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Editorial

Thyroid Cancer

Mohsin Masud Jan

Editor

Dramatic increase in thyroid cancer cases seen in the United States over the past three decades, a new study says.

Researchers who looked at records for more than 200 patients were unable to show that advances in screening are behind the jump in thyroid cancer cases as some specialists believe. "The incidence of thyroid cancer is on the rise and has nearly tripled in the last 30 years," said lead researcher Dr. David Goldenberg, director of Head and Neck surgery at Penn State Hershey Cancer Institute.

"Some researchers have at tribute this increase in incidence to improved sensitivity of diagnostic techniques," he said, referring to the discovery of small insignificant thyroid cancers via state-of-the-art imaging. "Others do not agree and say that there is a real rise in this disease." Many thyroid cancers are discovered incidentally when a patient undergoes a diagnostic study for some other reason, such as trauma, neck pain or to detect clogged arteries in the neck, Goldenberg explained.

To try to determine whether the increase in thyroid cancer was due to better diagnosis or more actual cancer, Golden berg's team compared incidentally discovered versusnon incidentallydiscoveredthyroid cancers to see if the groups had different characteristics. "We found that patients with incidentally discovered thyroid cancers were older, had more advanced disease and were more likely to be men," he said.

"These findings imply that improved detection may not be the only cause for the increased incidence of thyroid cancer." One expert who was not involved with the study said that the findings- published online Oct.10in JAMA Otolaryngology Head & Neck Surgery-add to the evidence that thyroid cancer really is on the rise. "This study suggests that there is

an actual true increase in the incidence of thyroid cancer," said Dr. Douglas Frank, director of the center for head and neck surgical oncology at Long Island Jewish Medical Center in New Hyde Park N.Y. Although this rise is not supported directly by this study, he said, it is felt to be true generally and is supported by other current reports. "The question has been answered," Frank said. "It is not just a matter of better detection. But it is unclear why there is an increase in true incidence. "For the most common type of thyroid cancers, the prognosis is generally excellent, he noted.

"Younger patients do the best, but older patients still generally do well," Frank added. "but older patients- generally those over age 50-with more advanced disease, with metastatic or large tumors, do not always do so well in terms of disease recurrence and ultimate survival, although they can still do quite well and survive. "For the study, Goldenberg's team compared the clinical and pathologic characteristics of 31 patients whose thyroid cancer was discovered when they had diagnostic imaging for reasons other than thyroid cancer with 207 patients who had scans specifically to diagnose thyroid cancer.

Men accounted for more than half of those whose cancer was discovered incidentally (54.8 percent) but only 13.5percent of those screened specifically for thyroid cancer, the researchers found.

Average age at diagnosis was about 42 for those scanned for thyroid cancer 56 for those diagnosed incidentally. The cancers found in an unrelated scan were more advanced, but no difference between the groups was noted in tumor size, amount of cancer inside the thyroid, or cancer that had spread to the lymph nodes or other organs. But if better detection isn't behind the uptick in cases, what is? Golden berg has looked at exposure to radiation and radon as possible contributors.

To Determine the Percentage of Death or Survival of Patients Suffering from Post-Myocardial Infarction Ventricular Septal Rupture

Mansoor Hassan¹, Iftikhar Anwar², Abdul Rehman², Saleh Muhammad¹, Nasreen Hamid³ and Kamran Hamid⁴

ABSTRACT

Objective: To determine the percentage of death or survival of patients suffering from post-myocardial infarction ventricular septal rupture.

Study Design: Descriptive study.

Place and Duration of Study: This study was conducted at the Emergency and Cardiology wards of the Idris Teaching Hospital / Sialkot Medical College Sialkot from Jan 2018 to June 2019.

Materials and Methods: A total of 45 diagnosed cases with post myocardial infarction ventricular septal defect were selected for this study. All the patients were treated according to the treatment protocols of cardiology department. The outcome (death / survival) was studied during one week stay in the hospital.

Results: The mean age of the patients was 61.0 ± 9.9 years. There were 21 (46.7%) male patients and 24 (53.3%) female patients. Eleven (24.4%) patients out of 45 were thrombolysis. In the distribution of patients by outcome, there were 21 (46.7%) patients who survived and remaining 24 (53.3%) patients died at the end one- week hospital stay.

Conclusion: This study demonstrates a high percentage of mortality in patients suffering from post-myocardial infarction ventricular septal rupture during their one-week stay in the hospital. Old age and female gender carried a substantially increased risk of mortality in cardiac rupture.

Key Words: Myocardial infarction, ventricular septal rupture, death or survival rate.

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INTRODUCTION

Despite revolutionary advancements in the diagnosis and management over the last few decades, acute myocardial infarction is still a major health problem all over the world.¹ Cardiogenic shock is the most severe clinical presentation of left ventricular failure (LVF) and is due to extensive damage to the left ventricular myocardium in more than 80% of ST-elevation myocardial infarction (STEMI) patients. The other 20% STEMI patients with LVF have a mechanical defect such as ventricular septal or papillary muscle rupture or predominant right ventricular infarction.² Ventricular septal defect is rare but certainly life-threatening complication of acute ST elevation myocardial infarction.

The thrombolytic therapy and primary percutaneous coronary intervention have reduced the incidence of post myocardial infarction ventricular septal defect (VSD). The size of VSD determines the magnitude of left to right shunt and extent of hemodynamic deterioration.^{1,3} the incidence of VSD is higher (about 60%) in anterior myocardial infarction than in the inferior myocardial infarction (about 20-40%). VSD is usually associated with complete predictors of VSD are advanced age, female sex, anterior location of myocardial infarction and low body mass index (BMI).^{2,3,4}

The management of post MI VSD is a great challenge for both the cardiologists and cardiac surgeons. The diagnosis of post MI VSD can be made easily with transthoracic echocardiography which has the sensitivity and specificity of about 100% in the diagnosis of post MI VSD. It carried a very high mortality rate either with or without surgical intervention. The mortality rate among patients with septal rupture who are treated conservatively is approximately 24% in the first 24 hours, 46% at one week and 67-82% at two months.⁵ The early operative intervention is the treatment of choice according to the current guidelines of American College of Cardiology irrespective of clinical status of patient.⁶ Recently

¹. Department of Medicine / Cardiology² / Gynae & Obstet³ / Surgery⁴, Sialkot Medical College, Sialkot.

Correspondence: Dr. Mansoor Hassan Associate Professor of Medicine, Medical College Sialkot.

Contact No: 0333 8650671

Email: hrd@smcs.edu.pk

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percutaneous VSD device closure has also been used to treat STEMI related septal rupture.⁷

In Pakistan the mortality of acute myocardial infarction has been studied previously but little data is available about post MI VSD.^{8,9}

The rationale of the study is to know the importance of management on the survival of patients suffering from post-MI VSD in a tertiary care hospital and it will guide the cardiologists for early referral of such kind of patients to tertiary care hospitals to reduce mortality.

MATERIALS AND METHODS

This study was conducted at the Emergency and Cardiology wards of the Idris Teaching Hospital / Sialkot Medical College Sialkot from Jan 2018 to June 2019. A total of 45 diagnosed cases with post myocardial infarction ventricular septal defect admitted in Punjab Institute of Cardiology Lahore were selected for this study. An informed consent was taken from all the patients or their attendants. History of thrombolysis was taken from all the patients. All the patients were treated according to the treatment protocols of cardiology department. The outcome (death / survival) was studied during one week stay in the hospital. All the information was collected on the specially designed proforma.

All the data was entered into SPSS version 12 and analyzed accordingly. The qualitative variables like gender, survival/death was presented as frequencies and percentages. Quantitative variable like age was calculated as mean and standard deviation. Data was stratified for age, gender and thrombolytic therapy to address effect modifiers.

RESULTS

Forty-five cases with post myocardial infarction ventricular septal defect admitted of Idris Teaching Hospital Sialkot Medical College Sialkot was selected for this study. The mean age of the patients was 61.0 ± 9.9 years. There were 2 (4.5%) patients in the age range of up to 40 years, 5 (11.1%) patients in the age range of 41-50 years, 14 (31.1%) patients in the age range of 51-60 years, 14 (31.1%) patients in the age range of 61-70 years and 10 (22.2%) patients in the age range of 71-80 years (Table 1).

Table No.1: Distribution of patients by age (n=45)

Age (Years)	No.	Percentage
Up to 40	2	4.5
41-50	5	11.1
51-60	14	31.1
61-70	14	31.1
71-80	10	22.2
Mean $\pm$ SD	61.0 $\pm$ 9.9	

There were 21 (46.7%) male patients and 24 (53.3%) female patients (Table 2). Only 11 (24.4%) patients out

of 45 were thrombolysis and the remaining were not thrombolysis either due to late presentation or due to hemodynamic instability (Table 3). In the distribution of patients by outcome, there were 21 (46.7%) patients who survived and 24 (53.3%) patients died (Table 4).

