.

Total number of patients were divided into four groups, placebo, patients taking doxazosin, monothery with finasteride, combination therapy group. Medication was classed into two groups, first medications producing clinical effects, second placebo drugs, later group included tablets which were shape-wise and taste wise mimicking doxazosin and finasteride. We planned different treatment regimes in different hospitals. Patients were advised to have drugs only at night times. As a policy finasteride was regularly administered 5 mg daily. Different schedule was planned for doxazosin, as it was given double the dose daily routinely at one-week intervals, it started as 1 mg once in 24 hours till seven days, this plan continued till we achieved the target of final daily dose of 8 mg. Significant side effects appeared in fifteen patients, we changed treatment regime to 4-mg instead of 8mg, nine patients did not even tolerate 4mg. Total of five patients who developed adverse side effects with 8mg or a 4mg dose were labeled as non compliance group of patients, they stopped taking doxazosin.

Blood pressure, pulse rate, respiratory rate, heart rate charts were maintained, also intensity of signs and

symtoms of benign prostatic hypertrophy was obsereved, maximal urinary flow rate record was also maintained for a period of 3 months, directly observed therapy plan was also exercised which included patients tolerability to medication and side effects were also noted for a period of ninety days. P/R, assessment of prostate specific antigen, complete urine tests were on yearly basis.

The continues retention of urine , the kidney problems , the UTIs, or discontinuation of urine outflow were declared as primary outcome. In situations when patients could not micturate having obstructed outflow, we labeled them as acute urinary retention**.** BPH is underlying cause of kidney failure and is diagnosed when anorexia, nausea, vomiting fatigue, lethargy with urinary symtoms, serum creatinine 1.5 mg per deciliter. When more than two events of infections involving any part of urinary tract in a period of one year occure, we label it as recurrent urinary tract infection. Unintentional, uncontrolled bed wetting causing a lot of cleanliness issues, for which patient himself feels guilty, visits doctor and tells this symptom as first complaint of his clinical presentation. We had formulated a board of doctors for exact follow up of these all patients, particularly the complaints of the patients, but importantly these board members did not know which medications were being administered to the patients. Late follow up changes in clinical presentations, like sudden inability to micturate, kidney function impairment, repeated infections of urine outflow tract, automatic unintentional voiding, also maximum micturition flow rate were labeled as secondary follow up changes.

RESULTS

After a follow up 1 to 3 years, in all men of more than fifty years coming with signs and symtoms specific for BPH where surgery was not the consideration, the highest incidence of successful clinical outcomes were noted with patients taking combination regime of doxazosin, finasteride on benign prostatic hyperplasia. Total of three hundred and fifteen primary outcome events appeared, Maximumm number of such events were observed, as 114 (placebo group), 81 (doxazosin group), 85 (finasteride group), and 43 (combination-therapy group). Blood pressure, pulse rate, respiratory rate, heart rate fluctuations were observed, also intensity of signs and symtoms of benign prostatic hypertrophy was found distressing 114 in the placebo group. The continues retention of urine, the kidney problems, the UTIs, or discontinuation of urine outflow declared as primary outcome were found in moderate to severe intensity placebo group.

Acute obstruction to urinary outflow, kidney impairment in moderate forms were documented in eighty one patients in the doxazosin group. Blood pressure, pulse rate, respiratory rate, heart rate fluctuations were not depicted in this group. Anorexia, nausea, vomiting fatigue, lethargy with urinary symtoms, serum creatinine 1.5 mg per deciliter was present 85 in the finasteride group. Recurrent urinary tract infection, unintentional, uncontrolled bed wetting, causing a lot of cleanliness issues and moderate to severe intensity of signs and symptoms of benign prostatic hypertrophy like acute obstruction to urinary outflow, kidney impairment, blood pressure, pulse rate, respiratory rate, heart rate fluctuations were observed troublesome in only forty three patients in the combination-therapy group. Board of doctors for exact follow up of these all patients, particularly the complaints of the patients, but importantly these board members did not know which medications were being administered to the patients.