Table No.2: Distribution of patients by sex (n=45)

Sex	No.	Percentage
Male	21	46.7
Female	24	53.3
Total	45	100.0

Table No.3: Distribution of patients by thrombolysis given (n=45)

Thrombolysis given	No.	Percentage
Yes	11	24.4
No	34	75.6
Total	45	100.0

Table No. 4: Distribution of patients by outcome (n=45)

Outcome	No.	Percentage
Survived	21	46.7
Died	24	53.3
Total	45	100.0

In the comparison of outcome with age, in the age group of up to 40 years, there was 1 (2.2%) patient who survived and 1 (2.2%) died, in the age group of 41-50 years, 4 (8.9%) patients were survived and 1 (2.2%) patient was died, in the age group of 51-60 years, 12 (26.7%) patients were survived and 2 (4.5%) patients were died, in the age range of 61-70 years, 4 (8.9%) patients were survived and 10 (22.2%) patients were died and in the age range of 71-80 years, all the 10 (22.2%) patients were died (Table 5). In the comparison of outcome with sex, in male patients, 12 (26.7%) patients were survived and 9 (20%) patients died and in female patients, there were 9 (20%) patients survived and 15 (33.3%) patients died (Table 6).

Table No. 5: Comparison of outcome with age(n=45)

Age (Years)	Died		Survived	
	No	Percentage	No.	Percentage
Up to 40	1	2.2	1	2.2
41-50	1	2.2	4	8.9
51-60	2	4.5	12	26.7
61-70	10	22.2	4	8.9
71-80	10	22.2	0	0
Total	24	53.3	21	46.7

Table No. 6: Comparison of outcome with sex (n=45)

Sex	Died		Survived	
	No	Percentage	No.	Percentage
Male	9	20.0	12	26.7
Female	15	33.3	9	20.0
Total	24	53.3	21	46.7

Table No. 7: Comparison of outcome with Thrombolysis given (n=45)

Thrombolysis given	Died		Survived	
	No	Percentage	No.	Percentage
Yes	8	17.8	3	6.7
No	16	35.5	18	40.0
Total	24	53.3	21	46.7

In the comparison of outcome with thrombolytic therapy, in those patients in whom thrombolytic therapy was given, 3 (6.6%) patients survived and 8 (17.8%) patients died. In those patients in whom thrombolytic therapy was not given, 18 (40%) patients were survived and 16 (35.5%) patients died (Table 7).

DISCUSSION

Rupture of the myocardium after acute myocardial infarction may involve the free wall of the left ventricle (LV), the interventricular septum, or the papillary muscles.¹⁰ While LV free wall rupture and ventricular septal defect (VSD) are uncommon mechanical complications after AMI; they carry an extremely high mortality rate. The incidence, timing of occurrence,¹¹ prognostic factors,¹² and clinical features¹³ and outcomes¹⁴ of AMI complicated by VSD and LV free wall rupture in both the prethrombolytic and thrombolytic therapy eras have been debated extensive. However, there are no available data with regard to the incidence, clinical features, and outcomes of these complications in patients with AMI undergoing direct percutaneous coronary intervention (d-PCI). Furthermore, previous studies¹⁵ have demonstrated that although thrombolytic therapy can reduce the incidence of cardiac rupture, this therapeutic management for patients with AMI also may accelerate early cardiac rupture.^{16,17} Whether this paradoxical effect of thrombolytic therapy also occurs in the present d-PCI reperfusion era remains unknown. Ventricular septal defect is rare but certainly life-threatening complication of acute ST elevation myocardial infarction. The thrombolytic therapy and primary percutaneous coronary intervention have reduced the incidence of post myocardial infarction ventricular septal defect (VSD). The size of VSD determines the magnitude of left to right shunt and extent of hemodynamic deterioration.¹⁸ The incidence of VSD is higher (about 60%) in anterior myocardial infarction than in the inferior myocardial infarction (about 20-40%). VSD is usually associated with complete predictors of VSD are advanced age, female sex, anterior location of myocardial infarction and low body mass index (BMI).^{19,20} The management of post MI VSD is a great challenge for both the cardiologists and cardiac surgeons. The diagnosis of post MI VSD can be made easily with transthoracic echocardiography which has the sensitivity and specificity of about 100% in the diagnosis of post MI VSD.²¹ it carried a very high

mortality rate either with or without surgical intervention. The mortality rate among patients with septal rupture who are treated conservatively is approximately 24% in the first 24 hours, 46% at one week and 67-82% at two months.²² The early operative intervention is the treatment of choice according to the current guidelines of American College of Cardiology irrespective of clinical status of patient.²³ Recently percutaneous VSD device closure has also been used to treat STEMI related septal rupture.²⁴

In our study the mean age of the patients was 61.0±9.9 years. As compared with the study of LA Rosa et al²⁵ the mean age of the patients was 59.0±9.0 years, which is comparable with our study.

In our study 46.7% patients were male and 53.3% patients were female. While compared with the study of Choux et al²⁶ there were 40% male and 60% female patients, which is comparable with our study.

In our study there were 24.4% patients, in which thrombolytic therapy was given and 75.6% patients in which thrombolytic therapy was not given.

In our study the patients of ventricular septal rupture who are treated conservatively according to the cardiology protocol, during their one week stay in hospital, 46.7% patients were survived and 53.3% patients were died. As compared with the study of Yip et al⁵ among the patients with ventricular septal rupture treated conservatively during their one week stay in hospital, 54% patients were survived and 46% patients were died, which is comparable with our study.

In another study conducted by Poulsen et al²⁷ the patients of post myocardial infarction ventricular septal rupture treated conservatively during their stay in hospital, 48% patients were survived and 62% patients were died, which is also comparable with our study.

Ventricular septal defect is a serious complication of myocardial infarction, occurring in about 0.2% of cases. Untreated, mortality is high and early surgical repair is difficult because of friable necrotic tissue. Percutaneous closure may be an alternative treatment option in selected patients.

In a study conducted by Ahmad et al¹⁰ the survival rate of post myocardial infarction ventricular septal defect was in 60% patients and death rate was in 40% patients. While in our study the patients of ventricular septal rupture survival rate was 46.7% patients and death rate was in 53.3% patients, which is comparable with the above study.

CONCLUSION

It is concluded from this study that there is high percentage of mortality in patients suffering from post-myocardial infarction ventricular septal defect during their one-week stay in the hospital. Old age and female gender carried a substantially increased risk of mortality in cardiac rupture and thrombolytic therapy has no beneficial effect on outcome.

Author's Contribution:

Concept & Design of Study: Mansoor Hassan
 Drafting: Iftikhar Anwar, Abdul Rehman
 Data Analysis: Saleh Muhammad
 Nasreen Hamid, Kamran Hamid
 Revisiting Critically: Mansoor Hassan, Iftikhar Anwar
 Final Approval of version: Mansoor Hassan

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

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Role of Glucosamine and Chondroitin Sulfate in Management of Osteoarthritis of Knee Joints

Imran Samdani¹, Syed Abdul Majid Ali², Syed Tariq Ali Adnan³, Fatima Zahra⁴,
Muhammad Athar Khan⁴ and Aisha⁵

ABSTRACT

Objective: To determine efficacy of glucosamine and chondroitin sulfate along with other conservative measures like education, analgesics, physiotherapy and intra-articular corticosteroids injections in management of osteoarthritis of knee joints

Study Design: A prospective observational study

Place and Duration of Study: This study was conducted at the Department of Orthopedic Surgery of different public and private hospitals of Karachi, during February 2017 to January 2018.

Materials and Methods: There were 1732 patients in this study. The inclusion criteria were proper examination & radiological evidence for diagnosis of osteoarthritis of knee joints. Every patient was given Glucosamine 1500 mg per day and Chondroitin Sulfate 1200 mg per day. Analgesics were given as per requirement of the patient; physiotherapy was recommended to all the patients of knee joints osteoarthritis and intra-articular corticosteroid were given to patients with mild to moderate osteoarthritis of knee joints.

Results: In our study out of 1732 patients 69% were female and 31% were male. Age ranges from 35 years to 60 and above years. All types of socio-economic classes were affected equally. Out of 1732 patients 69 % were female while 31% were male patients. 62% of the patients having involvement of osteoarthritis of both knee joints. We found 24% of patients have excellent improvement in quality of life, 37% of patients have good improvement in quality of life and 39% of patients have no significant improvement in quality of life.

Conclusion: It is concluded that Glucosamine 1500 mg per day and Chondroitin Sulfate 1200 mg per day has shown effective results in management of osteoarthritis of knee joints of mild to moderate osteoarthritis.

Key Words: Osteoarthritis, Glucosamine, Chondroitin Sulfate, Knee joint

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INTRODUCTION

Osteoarthritis (OA, also known as degenerative arthritis, degenerative joint disease), is a group of diseases and mechanical abnormalities involving

Degradation of joints, including articular cartilage and the subchondral bone next to it.¹

Clinical manifestations of OA may include joint pain, tenderness, stiffness, creaking, locking of joints, and sometimes local inflammation.