DISCUSSION

Standard living conditions of aging patients may be influenced by BPH and by infection of ureter, urinary bladder and urethra[13]. The BPH leads to constant retention of urine, the kidney problems, the UTIs, or discontinuation of urinary outflow along with some other complications .The use of different drugs like doxazosin and finasteride help to decrease the symptoms and and help to normalize the urinary outflow. The need of surgical interventions is minimized with the use of finasteride which decrease the size of the gland.[14]

Two years researches were made out for this purpose that included the combined treatment and use of alpha blockers and 5α reductase inhibitors. The VAC studied the effect of finasteride, the alpha blocker (terazosin), combined therapy of two with placebo while the other research studied the effect of finasteride, alpha blocker (doxazosin), combined therapy of both with placebo.[15-17] The result of the researches were that the combined therapy was not that useful as compared to the individual drug used but the research showed that there is a definite decrease in the BPH complications and clearance in outflow of urine.[18,19]

The result showed that there is a decrease in all the symptoms of BPH with the use of finasteride, alpha blockers (doxazosin) and the combined use of two but the combined treatment with the two showed the maximal result as compared to the individual drug used alone.[20]

From the parts of the composite primary outcome, a confirmed increase from base line in the benign prostatic hyperplasia complications score of at least four points was reoccurring event. This result has clinical importance, as in people with BPH many complications are the cause for invasive therapy.[21] In a 1 year research the mean increase of the BPH clinical picture and aging men take it as a serious medical and social issue.[22] The combined treatment was more useful

and fruitful in reducing the symptoms as compared to the individual drugs used alone.[23]

As a result of research we came to know that when 5α-reducatse inhibitor (finasteride) and combined therapy were given, both showed the similar result in preventing the need of surgical interventions and in retention of urine of acute nature.[24,25] Monotherapy with doxazosin brought about postponing in acute retention of urine and also in delaying the need of surgery, these patients did experience acute urinary retention and surgical intervention later in course of current research work.. So major benefit of treatment with doxazosin alone lessened incidence of acute urinary which is main work of alpha-blocker which bring about relaxation of smooth-muscle tone present in prostate gland.[26]

Comparatively, if we can achieve the target of getting tomography of prostate gland to lesser dimensions, the chances of sudden blockage of urinary outflow and surgical interventions during the period of current research work, are reduced. Operative technique in not the ultimate option of managing acute urinary obstruction. Voiding trial remains a thoughtful entity, its success depends upon time and various factors causing urinary out flow obstruction events. In the indexed literature, it has been documented in the placebo category done in 4-year research work 17% of patients developed urinary obstruction during follow up when desired results were achieved in voiding trial and 75% needed operative work.[27] An insight into literature depicts 29% patients within placebo category got desired results of voiding trial post acute urinary obstruction event.[28]

Importantly results of current research work show urinary tract infection are very uncommon which indicate that urinary tract symptoms and BPH do not have strong clinical relevance. Another finding in our current study is that kidney failure is not likely to occur even if BPH is left unmanaged actively at least during our trial. Indexed literature states clinical testing assessing how much alpha-blockers and combination treatment are effective were of very short duration of lesser than 12 months.[29,30] It is pertinent to mention that our research work is of much longer duration and results are comparable to those researchers who did study in past. So we claim the longer duration effectiveness of doxazosin, finasteride, and combination treatmen. A survey in indexed literature done on three thousands patients who were administered either finasteride or placebo. That research work was of 4 years duration in which a couple of patients reported with growth in mammary gland seen in placebo group and not a single patient got it in the finasteride category of patients. In yet another documentation regarding prostate prevention conducted on eighteen thousands patients who were casually selected to be administered 5α-reductase inhibitor (finasteride) or placebo, found similar incidence of documented patients of growth in mammary gland in 5 years observation.

In the two studies ie alpha blockers group (doxazosin) and placebo group the overall size of prostate, the serum prostate specific antigens count, the outflow rate of urine and the seriousness of symptoms showed the chances of increase in benign hyperplasia of prostate and the use of surgical interventions by percentage ranging from 0.59%-5.63%. But in case of therapy which included the use of these drugs in a combined form, these complications do not show any type of progress in the disease and only prostate specific antigens count suggests the chances of surgery or retention of urine. The hyperplasia and growth of the prostate is directly linked to the prostate specific antigens level, the increase in growth leads to increase in level which is helpful in predicting whether the disease is regressing or worsening.

There is no clear cut linkage in the group with combined therapy among the chance of progress and the level of prostate specific antigens which was a proof that the treatment is going fine and results are favorable however the chance of worsening of the disease in people on placebo was less for the people with the less level of prostate specific antigens. Total number of patients were divided into four groups, placebo, patients taking doxazosin, monothery with finasteride, combination therapy group. Medication was classed as two groups, first potential action producing medication and second placebo drugs, which were shape wise and taste wise resembled like doxazosin or finasteride.

Current research work has documented that combined treatment with doxazosin and finasteride lowered danger of severity of signs and symptoms of BPH more than when either drug given alone. Also chances of acute urinary blockage and indication for operative work for BPH were lowered with combined treatment. Desirable clinical outcomes regarding maximal urinary flow rate were also noted so combined treatment is appropriate and precisely indicated for patients of BPH having lower urinary tract symptoms, more over patients showed reduced danger of increasing severity of symptoms.

CONCLUSION

Successful clinical outcomes were achieved in our research work when combination regime of doxazosin, Finasteride on benign prostatic hyperplasia was used rather than when either of the two drugs were used as monotherapy. Combined treatment is most appropriate and highly indicated for conservative management of BPH where survey is not the option.

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

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Original Article

Incidence of Paraphenylenediamine (Blackstone) Intoxication as A Suicidal Poison in Interior Sindh

Mir Muhammad Sahito[1], Farzana Chang[2], Shaghufta Shaheen Panwhar[3], Zubaida Zain[4] and M. Iqbal Mughal[5]

ABSTRACT

Objective: The study was aimed to see the incidence of this poisoning.
Study Design: Retrospective study.
Place and Duration of Study: This study was conducted at the Peoples University of Medical and Health Sciences for Women, Nawabshah over a period of 3years from January, 2013 to December 2015.
Material and Methods: The study was based upon the data of 235 female cases of PPD poisoning extracted from the medical records of Surgical Intensive Care Unit at PUMHSW.
Results: During the period of study a total of 235 female cases of PPD poisoning were reported in the hospital. The mean age of study population was 24.47±9.88 years. Regarding the outcomes 54.9% patients were cured, 38.3% expired & 6.8% were referred.
Conclusion: The study revealed that number of cases using hair dyes for commission of suicide is significant and alarming. It is recommended that use of Blackstone (paraphenylenediamine) in hair dyes or in other cosmetics must be discouraged.
Key Words: Hair Dye, Paraphenylenediamine, Poisoning.

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INTRODUCTION

Hair dye poisoning has been evolving as one of the significant causes of intentional self-harm in the developing world. Hair dyes contain Paraphenylenediamine (PPD) / Blackstone which is a toxic compound which causes laryngeal edema, severe metabolic acidosis, rhabdomyolysis and acute renal failure.[24]Paraphenylenediamine (PPD) [C6H4 (NH2)2] is an aromatic amine not found in nature and it is produced commercially. It is a derivative of Paranitroanaline that is available in the form of white crystals when pure and rapidly turns to brown when exposed to air. It is widely used in industrial products such as textile or fur dyes, dark colored cosmetics, temporary tattoos, photographic development and lithography plates, photocopying and printing inks, black rubber, oils, greases and gasoline.