In OA, a variety of potential forces—hereditary, developmental, metabolic, and mechanical—may initiate processes leading to loss of cartilage.^{2,7} When bone surfaces become less well protected by cartilage, subchondral bone may be exposed and damaged.³ The patient increasingly experiences pain upon weight bearing, including walking and standing.⁴ Humid and cold weather increases the pain in many patients.⁸

OA is the most common form of arthritis,⁵ & is leading cause of disability in older ages.⁶ Osteoarthritis (OA), the most widespread type of arthritis, is a degenerative disease of the joints with approximately 16 million sufferers requiring medical care. Glucosamine and chondroitin have been widely promoted as a treatment for OA. Glucosamine, an amino sugar, is thought to promote the formation and repair of cartilage. Chondroitin, a carbohydrate, is a cartilage component that is thought to promote water retention and elasticity and to inhibit the enzymes that break down cartilage. Both compounds are manufactured by the body.

¹. Department of Orthopedics, Karachi Medical & Dental College & Abbasi Shaheed Hospital.

². Department of Orthopedics, Hamdard College of Medicine & Dentistry.

³. Department of Community Health Sciences, Karachi Medical & Dental College.

⁴. Department of Medicine & Community Medicine, Liaquat College of Medicine & Dentistry, Karachi.

⁵. Liaquat College of Medicine & Dentistry, Karachi

Correspondence: Dr. Muhammad Athar Khan, Associate Professor Department of Community Medicine, Liaquat College of Medicine & Dentistry, Karachi.
Contact No: 0323 2135932
Email: matharm@yahoo.com

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Glucosamine supplements are derived from shellfish Shells; chondroitin supplements are generally made from cow cartilage.^{9,10} Glucosamine and chondroitin have been educated save and effective option for management of symptoms of OA and delay its progression.¹¹⁻¹⁶

In 2006, the researchers reported on a 24-week study that involved 1583 patients who were randomly assigned to receive glucosamine hydrochloride and sodium chondroitin sulfate or a placebo. The study found that this experiment drug group did about 17% better than the placebo group.¹⁰ Trials on efficacy of Glucosamine 1500 mg per day and Chondroitin are going over worldwide. Certain studies have shown significant efficacy and excellent results while certain have shown good results and certain have shown insignificant results. The combination of analgesics, physiotherapy, Glucosamine, Chondroitin and Intra Articular injection if required has shown that quality of the patient life has improved as patients' knee joint pain is decreased and range of movement has increased.

MATERIALS AND METHODS

This study includes 1732 patients, who were having pain in knee joints and diagnosed as a case of osteoarthritis after proper clinical examination and radiological evidences. This study was carried out in Department of Orthopedic Surgery Hamdard University Hospital, Department of Orthopedics Civil Hospital and Dow University of Health Sciences, Karachi, National Medical Center, Karachi, Uncle Saria Hospital and Orthopedic and Medical Institute (OMI) Hospital Karachi from February 2017 to January 2018. Numerical rating scale is taken for pain in this study while Medscape "The global system of Kellgren and Lawrence"¹⁷ is taken for joint space narrowing based on radiographic changes". Every patient was given Glucosamine 1500 mg per day and Chondroitin Sulfate 1200 mg per day. Analgesics as required, physiotherapy and intra-articular corticosteroid as required. Patients were advised for follow up after 6 weeks with fresh X-rays of knee joint and they were evaluated for pain and range of movement, which are indicators for improvement in the quality of life. Patients were advised to follow up on regular basis with intervals of six weeks.

RESULTS

Out of 1732 patients 69 % of the patients were female while 31% were male. Both knee joints were involved in 62 % of the patients. The ages of patients were 20% of patients 35 years to 45 years, 24% of 45 years to 55 years, 30% of 55 years to 60 years, and 26% of 60 years respectively. It was noted during the study that regular knee flexion, knee banding, associated with squatting and praying was found a major cause. Obesity was found another important cause. It was also found during

study that all the sectors of socio-economic classes were equally affected, 36% in rich people, 33% in middle class families while 31% in poor families.

Table No.1: Demographic and Baseline Characteristics of Patients (n=1732).

Variables		Mean $\pm$ SD or N (%)
Age		56.8 $\pm$ 6.1
Duration of OA (years)		8 $\pm$ 2.4
Gender	Female	1195(69%)
	Male	537 (31%)
BMI		30.9 $\pm$ 8.7
BMI categories	Normal	204(11.8%)
	Overweight	703(40.6%)
	Obese	825(47.6%)
Education	Matric	342(19.7%)
	Intermediate	309(17.8%)
	Graduate	650(37.5%)
	Postgraduate	111(6.4%)
	Not educated	216(12.5%)
	Others	104(6.1%)
Involvement of Knee Joint	Unilateral	658(38%)
	Bilateral	1074(62%)
Types of OA	Mild	450(26%)
	Moderate	606(35%)
	Severe	676(39%)

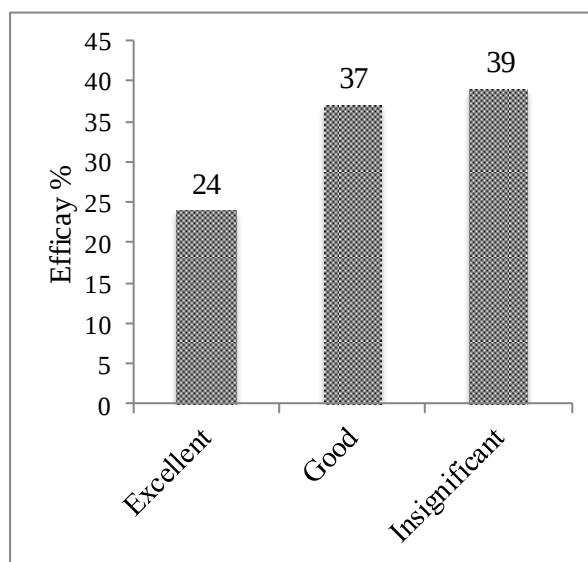


Figure No.1: Efficacy of Treatment (n= 1732)

Results are divided into three categories depending upon decrease in pain, delay in joint space narrowing, improvement in range of movement and delay in deterioration of joint: excellent (pain has decreased up to 5 points or more according to NRS with delay in joint space narrowing and full improvement in range of movement) , good (pain has decreased up to 3 points according to NRS with delay in Joint Space narrowing and improvement in range of movement) and

insignificant (pain has decreased up to 2 points or below according to NRS but there is no delay in Joint Space narrowing radio logically and insignificant improvement in range of movement). 24% of patients have excellent improvement in quality of life, 37% of patients have good improvement in quality of life. 39% of patients have no significant improvement in quality of life. It was also found that the excellent results were found in mild osteoarthritis of knee joint, while good results were found in moderate and severe osteoarthritis of knee joint and insignificant results were found in severe osteoarthritis.

In our study we found no major adverse events of Glucosamine and Chondroitin Sulfate; however, some patients developed dyspepsia, nausea and diarrhea. It was found that no serious adverse events were observed. During study we found types of osteoarthritis as mild 26%, moderate 35%, and severe 39%.

DISCUSSION

Osteoarthritis is the most common type arthritis and is seen commonly in elderly people. We found that females were affected more than male as mentioned in previous studies.¹⁸ Life style, humid and cold weather affects osteoarthritis very much and weight lost can relieve joint stress and delay in progression of Osteoarthritis.

Two systemic reviews and one small trial have compared glucosamine with placebo or NSAID in osteoarthritis of knee joint.^{19,20} two double blind, and placebo controlled trials of 3 years duration compared glucosamine sulfate (1500 mg / day) with placebo in 414 patients with osteoarthritis of the knee. Symptom changes were assessed using the WOMAC Osteoarthritis index, a validated, disease specific course of severity of joint pain, stiffness and limitation of physical function. Both trails reported Glucosamine Sulfate significantly improved symptoms.²¹

Research shows people with osteoarthritis who take part in their own care report less pain.²² Exercise plays a key part in comprehensive treatment plan. Recently a review by Buyers about Glucosamine and chondroitin sulfate for the treatment of knee and hip osteoarthritis concludes that both products act as valuable symptomatic therapies for osteoarthritis disease with some potential structure modifying effects.²³

In the patients with excellent results use of analgesic were decreased. Some patients who were known cases of acid peptic deceases were found to have G-I disturbances. It is also noted that Glucosamine and Chondroitin Sulfate has increased level of blood sugar, so regular monitoring of blood sugar levels should be done in diabetic patients. Most common side effects during research are found increased intestinal gas and softened stools.¹⁸ however animal research has shown the possibility that Glucosamine may worsen insulin resistance, a measure cause of diabetes.