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PPD is the most common constituent of hair dye formulations. It is often the key ingredient but can also be used for color enhancement. PPD is commonly used in its raw form for cosmetic purposes in Africa, Middle East and Indian subcontinent while it is rarely used in the West. The salt concentration in hair dye preparations variesbetween70-90%. PPD has widely been used for cosmetic and industrial purposes in the world.[1-5]

PPD on oxidation yields an intermediate, Bandrowski's base, which is a highly toxic compound and a well-known mutagen and carcinogen. However, the systemic side effects produced by PPD are dose-dependent and based on potential of individual susceptibility.[7, 8]

It has potential to damage multiple systems of the body including respiratory, renal,vascular and integumentary, consequently resulting into reports of increased mortality rates.[5,7]

Several studies from Saudi Arabia, India, Khartoum, Sudan, Casablanca, Morocco and Pakistan have reported cases of PPD poisoning.[9,10] According to a study by Raheem et al, mortality rate from PPD poisoning was between 12-42%,while it was between 3-60% in another study.[1,5] Previous researches have reported that the PPD poisoning is common in young people particularly aged between 15-

35 years with a higher proportion amongst females.[11] Tilldate, there isno antidote for PPD poisoning and it is managed conservatively, with increased mortality rate within 24 hours of consumption. Recently, few studies have been conducted in Pakistan on PPD poisoning [11,12] buttheywere general and did not particularly address female youngsters. However, this study aims specifically on female population suffering PPD poisoning and also gives outcome of these cases.

MATERIALS AND METHODS

This retrospective study is based upon the data extracted from the medical records of Surgical Intensive Care Unit at Peoples University of Medical and Health Sciences for Women, Nawabshah over a period of 3years (January,2013-December 2015). The details of females with PPDpoisoning were recorded. The children, males and other causes of poisoning were excluded from the study. Variable under study were age, sex and manner of death. Information on post-referral state of the patient was neither obtained nor documented in the medical records. All the patients were initially managed at the trauma center PUMHS (Women), Shaheed Benazeerabad then shifted to Surgical Intensive care unit. Since there is no antidote for this poison, all the cases were managed conservatively including correction of fluid and electrolyte imbalance, blood pressure control and nutritional support. The data extracted from medical records was transferred to Microsoft Excel 2007 spreadsheets and analyzed on SPSS version 20. Categorical variables were presented as frequencies and percentage.

RESULTS

During the3 years period of study (January, 2013-December, 2015), there were a total of 235 female cases of PPD poisoning. The age of study population was24.47±9.88 years.

Table No.1: Frequency distribution of victims with reference to outcome

Outcome	Frequency	Percentage	Manner of Death
Cured	129	54.90	Suicide
Expired	90	38.30	Suicide
Referred	16	6.80	
Total Number	235	100.00	

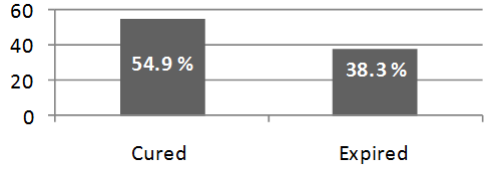

Figure No. 1: Outcome of PPD poisoning cases.

In context to the outcomes, 54.9% patients were cured and 38.3%expired.(Figure No. 1 and Table No.1)

DISCUSSION

Poisoning is the most common method of committing suicide in Asian countries with the use of various methods due to immense variation insocial, religious, cultural, and economic backgrounds.[13,14]Intherecent years, prevalence of cases of PPD poisoning have significantly increased with major involvement of young females. Easy access to the poison, prevalence of family issues and conflicts, employment issues, social and emotional problems, low socioeconomic status, and conflicts related to marriage might be the most likely factors for such an increase in the cases of PPD poisoning.[15]

During the period of study we had a total of 235 cases of females with PPD poisoning. This is in accord with study of Chrispal et al who also reported female predominance (11out of 13). In another study, females contributed to 64.8% with the female to male ratio of 1.84.

In two recent studies poisoning in young girls has been reported[17,18]. In eleven years study (1992 to 2002) of Filali et al, in total of 374cases, majority were females (77%)with age ranging between 15-35 years (69.5%) & 78.1% cases were of intentionalpoisoning.[19]

The female predominance in the study of Hamdouk was 69.7%, and of Jain et al was 74.86%.[17,19,20]

The age of victims in our study was 24.47±9.88 years. In study of Chrispal et al the mean age was 27.75 years.[16] In another study PPD poisonings was observed among young people aged between 15-24 years[19]. These findings corroborated with previous study with mean age of 24.75 years.[9]

In context to the outcomes, there were 54.9% patients cured and 38.3% cases expired during three years. In a previous study, the mortality rate due to PPD poisoning was 42% with all deaths occurring within 24 hours of diagnosis.[21] In the study of Abdul Rahim et al the reported mortality rate was 7.9%,[11]

In study of Filali et al the mortality rate reported was 21.1%. Similarly, in the cases of PPD poisoning reported by Rebgui et al and Shalaby et al the mortality rates respectively were 14.7% and 16%[22,23]. This variation in the mortality rates may be attributed to the difference in the duration of the study, variation in sample size and the type of methodology used, so also geographical variation.

CONCLUSION

The study revealed that number of cases using hair dyes for commission of suicide is significant and alarming. It is recommended that use of blackstone (paraphenylenediamine) in hair dyes or in other cosmetics must be discouraged.

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

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Original Article

Caesarean Section Delivery

Incidence of Caesarean Section Delivery in District Sialkot

Ashba Anwar[1], Anila Ansar[2] and Neelam Saba[1]

ABSTRACT

Objective: To evaluate the incidence of Caesarean section delivery in District Sialkot.
Study Design: Observational / descriptive Study.
Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynecology at Idris Teaching Hospital Sialkot, Islam Teaching Hospital Sialkot, Allama Iqbal Memorial Teaching Hospital Sialkot and number of private hospitals of the Sialkot from January 2015 to July 2016.
Materials and Methods: One thousand caesarean section deliveries were included in this retrospective study in the department of obstetrics and gynecology at Idris Teaching Hospital Sialkot, Islam Teaching Hospital Sialkot, Allama Iqbal Memorial Teaching Hospital Sialkot and number of private hospitals of the Sialkot. The charts were reviewed, and age, history of the patient, family history of the caesarean section delivery, date of caesarean section delivery , number of caesarean section delivery, socio economic status, area of the patient, anesthesia used for caesarean section delivery were recorded on designed Performa. The fully informed consent of every patient prior to surgery was recorded. Ethical committee permission of all institutes was taken. The results were analyzed by SPSS version 10.
Results: In our study the incidence of caesarean section delivery were maximum (63.3%) 633 cases at the age of 26-30 years and minimum (3.4%) 34 cases at the age of 16-20 years. It was observed that incidence of caesarean section delivery was much higher (51.1%) 511 cases in middle socio economic class as compared to high socio economic group (17.6%) 176 cases and low socio economic group (31.3%) 313 cases. The women belonging to rural area had almost double incidence (70.3%) 703 cases as compared to urban area (29.7%) 297 cases. The incidence was maximum (42%) 420 cases in women having second caesarean section delivery and minimum (10.1%) 101 cases. The incidence was almost double (69.3%) 693 cases in planned C Section delivery as compared to emergency C Section delivery (30.7%) 307 cases. It was also seen that the incidence of C Section delivery was almost double (70.3%) 703 cases under spinal anesthesia as compared to C-Section delivery under general anesthesia (29.7%) 297 cases. Indication of C-Section delivery was maximum (23.7%) 237 cases in previous C-Section and minimum (1.7%) 17 cases of Preeclampsia.
Conclusion: The unnecessary caesarean section delivery should be avoided. Proper antenatal care and counseling regarding the planned hospital delivery. Proper diagnosis of labour. Partogram should be maintained for good monitoring of progress of labour especially in patients with previous one caesarean section. Good analgesia and proper fetal monitoring during labour. Expertise in external cephalic version and vaginal breech delivery in good selected cases.