At present, OARSI is recommending chondroitin sulfate as a second most treatment for moderate cases of osteoarthritis.²⁴ Likewise the European League

rheumatism support the usefulness of chondroitin sulfate in management of knee osteoarthritis and grants the highest level of evidence.²⁵ Recently in Vitro study Chondroitin sulfate reduced the IL-1B induced nuclear factor Kb (Nf-kB) translocation in chondrocytes.³⁶ In addition Chondroitin sulfate has recently shown positive effects in osteoarthritic structural changes occurred in sub choral bone.²⁶ In several prospective controlled studies Glucosamine and Chondroitin sulfate had decreased pain, improve functional disability, reduced NSAID or acetaminophen consumption and provide good tolerability.²⁷⁻²⁸

CONCLUSION

It is concluded that Glucosamine 1500 mg per day and Chondroitin Sulfate 1200 mg per day has shown effective results in management of osteoarthritis of knee joints of mild to moderate osteoarthritis. Its results are highly effective in mild to moderate osteoarthritis of knee joint along with the combination of analgesics, physiotherapy and intra articular corticosteroid as required however in certain patient with severe osteoarthritis it has not shown significant improvement in quality of life of patient.

Author's Contribution:

Concept & Design of Study:	Imran Samdani
Drafting:	Syed Abdul Majid Ali Syed Tariq Ali Adnan Fatima Zahra Muhammad Athar Khan Aisha
Data Analysis:	
Revisiting Critically:	Imran Samdani, Syed Abdul Majid
Final Approval of version:	Imran Samdani

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

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Choice of Doctor's Gender for Consultation of Surgical patients

Farzana¹, Ehtisham ul Haq², Hina Tabassum³, Nahid¹ and Bushra Shams²

ABSTRACT

Objective: To assess the patient preference towards gender of consulting surgeon along with the causes of preference. To know their next step in case of non-availability of doctor gender of their own choice along with their limitations to approach the doctor gender of their own choice.

Study Design: Cross sectional survey.

Place and Duration of Study: This study was conducted at the Department of surgery Abbas Institute of Medical Sciences (AIMS) Muzaffarabad, from 1st February to 31 March 2017.

Materials and Methods: Patients of both genders who attended surgery clinic for consultation were included. Patients below 18 years of age were excluded. Questionnaire included statements related to hesitancy or shyness if to be examined by doctor of opposite gender, their further action if they don't find a doctor of their own gender at this time, qualification, age, marital status, address (rural/urban). Results were analyzed using SPSS Version 21. Chi-square test was used for calculating significance of categorical variables.

Results: Pearson Chi-Square statistic, $X^2=59$ and $P<0.001$; so very small probability of the observed data under the null hypothesis of no relationship. Null hypothesis is rejected since $P<0.05$.

Conclusion: Female Patients are hesitant and shy when "doctor of opposite gender is allowed for medical examination". So the study results show in a country like Pakistan where cultural value and society norms needs more female doctors to adopt surgery as their post graduate training and surgeon as profession

Key Words: Doctor, Gender, choice, female surgeon, patient, preference, consulting.

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INTRODUCTION

Human body is an individual object which we keep cover from all others and showing body parts is a source of shame. Same is the case when we present our body to a doctor of opposite gender for medical examination, causes anxiety¹. Some women and girls suffer anxiety about showing their body parts like Abdomen, Axilla, Chest, and Breast, legs, inguinal and perineal region. Doctor, patient's relationship becoming challenging now a day as for communication, psychosocial problems and especially female specific health issues is concerned². The patient's preference specifically regarding gender of the treating surgeon becomes even more important in a conservative community like Pakistan³. There are few studies on patient choices about surgeon gender^{4,5}.

¹. Department of Surgical, AIMS Hospital Muzaffarabad AJK.

². Department of EPI, AJK, Muzaffarabad

³. Department of Gynae & Obstet, Fauji Foundation Hospital Rawalpindi.

Correspondence: Dr. Ehtisham ul Haq, Technical Officer
Department of EPI, AJK, Muzaffarabad.

Contact No: 0300 5119890

Email: drehtisham@gmail.com

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There are studies on the career choices among the medical graduates as well showing gender choices of doctors^{6,7}.

Increasing numbers of female in medical professions during the last decade, since 2010 46.1 % of all residents and fellow are the are women in US⁸ and Even active licensed physicians are⁹female in US. According to one of the studies conducted in Israel 63.8% of respondents' preferred female gynecologist for consultation¹⁰. Gender choice of a consulting surgeon is not a new subject according to one of the studies conducted in University of Glasgow during 1998 56% of respondents prefer to consult female Breast surgeon for consultation¹¹. Keeping in view the changing scenario on increasing number of female doctors around the globe, there is dire need to guide female doctors to choose the specialty in the light of scientific research. According to one of Meta-analysis on "Physician Gender effect on Medical communication" revealed 5 out of 10 studies showed positive relationship with female physician¹² No study ever conducted from Azad Kashmir to reflect preferences of our populations towards gender of treating surgeon and very few studies available from Pakistan³. Such studies will help in making curricular changes with regards to population choices as Pakistani people are more conservative. It is necessary to find out their perceptions and preferences towards female

Surgeons³. According to another study “The role of gender in patient preference for breast surgical care” Groutz et al. argue that increasing preference for female breast surgeon will increase the demand of female surgeons and it can be achieved by exposure to surgery to the female medical students and providing friendly working environment to them¹³. United Nation has identified Gender parity as an important mandate of any organization as for doctors are concern and a vital for human rights to select doctors’ gender for consultation¹⁴. Knowledge, Skills, Communication and judgment are core competencies of a surgical practice^{15, 16}. Very little research exists on gender-based differences in acquiring surgical core competencies¹⁷. So, keeping in mind the requirement of our society and patient’s preference, this study will create awareness among new pool of trainee doctors about patient choice so that they can decide for selecting the future specialty of training. By improving the number of female surgeons, we can improve the quality care of the patients who otherwise are reluctant to seek proper surgical care. Pakistan is still short of doctors, where doctors’ Patient ratio is 1:1000. But now a day when more female students are getting admission in medical colleges it is very important to share with female medical students about the gaps in medical practices and community needs in Pakistan. Medical students should know the growing number of breast cancer patients in Pakistan¹⁸ probably because of wide gap between number of female surgeon and female patients. The female surgeon/patient ratio is so huge and this space can be filled by improving the training programs and timely decisions of the new trainee doctors.

MATERIALS AND METHODS

This was a cross sectional survey. All the patients fulfilling the inclusion criteria attending the surgical clinics from 1st February to 31 March 2017. Were included in the current study. Informed consent was

taken from each study participant. The questionnaire was sent through a person who was not a member of attending team of consultation. Patients below 18 years were excluded. The consecutive sampling was used to register the study participants. The results were analyzed using SPSS version 21 and Chi-square test was applied for calculating significance of the responses. (H₀) Null hypothesis of the study was, male and female patients are equally hesitant for medical examination by doctor of opposite gender. Alternate Hypothesis (H₁): Female patients are shy and more hesitant to be examined by doctors of opposite gender.

RESULTS

A total of 214 patients were included in this study, who visited surgical OPD for different medical conditions. Out of which 60/214 (28%) were male and 154/214 (72%) were females. 161/214 (75%) were from rural areas and 53(25%) were urban residents. 36/214(17%), 64/214(30%), 48/214(22%) and 66/214(31%) of study respondents belongs to <20, 21-30, 31-40 and >40 years age categories. Study participants response categorized on the basis of Gender, Residence and socio economic conditions shows. Female are more hesitant than male, urban are more hesitant than rural and study participants having high socioeconomic condition are more hesitant than participants belong low and middle socio economic conditions.

Table No.1: Age group of study participants

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<20	36	16.8	16.1	16.8
	20-30	64	29.9	29.2	46.7
	30-40	48	22.4	24.2	69.2
	>40	66	30.8	30.4	100
	Total	214	100	100	

Table No2: Gender you feel shy/hesitant to allow Doctor of opposite Gender to Examine Cross Tabulation

			allow doctor of opposite gender to examine					Total
			undecided	Agree	Disagree	S.Agree	S.D.Agree	
Gender	F	Count	9	40	36	59	11	155
		% within Gender	5.2%	26.0%	23.4%	38.3%	7.1%	100.0%
		% within allow doctor of opposite gender to examine	72.7%	88.9%	48.0%	90.8%	61.1%	72.0%
	M	Count	2	5	39	6	7	59
		% within Gender	3.4%	8.5%	66.1%	10.2%	11.9%	100.0%
		% within allow doctor of opposite gender to examine	18.2%	11.1%	52.0%	9.2%	38.9%	27.6%
Total	Count		11	45	75	65	18	214
	% within Gender		5.1%	21.0%	35.0%	30.4%	8.4%	100.0%
	% within allow doctor of opposite gender to examine		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As mentioned earlier study results shows female are more hesitant/shy when exposed to doctor of opposite gender for medical examination. Result shows 25% of female and 7% male were agreed that they hesitate when they are exposed to a doctor of opposite gender for medical examination.

Result shows male & female responses “they feel hesitant/shy if doctor of opposite gender is allowed for medical examination 38/154 (24.7%) of female and 4/59(7%) male patients were agree while 62/154 (40.3%) of female and 7/59(12%) male patients were strongly agree of being hesitant when examined by a surgeon of opposite gender. Pearson Chi-Square statistic, $X^2=59$ and $P<0.001$; so very small probability of the observed data under the null hypothesis of no relationship. Null hypothesis is rejected since $P<0.05$.

Table No.3: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	59.495	8	.000
Likelihood Ratio	48.073	8	.000
N of Valid Cases	214		

DISCUSSION

Our study shows that most of the female patients and some of the male patients are hesitant to be consulted by a surgeon of opposite gender. Out of these hesitant patient's most of the patient's want to be examined by any available surgeon of any gender if they have limited resources to access a surgeon of their own choice and gender. During the study, a question was asked to the participants what you will do if you find a doctor of opposite gender in consultation clinic. 11/2014 (5%) respondents said they will leave unconsulted, 106/214(50%) respondents said they will consult any available surgeon and 98/214(46%) of the respondents said they will search for surgeon of same gender and choices at other places.

101/214 (51%) of respondents who wanted to leave unconsulted or look for surgeon of same gender at other places. Patients who leave un-consulted due to unavailability of surgeon of their own gender especially the patients having life threatening surgical conditions increases the chances of disease spread. This scenario gets worse more when surgical condition is located at breast, axilla or perineum, this might be the reason breast and uterine cancer is diagnosed when it has spread and reached at advance stage in the study area. Lack of health education, gender-based health discrimination and non-availability of the doctor of same gender resulting in high death rate due to breast cancer in Pakistan¹⁸.

Studies from all over the world are found on patients' preferences for the gender and qualities of the health care professionals especially about the gynecologist, obstetricians, general physicians, and plastic and breast

surgeons. So, we strongly recommend our new female doctors to choose the surgery and its allied fields in future to provide better care to the patients. Also, we strongly recommend our health policy makers to get train the new comers in the specialties of required medical field of surgery.

CONCLUSION

Female Patients are hesitant and shy when “doctor of opposite gender is allowed for medical examination”. So the study results shows in a country like Pakistan where cultural value and society norms needs more female doctors to adopt surgery as their post graduate training and surgeon as profession.

Author's Contribution:

Concept & Design of Study: Farzana
 Drafting: Ehtisham ul Haq,
 HinaTabassum
 Data Analysis: Nahid, Bushra Shams
 Revisiting Critically: Farzana, Ehtisham ul Haq
 Final Approval of version: Farzana

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

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Fate/Outcome of Exhumation in Pakistan

Tanveer Hussain¹, Azhar Masud Bhatti², Qazi Ijaz Ahmed³, Abid Karim⁴, M Mohsin Abid⁴
and M Hassan Abid⁴

ABSTRACT

Objective: To study Fate/Outcome of Exhumation in Pakistan

Study Design: Retrospective Study

Place and Duration of Study: This study was conducted at the Police Surgeon Office Lahore and Benazir Bhutto Shaheed Hospital Abbottabad and Khyber Medical College Peshawar during Jan 2015 to July 2019.

Materials and Methods: The 311 exhumation cases were included in this study. The demographic data, fate/outcome of exhumation, time since burial, condition of the dead body and viscera sent to the chemical examiner was noted down in the design performa. The permission of ethical committee was considered before start of study and gets publishing the data in the Medical Journal. The results were analyzed on SPSS version 10.

Results: In respect of age and Gender distribution in exhumation cases, the female %age was more than male in 31-40 years and in the age of 70 years and above, the female %age was less than male.

In respect of Time since Burial in Exhumation Cases, 1 to 6 months the female% less than Male and in 30

Years and above female% more than male. In respect of condition of dead bodies in exhumation cases, the dead bodies in exhumation more identifiable, and putrefied in female than male. The Condition skeletonized and bones decomposition less in female than male. In respect of causes of death on exhumation, the cases of undetermined, fire am injury and blunt injury are more than other cases. The detailed of all above shown in tables 1to 4.

Conclusion: Delayed exhumation due to lengthy legal procedures involved in carrying out this process leading to decomposition of bodies, resulting in unascertainable cause of death. Early decomposition of bodies due to multiple reasons like hot climate, water logging and salinity, improper drainage of graveyards etc. is a bar to ascertain cause of death

Key Words: Exhumation, Demographic data, fate/outcome of exhumation, time since burial, condition of the dead body and viscera

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INTRODUCTION

Exhumation carried out after obtaining an appropriate permission from the state, is digging up or removal of buried body from the grave or ground¹. The main purpose of performing the exhumation is to determine the cause of death when foul play is suspected², but this

is also done for identification purposes required in some civil and criminal cases³.

Though it is a key to determine the cause of death especially in homicidal cases but sometimes it is not determined and acknowledged as unascertained because examination of disinterred body is by no means infallible in revealing the cause of death⁴, and herein no abnormality is detected on gross examination of body and histological, toxicological and microbiological procedures are insignificant⁵. Decomposition is not only a bar to successful examination but it may also reduce the possibility of obtaining samples, resulting in failure to establish the cause of death. Various factors influencing the decomposition are time elapsed between burial and exhumation, seasonal environment, soil conditions and coffin material⁶. Other reasons for unascertainable cause of death are infectious diseases, cardiac lesions, metabolic & blood disorders, allergy, anaphylactic reactions, acute neurogenic cardiac failure, electrical injuries, sudden infant death syndrome etc⁷. This study was planned to look for rate and its possible reasons of unascertained cause of death in exhumation carried out in above said districts.

¹. Department of Forensic Medicine, FJ Medical College, Lahore.

². Department of Forensic Medicine, Rehbar Medical and Dental College, Lahore.

³. Department of Forensic Medicine, Frontier Medical College Abbottabad.

⁴. Department of Forensic Medicine, Jinnah Medical College Peshawar.

Correspondence: Dr. Tanveer Hussain Assistant Professor
Department of Forensic Medicine F. J Medical College
Lahore.

Contact No: 0322 4091966

Email: hrd@smcs.edu.pk

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MATERIALS AND METHODS

This study was conducted at the Police Surgeon Office Lahore and Benazir Bhutto Shaheed Hospital Abbottabad and Khyber Medical College Peshawar during Jan 2015 to July 2019. The 311 exhumation cases were included in this study. The demographic data, fate/outcome of exhumation, time since burial, condition of the dead body and viscera sent to the chemical examiner was noted down in the design Performa. The permission of ethical committee was considered before start of study and gets publishing the data in the Medical Journal. The results were analyzed on SPSS version 10.

RESULTS

Table No.1: Age and Gender Distribution in Exhumation Cases

Serial no	Age	Male	Female
1	10-20	25 (13.29%)	10 (8.13%)
2	21-30	35 (18.61%)	20 (16.26%)
3	31-40	50 (26.59%)	35 (28.45%)
4	41-50	25 (13.29%)	27 (21.95%)
5	51-60	32 (17.02%)	23 (18.69%)
6	61-70	11 (5.85%)	05 (4.06%)
7	70 and above	10 (5.31%)	03 (2.43%)
	Total	188 (100%)	123 (100%)

Table No.2: Time since Burial in Exhumation Cases

Serial no	Time Since Burial	Male	Female
1	1-6 months	73 (31.60%)	23 (28.75%)
2	7-12 months	54 (23.37%)	13 (16.25%)
3	1-10 years	59 (25.54%)	14 (17.5%)
4	11-20 years	25 (10.82%)	15 (18.75%)
5	21-30 years	15 (6.49%)	12 (15.00%)
6	30 years and above	05 (2.16%)	03 (3.75%)
	Total	231 (100%)	80 (100%)

Table No.3: Condition of the Dead body In Exhumation Cases

Serial no	Condition of Dead Body	Male	Female
1	Dead body(Identifiable)	50 (31.25%)	53 (35.09%)
2	Semi putrefaction	32 (20%)	43 (28.47%)
3	Completely putrefaction	29 (18.12%)	35 (23.17%)
4	Skeletonized	34 (21.25%)	17 (11.25%)
5	Bones Decomposed	15 (9.37%)	03 (1.98%)
	Total	160 (100%)	151 (100%)

At the age 10-20 years there was 25(13.29%) cases of exhumation male and 10(8.13%) female cases, at the age of 21-30 years the exhumation cases of 35(18.61%) Male and 20(16.26%) female cases, at the age of 31-40

Table No.4: Causes of death on Exhumation

S. No	Causes of death	No. of cases	Percentage (%)
01	Fire Arm injury	50	16.07%
02	Stab	25	8.03%
03	Cut throat	29	9.32%
04	Blunt injury	50	16.07%
05	Poisoning	05	1.60%
06	Asphyxia	10	3.21%
07	Undetermined	142	45.65%
	Total	311	100 %

there were 50(26.59%) male and 35(28.45%) female cases of exhumation, at the age of 41-50 years there were 25(13.25%) male and 27(21.95%) female cases of exhumation, at the age of 51-60 years there were 32(17.02%) male and 23(18.69%) female cases of exhumation, at the age of 61-70 years there were 11(5.85%) male and 5(4.06%) female cases of exhumation, at the age of 70-above there were 10(5.31%) male and 03(2.43%)female cases of exhumation were included in this study as shown in table no. 01.