Key Words: Caesarean section delivery, Socio economic status, Consent, Ethical Committee

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INTRODUCTION

Cesarean section (CS) was introduced in clinical practice as a life saving procedure both for the mother and the baby[1-4].

Caesarean section (CS or C-section) is a surgical intervention which is carried out to ensure safety of mother and child when vaginal delivery is not possible (emergency CS) or when the doctors consider that the danger to the mother and baby would be greater with a vaginal delivery (planned CS).

Based on the presentations in the conference and a systematic review of literature, the conference panel stated that though there was lack of sufficient evidences to evaluate fully the benefits and risks of planned caesarean delivery over planned vaginal delivery, the following outcomes were supported by at least some evidences: compared to planned vaginal delivery and unplanned CS, planned caesarean delivery was associated with[1] a lesser risk of postpartum haemorrhage and stress urinary

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incontinence,[2] an increased risk of infection, anaesthetic complications and placenta previa,[3] greater complications in subsequent pregnancies[4] longer hospital stay of mothers and neonates,[5] higher risk of respiratory morbidity for infants and[6] a lower rate of foetal mortality, birth injury, neonatal asphyxia and encephalopathy.

Several studies have shown an inverse association between CS rates and maternal and infant mortality at population level in low income countries where large sectors of the population lack access to basic obstetric care.[2-4] On the other hand, CS rates above a certain limit have not shown additional benefit for the mother or the baby, and some studies have even shown that high CS rates could be linked to negative consequences in maternal and child heath.[2,3,5-8] Bearing in mind that in 1985 the World Health Organization (WHO) stated: "There is no justification for any region to have CS rates higher than 10-15%",[9] we set out to update previous published estimates of CS rates worldwide[2-3], and calculate the additional number of CS that would be necessary in those countries with low national rates as well as the number of CS in excess in countries in which CS is overused[10].

MATERIALS AND METHODS

One thousand caesarean section deliveries were included in this retrospective observational study in the department of gynecology at Idris Teaching Hospital Sialkot, Islam Teaching Hospital Sialkot, Ilama Iqbal Memorial Teaching Hospital Sialkot and number of private hospitals of the Sialkot during January 2014 to July 2016.

The charts were reviewed, and age, history of the patient, family history of the caesarean section delivery, date of caesarean section delivery , number of caesarean section delivery, socio economic status, area of the patient were recorded. The fully informed consent of every patient prior to surgery was recorded. The results were analyzed by SPSS version 10.

RESULTS

In our study the incidence of caesarean section delivery was maximum (63.3%) 633 cases at the age of 26-30 years and minimum (3.4%) 34 cases at the age of 16-20 years as shown in the table no.01. It was observed that incidence of caesarean section delivery was much higher (51.1%) 511 cases in middle socio economic class as compared to high socio economic group (17.6%) 176 cases and low socio economic group (31.3%) 313 cases as shown in table no.02. The women belonging to rural area had double incidence (70.3%) 703 cases as compared to urban area (29.7%) 297 cases as shown in table no.03. The incidence was maximum (42%) 420 cases in women having second caesarean section delivery and minimum (10.1%) 101 cases as shown in table no.04.

Table No. 1: Age distribution in Incidence of Caesarean section delivery

Sr No	Age(Years)	Cases	Percentage
1	16-20	34	3.4%
2	21-25	123	12.3%
3	26-30	633	63.3%
4	31-35	143	14.3%
5	35-40	67	6.7%
	Total	1000	100%

Table No. 2: Socio economic status distributions in Incidence of Caesarean section delivery

Sr. No.	Socio economic status	Cases	Percentage
1	High	176	17.6%
2	Middle	511	51.1%
3	Low	313	31.3%
	Total	1000	100%