Time since burial in exhumation 1-6months there were 73(31.60%) male and 23(28.75%) female, at the time since burial 7-12 months 54(23.37%) male and 13(16.25%) female, at the time since burial 1-10 years there were 59(25.54%) male and 14(17.5%) were found. At the time since burial 11-20 years there were 25(10.82%) male and 15(18.75%) female, at the time since burial 21-30 years 15(6.49%) male and 12(15.00%) female at the time since burial 30 years and above there were 05(2.16%) male and 3(3.75%) female cases of exhumation were included in this study as shown in table no.02.

The condition of the dead body at the exhumation identifiable 50(31.25%)male and 53(35.09%) female, semi putrefaction cases 32(20%) male and 43(28.47%) female, completely putrefaction 29(18.12%) male and 35(23.17%) female, the Skeletonized body were 34(21.25%) male and 17(11.25%) female cases, the bones decomposed 15(9.37%) male and 3(1.98%) female cases were found on exhumation as shown in table no. 03.

The cause of death on exhumation was determine as firearm injury in 50(16.07%) cases, stubborn 25(8.03%), cut throat 29(9.32%), blunt injury 50(16.07%), poisoning 05(1.60%), asphyxia 10(3.21%) and cause of death was undetermined 142(45.65%) cases as shown in table no.04.

DISCUSSION

Exhumation though considered as sacrilege, is sometimes requested by the heirs of deceased when there are mysteries about the cause of death⁸. In this region the undue delay to conduct exhumation is due to fear of dishonor and elders of the family usually avoid disinterment of near and dear ones. In this study cause of death remained undetermined in two third of cases (71.5%) due to advanced decomposition of the corpse. The cause of decomposition was due to undue delay of disinterment. Our results are not similar to one national study (34% failure rate) conducted by Qazi et al in 2006⁹. However Memon U & Memon A¹⁰ has reported higher percentage of 42.85% of cases in which cause of death could not be determined. In various German studies, failure to reach the cause of death in exhumed bodies have been reported by Verhoff et al, Seibel et al, and Grellner et al^{6,8,11} to be 0.8%, 4.23% and 22% respectively. Higher percentage of failure to reach the cause of death in exhumed bodies in our areas is because of early putrefactive changes due to hot climate, water logging and salinity and improper drainage system around the grave yard. Furthermore in neurogenic death, no pathological changes can be detected¹¹. High successful exhumation rates in Germany is due to delayed putrefaction of corpse because of cold season in many months of year and application of sophisticated diagnostic techniques like immunocytochemistry¹².

Despite the limitations, exhumation may provide surprisingly good results about the cause of death but the same is less likely to be achieved with passage of every day¹³. In our study majority of bodies 30% (60) were exhumed at 5 – 8 months after the death, and most of the bodies, 50% cases were in stage of advanced decomposition or fully skeletonized. Our observations were consistent with Hussain, et al¹⁴ who found advanced putrefaction in 80.4% of bodies exhumed from 4 months to 01 year after the death. However Breitmeier, et al¹⁵ have shown evidence of significant morphological features in soft tissues and internal organs sufficient to diagnose the cause of death in exhumations performed after several years. Marked decomposition observed in exhumed bodies above two years after the death of persons is responsible for failing to reach the conclusion, as the cause of death is to be inferred from soft tissue in majority of cases¹⁶. But delay in putrefaction observed in European countries like Germany improves the positive yield in exhumations many months or even years after burial of deceased.

In our study male corpse were more (86.5%) than females (13.5%) in the ratio of about 4:1. This finding is comparable with one national study conducted at Peshawar where male fatalities are reported in 86.4% of cases. Females in this society being least victims of

violent deaths are due to fact that they hold honorable place even by enemies and spared from tribal and family disputes because of religious, cultural and traditional customs¹⁷. In this study majority of victims belonged to rural areas (about 71.5%), and some 28.5% were belong to urban area. Our study is comparable with Qazi ET al⁹ who have reported rural folk involvement in 77% of cases. Regarding age our findings are in contrast with an international study conducted at U.K where the incidence of unascertained death appears higher in children and young adolescents. Predominance of rural people in our study is due to high illiteracy rate and their ignorance about codal procedures causing delay in conduct of exhumation process. More cases of middle age may be due to involvement in violent activities and this age is more vulnerable to different diseases like acute myocardial infarction where no positive findings are found on disinterment. It was also seen in this study the cause of death was more as blunt injuries of the head and chest and in 71.9 % the cause of death was undetermined due to advanced putrefaction of the corpse and non-availability of advance techniques for exhumation.

CONCLUSION

Delayed exhumation due to lengthy legal procedures involved in carrying out this process leading to decomposition of bodies, resulting in unascertainable cause of death. Early decomposition of bodies due to multiple reasons like hot climate, water logging and salinity, improper drainage of graveyards etc. is a bar to ascertain cause of death.

Author's Contribution:

Concept & Design of Study:	Tanveer Hussain
Drafting:	Azhar Masud Bhatti Qazi Ijaz Ahmed
Data Analysis:	Abid Karim, M Mohsin Abid, M Hassan Abid
Revisiting Critically:	Tanveer Hussain, Azhar Masud Bhatti
Final Approval of version:	Tanveer Hussain

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

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Burden of Seronegative Lupus Nephritis in a Tertiary Care Hospital

Burden of
Seronegative
lupus Nephritis

Farzana Adnan¹, Mehwish Qamar¹, Maria Qureshi¹ and Hamid Ali Kalwar²

ABSTRACT

Objective: The aim of our study was to determine the frequency of sero-negative lupus nephritis at a tertiary care Hospital at Karachi.

Study Design: Retrospective / cross sectional study

Place and Duration of Study: This study was conducted at the Department of Nephrology Liaquat National Hospital & Medical College, Karachi from January 2013 to December 2017.

Materials and Methods: This single center, non probability consecutive, cross sectional study was conducted from January 2013 to December 2017. After taking informed written consent, detailed history was taken, clinical examination was done and ANA and anti-dsDNA were sent to check the outcome i.e. seronegative lupus nephritis. All the collected information was entered in the prescribed Proforma.

Results: Total of 20 patients with signs & symptoms of lupus nephritis were included. Four patients (20%) were males & 16 (80%) were females with the mean age was 31.800 ± 10.471 years. Seronegative lupus nephritis was noted in 5 patients (25%).

Conclusion: In summary, seronegative lupus nephritis was observed in a quarter of patients (25%), thus balancing the absence of SLE-related serologies against a high probability of ANA-negative or seronegative LN pre-testing. When strongly suspected, the patient with close monitoring should be treated promptly.

Key Words: Systemic lupus erythematosus, lupus nephritis, anti-nuclear antibody.

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INTRODUCTION

Involvement of renal system in systemic lupus erythematosus (SLE), also known as lupus nephritis (LN), is a fairly common and fatal condition, approximately 90% of SLE patients developing pathological, often irreversible, impairment of renal function¹⁻³. One-hundred and 400 per 100,000 Caucasian and African-American women, respectively, develop SLE annually with the recorded 10-152 women to men ratio. Around 23% and 60% of SLE patients can develop clinically diagnosed LN early in the course of the disease. Usually this complication occurs within the first 3 years of SLE diagnosis, depending on the duration of the follow-up and the patient's ethnicity.^{2,4,5}. Lupus nephritis (LN) is a grievous and frequent complication of systemic lupus erythematosus (SLE)

predisposing to serious morbidity and death.⁶ The prevalence of SLE and the chances of developing lupus nephritis (LN) vary considerably between different regions of the world and different races and ethnicities.^{7,8}

Known classifications of LN and non-immune complex disease, including thrombotic microangiopathy, podocytopathy, and tubulointerstitial disease, are the two main types of renal injury identified in renal pathology. Immunofluorescence (IF) is characteristic of 3 groups of immunoglobulin (IgG, IgM, IgA) and 8-10 classic and alternative pathway of complement deposits (C3, C4, C1q). Due to the widespread potential derangements, biopsy of kidney is important to the clinical diagnosis, as the pattern of LN injury that has been identified often dictates the course and prognosis of treatment.^{2,9,10}

ANA-negative LN may be encountered in clinical practice. Therefore a high suspicion index should be present if the diagnosis is supported by clinical and pathological findings.

MATERIALS AND METHODS

This single center, Non probability consecutive, retrospective, cross sectional study was conducted at the Department of Nephrology Liaquat National Hospital & Medical College, Karachi from January 2013 to December 2017. Study population in the inclusion criteria was either gender, with 18 to 60 years

¹. Department of Nephrology, Liaquat National Hospital & Medical College, Karachi.

². Department of Gastroenterology, Liaquat National Hospital & Medical College Karachi.

Correspondence: Dr. Farzana Adnan Department of Nephrology Liaquat National Hospital & Medical College, Karachi.

Contact No: 0321 2929668

Email: drfadnan@yahoo.com

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Of age, who presented with sign & symptoms of lupus nephritis.

Patients who met the inclusion criteria attended department of nephrology, Liaquat National Hospital and Medical College were enrolled in the study. Prior to inclusion patients were explained about benefits of the study written consent was taken. The approval from the institutional ethical committee was taken prior to commencement of study. Brief history regarding the sign and symptoms duration of disease and clinical examination was done. ANA and anti-dsDNA was sent in all these patients to the institutional laboratory and renal biopsy was done, if renal biopsy was positive and ANA was negative with ACR criteria positive was labeled as seronegative lupus nephritis. Patients with sepsis (assessed by history, clinically and CT scan), malignancy (assessed by history, clinically and CT scan) and patients with any contraindication to renal biopsy were excluded.

Principal investigator recorded all clinical history demography on a Proforma that was already designed, informed on paper consent was taken before enrollment. An exclusion criterion was firmly followed to avoid confounding variables.

RESULTS

A total of 20 patients with sign & symptoms of lupus nephritis were selected to conduct this study. The mean age was 31.800 ± 10.471 years. The descriptive statistics of age is presented in Table-1. The frequency distribution of age is presented in graph-I. Four patients (20%) were males & 16 patients (80%) were females (as shown in Table-1).

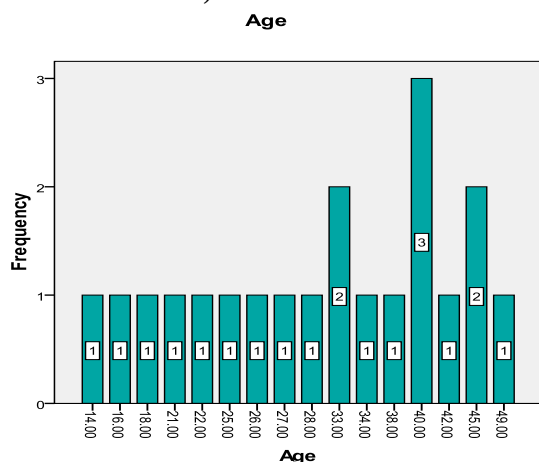


Figure No.1 Frequency distribution of Age (years)

The mean duration of sign & symptoms of SLE was 2.675 ± 1.150 months. The descriptive statistics of duration of sign & symptoms of SLE is presented in Table-2. The frequency distribution of sign & symptoms of SLE is presented in graph-2.

Table No.1: Frequency Distribution of Age, Sex, Ana, AntidsDNA, Lupus Nephritis on Renal Biopsy, Seronegative Lupus Nephritis, Protein urea, C3, C4, Haematuria, Dysmorphic Rbcs and Ana with Jo-1

	Characteristics	Frequency	Percentage
Age (years)	14-20	3	15
	21-26	3	15
	27-35	6	30
	36-49	40	40
Sex	Male	4	20
	Female	16	80
	Negative	6	30
ANA	Positive	14	70
AntidsDNA	Negative	12	60
	Positive	8	40
Lupus Nephritis on renal biopsy	I	1	5
	II	2	10
	III	3	15
	IV	12	60
	V	2	10
Seronegative lupus nephritis	No	15	75
	Yes	5	25
Proteinurea	Negative	17	85
	Positive	3	15
C3	Low	9	45
	Normal	11	55
C4	Low	8	40
	Normal	12	60
Ana With Jo-1	Negative	20	100
	Positive	0	0

The mean serum creatinine level was 2.290 ± 0.865 mg/dl. The descriptive statistics of serum creatinine level is presented in Table-2.

ANA was negative in 6 patients (30%), while anti-dsDNA was negative in 12 patients (60%), as shown in Table-1. The study outcome seronegative lupus nephritis was noted in 5 patients (25%), as shown in Table-1. The stage of lupus nephritis on renal biopsy was I in one patient (5%), II in 2 (10%), III in 3 (15%), IV in 12 (60%) & V in 2 (10%), as shown in Table-1.

Table No.2: Descriptive statistics of Age, Sex, and Duration of sign & symptoms of SLE and Serum creatinine level

Variable	Min.	Max.	Mean	Standard Deviation
Age	14	49	31.800	10.471
Duration of sign & symptoms of SLE	1	5	2.675	1.150
Serum creatinine level	0.80	4.10	2.290	0.865

Table No. 3: Seronegative Lupus nephritis according to age, gender, Duration of sign & symptoms of SLE and Serum creatinine level (n=20)

Age Years	Seronegative lupus nephritis		Total	P-value
	No	Yes		
14-20	3(15%)	0	3(15%)	0.353
21-26	2(10%)	1(5%)	3(15%)	
27-35	3(15%)	1(5%)	4(20%)	
36-49	7(35%)	3(15%)	10(50%)	
Total	15(75%)	5(25%)	20(100%)	
Gender	Seronegative lupus nephritis		Total	P-value
	No	Yes		
Male	4(20%)	0	4(20%)	0.197
Female	11(55%)	5(25%)	16(80%)	
Total	15(75%)	5(25%)	20(100%)	
Duration of sign & symptoms of SLE	Seronegative lupus nephritis		Total	P-value
	No	Yes		
1-2	8(40%)	1(5%)	9(45%)	0.125
3-5	7(35%)	4(20%)	11(55%)	
Total	15(75%)	5(25%)	20(100%)	
Serum creatinine level	Seronegative lupus nephritis		Total	P-value
	No	Yes		
08-2.3	8(40%)	3(15%)	11(55%)	0.528
2.4-4.10	7(35%)	2(10%)	9(45%)	
Total	15(75%)	5(25%)	20(100%)	

Duration of sign & symptoms of SLE

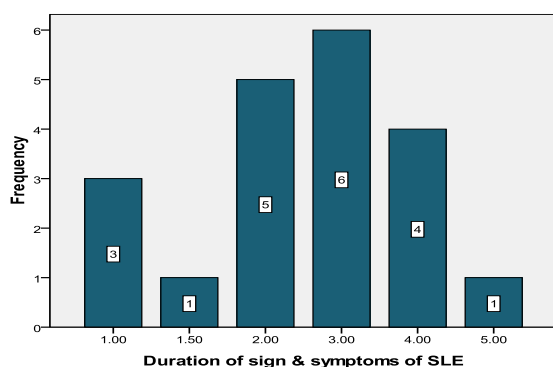


Figure No.2: Frequency distribution of duration of sign & symptoms of SLE (months)

ANA with Jo-1 was negative in all the patients, as shown in Table-1.

No significant association of seronegative lupus nephritis was noted with age, gender, duration of sign & symptoms of SLE with P-value of 0.353, 0.197, 0.125 & 0.528 respectively. As shown in Table-3

DISCUSSION

LN is a critical and common complication of SLE that, if left untreated, can cause major morbidity and mortality². Seronegative and ANA-negative cases of LN pose a major challenge for rapid diagnosis and treatment¹¹. Our review of the literature showed that LN could present without positive SLE serologies in the immediate follow-up period and could or could not convert to positive ones. In determining the diagnosis of LN, one must not depend on serologies or ACR or SLICC classification criteria. Recognizing the variable presentation of LN is important for prompt treatment, noting that some patients may develop serological manifestations of SLE years after the onset of LN.

LN is highly dependent on systemic autoimmunity development. A multitude of genetic variants and environmental triggers determine the degree of immunological dysregulation so that each LN patient may have a unique genetic predisposition that dictates the onset and clinical appearance of the disease.¹²

World Health Organization and the International Society of Nephrology / Renal Pathology Society (ISN / RPS) have classified LN's histopathological characteristics¹³. Immunofluorescence supports a diagnosis of LN by finding a "full-house" pattern of staining (IgG, IgA, IgM, C1q, and C3). Electron microscopy reveals a mixture of different types of mesangial, sub endothelial and/or sub epithelial deposits. TRIs typically occur in the cytoplasm of the endothelial cell.

Increased ANA and anti-dsDNA antibody levels and low serum compliments are the hallmark lupus laboratory tests that yield a combined SLE diagnostic sensitivity of more than 90 percent^{13,14}. Autoantibodies usually occur many years before SLE is diagnosed, and the existence of autoantibodies in SLE patients usually follows a specific path with a gradual accumulation of common autoantibodies before the onset of SLE, whilst patients are asymptomatic.^{14,15}

While identification of serum autoantibodies is regarded to be a hallmark of SLE clinical diagnosis, Autoantibodies to classic lupus antigens have been shown to be neither necessary nor sufficient for end-organ damage. It has been reported that patients with SLE and negative autoantibodies do not exclude SLE due to lack of positive serologies¹⁶.

Certain possible explanations for negative serology may be related to laboratory techniques in full-house "lupus-like" nephritis. It may be a cause for ANA and/or autoantibodies levels too low to be detected through conventional laboratory testing. Some patients may need a longer follow-up period to detect lupus antibodies. Additional possibilities are the development of autoantibodies other than those often tested, or ANAs becoming trapped in circulating immune complexes.