Table No. 3: Area distributions in Incidence of Caesarean section delivery

Sr. No.	Area	Cases	Percentage
1	Urban	297	29.7%
2	Rural	703	70.3%
	Total	1000	100%

Table No. 4: Number of Caesarean section delivery

Sr. No.	Number of C-Section	Cases	Percentage
1	First	276	27.6%
2	Second	420	42.0%
3	Third	203	20.3%
4	Fourth and above	101	10.1%
	Total	1000	100%

Table No. 5: Emergency/ Planned Caesarean section delivery

Sr. No.	Emergency/Planed C-Section	Cases	Percentage
1	Planned	693	69.3%
2	Emergency	307	30.7%
	Total	1000	100%

The incidence was almost double (69.3%) 693 cases in planned C Section delivery as compared to emergency C Section delivery (30.7%) 307 cases as shown in table no.05. It was also seen that the incidence of C Section delivery was almost double (70.3%) 703 cases under spinal anesthesia as compared to C-Section delivery under general anesthesia (29.7%) 297 cases as show in table no.06.Indication of C-Section delivery was maximum (23.7%) 237 cases in previous C-Section and

minimum (1.7%) 17 cases of Preeclampsia as shown in table no. 07.

Table No. 6: Anesthesia used in C Section delivery

Sr. No.	Anesthesia used in C Section	Cases	Percentage
01	General Anesthesia	297	29.7%
02	Spinal Anesthesia	703	70.3%
	Total	1000	100%

Table No. 7: Indications of Caesarean section delivery

Sr. No.	Indications	Cases	Percentage
1	Previous C-Section	237	23.7%
2	Failed Progress of Labour	193	19.3%
3	Fetal Distress	137	13.7%
4	Breech Presentation	370	37.0%
5	Preeclampsia	17	1.7%
6	Excessive Bleeding	46	4.6%
	Total	1000	100%

DISCUSSION

An analysis shows that every year in the world there is an additional need for 0.8 – 3.2 million CS in low income countries where 60% of the world's births occur. Simultaneously, 4.0-6.2 million CS in excess are performed in middle and high income countries where 37.5% of the births occur[12-13].

Shewli Shabnam reported in study that caesarean delivery is highest among mothers of age group above 34 years. C-Section delivery rate is higher for women having multiple births and having baby for the first time.

But in our study the incidence was highest in age group 26-30 years, women of middle socio economic group & women belonging to rural area. The percentage of C-section delivery was highest at the second birth. It was also seen that the percentage of C-Section delivery was higher in planned C-Section as compared to emergency C-Section delivery. C-Section delivery under spinal anesthesia was higher as compared to C-Section delivery conducted under general anesthesia. In case of indications of C-Section delivery, the incidence was higher in women having C-Section in previous births as compared to other indications.

Gulfreen Haider et al reported in her study that most of the patients undergoing C-Section delivery were 25-35 years of age[17].

Lubna Ali from Karachi Pakistan reported repeat caesarean section the commonest indication for caesarean section[18].

She also reported, the second most frequent indication observed in her study was failed progress 18.29%. This was mainly due to mishandling by Daies, injudicious use of oxytocin or unjustified induction of labour without prior assessment of risk factors, foetal size, position, presentation, stage of labour, and pelvic adequacy. A similar retrospective study, factor responsible of high caesarean section rate in Pakistan during study period 1985 – 1996 were mostly dystocia(6.32%), repeat caesareansection(5.8%), fetal distress(3.5%) and caesarean rate was 27.26% in primigravada and 24.1% in multipara23. Current research suggests that labour induction makes a caesarean section more likely among primigravidas if cervix is unfavorable[19-20].

CONCLUSION

The unnecessary caesarean section delivery should be avoided. Proper antenatal care and counseling regarding the planned hospital delivery. Proper diagnosis of labour. Partogram should be maintained for good monitoring of progress of labour especially in patients with previous one caesarean section. Good analgesia and proper fetal monitoring during labour. Expertise in external cephalic version and vaginal breech delivery in good selected cases.

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

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