In our study, the prevalence of seronegative lupus nephritis was 25 percent, relative to one previous cohort study of patients with existing clinical and pathological proof of LN with absence of serology, and 40 percent were in the pediatric population at last follow-up (age range 22 months-4 years). Others suggested that other disease mechanisms presenting as full-house nephropathy on renal biopsy should be considered in individuals with seronegative LN and absent extra-renal manifestations. These include IgA, post-infectious GN, idiopathic membranes, C1q and membranoproliferative GN¹⁷. Further diagnostic testing may be necessary for these patients to assist with clinical diagnosis. Finally, the only predictor of a diagnosis other than LN may be the response to treatment.

Baskin et al¹⁸ noted a 10-year-old woman with decreasing kidney function and renal biopsy demonstrating "full-house" nephropathy with negative serologies (complement levels, autoantibodies, and ANCA) that also lacked clinical signs and symptoms of SLE.

Huerta et al¹⁹ noted 4 female adult patients with renal biopsy showing highly suggestive IgG-dominant immune-complex-mediated GN with variable IgA, IgM, C3 and C1q co-deposits of LN, however without extra renal manifestations or SLE serologies at the time of biopsy or over 3 years of follow-up.

Caltik et al⁷ recorded a 13-year-old boy who was revealed to have pretibial edema, arthritis, and petechia on bilateral ankles. The boy had high levels of creatinine (1.65 mg / dL), hypocomplementemia, proteinuria of the nephritic range, hematuria, and pleural effusion. There were negative ANA, autoantibodies, and ANCA serologies.

Only 3 patients with renal and extra-renal manifestations and missing serologies for SLE^{10,20} were identified in the literature. One of them was a pediatric patient, the other two were adults.

With the advent of new clinical approaches to SLE treatment, 5-year survival rates have risen from 44% in the 1950s to at least 95% in the 2000s²¹. 17% of those diagnosed since Class IV LN were alive at the 5-year mark in the 1950s compared to 90-95% in the 2000s. However, the incidence of LN and subsequent ESRD has not changed significantly, and there has been no significant change in the degree of renal remission in current established treatment approaches. Considering that LN rehabilitation trials only recruited patients with clinical SLE diagnosis based on ACR guidelines, it is therefore extremely challenging to handle patients with LN and incomplete SLE diagnosis. For this reason, prompt detection of LN and maintaining a high level of suspicion for LN in patients without positive SLE serologies is of paramount importance to ensure early treatment and appropriate monitoring and follow-up.

CONCLUSION

In conclusion the seronegative lupus nephritis was found in quarter of patients (25%) so the absence of SLE-related serologies should be weighed against a high pre-test probability of ANA-negative or seronegative LN. If highly suspected, the patient should be treated promptly with close monitoring.

Author's Contribution:

Concept & Design of Farzana Adnan

Study:

Drafting: Mehwish Qamar

Data Analysis: Maria Qureshi, Hamid

Ali kalwar

Revisiting Critically: Farzana Adnan,

Mehwish Qamar

Final Approval of version: Farzana Adnan

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

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Suspected Medico legal Cases Turned out to Be Real Medical Cause of Death

Ejaz Ahmed Awan¹, Pardeep Kumar¹ and Abrar-ul-Hasnain Memon²

ABSTRACT

Objective: The purpose behind this study was to determine the real medical cases among all autopsies performed on the basis of suspected medico legal cases at Peoples Medical College Hospital, Nawabshah, and Sindh, Pakistan.

Study Design: Prospective observational study.

Place and Duration of Study: This study was conducted at the Department of Forensic Medicine, tertiary care Peoples Medical College Hospital Nawabshah Sindh Pakistan. From January 2014 to December 2018.

Materials and Methods: The prospective observational study has been conducted through a convenience sampling technique on autopsied 134 males and females between the periods of four years from 2014 to 2018 to observe the real medical cause of death such as cardiovascular or cerebrovascular to fill the statistical gap present at our area of a tertiary care Peoples Medical College Hospital, Nawabshah, Sindh, Pakistan. Ethical consent was taken from family member and hospital before doing autopsy and use of its findings for study purpose. A structured questionnaire was used to collect the objective specific data and we used SPSS version 21 for data entry and analysis.

Results: Our study has male predominance (77.61%, N = 104 / 134) with more autopsied were performed in rural areas (85.52, N = 115 / 134). The mean age of the autopsied performed was 41.31 ± 13.51 years and the age ranges between 20 to 60 years. The prevalence of medical cause of death was 60.44% (N = 81 / 132). The most common cause of death was due to cardiovascular disease (69.13%, N = 56 / 81) and cerebrovascular disease (20.98%, N = 17 / 81).

Conclusion: Besides medico legal causes of deaths ascertained during autopsy, the burden of actual medical causes of deaths which were suspected as medico legal cases impose a huge burden. Hence, suspected medico legal cases most often turned out to be actual medical cause of death that our study findings have shown.

Key Words: Autopsy findings, Medical Cause of Death, Pakistan

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INTRODUCTION

Medico legal cases are the most important and least documented form in the field of medical sciences that is why the actual burden and consequences from these cases are limited worldwide and very few studies are available in developing countries Including Pakistan^{1,2}

¹. Department of Forensic Medicine & Toxicology, Peoples University of Medical & Health Sciences for Women Shaheed Benazir Abad Sindh Pakistan.

². Department of Forensic Medicine & Toxicology, Liaquat University of Medical & Health Sciences, Jamshoro Sindh Pakistan.

Correspondence: Dr. Ejaz Ahmed Awan Associate Professor & Chairman Forensic Medicine & Toxicology, Peoples University of Medical & Health Sciences for Women Shaheed Benazir Abad Sindh Pakistan.

Contact No: 0332 2840244

Email: forensicawan@outlook.com

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Sometimes, these suspected medico legal cases are turned out to be true medical diagnosis due to false allegations or selfish desire of interest to take money from the people. In a nation, where crime ratio is higher due to illiteracy and poor socioeconomic background people most often blame other persons to gain some money from them but such cases are exposed during autopsy³⁻⁵.

The documented causes of medico legal cases in Pakistan is still unknown but in a study published in Pakistan has shown that more than 40% of the medico legal cases are caused by road traffic accident while blunt trauma and physical assault were less common 32% and 19%, respectively⁶⁻⁷.

Deaths from poison, snake bite, scorpion bite, sudden cardiac deaths, and deaths from cerebrovascular accidents causes suspicion in a family that person is killed rather died from other cause. These types of statistical observations are limited and no study has been conducted in Pakistan which shows true burden of medico legal causes and medical cause of deaths during autopsies performed. That is why this study has been conducted to fill the scientific gap and ascertain how

much of the suspected medico legal has been turned out to be medical causes of natural deaths.

MATERIALS AND METHODS

This study is a prospective observational study which was conducted through a convenience sampling technique on autopsied 134 males and females between the periods of four years from January 2014 to 2018 December in a tertiary care hospital of Nawabshah, Peoples Medical College Hospital in a Department of Forensic Medicine.

RESULTS

The mean age of the autopsied performed was 41.31 ± 13.51 years and the age ranges between 20 to 60 years. Among all the 134 autopsies performed mostly the autopsied persons were belongs to rural areas (85.52, N = 115 / 134) and among them most of them were males (77.61%, N = 104 / 134), shown in Chart number 1 & 2.

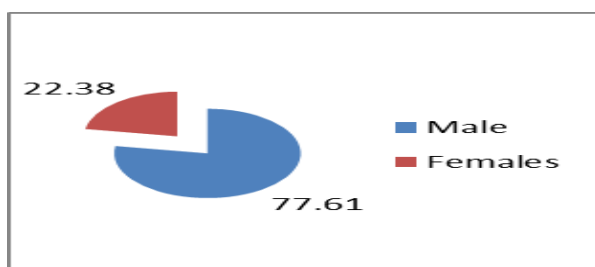


Figure No.1: Gender Wise Distribution of Study Subjects (N = 134)

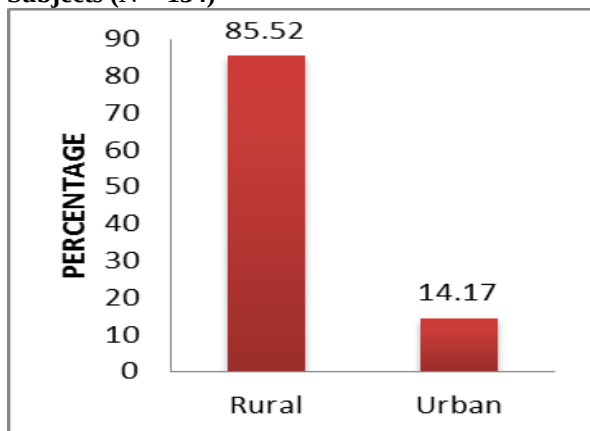


Figure No.2: Area of Residence of Study Participants (N = 134)

The main objective behind conduction of this study was to evaluate the determine the real medical cases among all autopsies performed on the basis of suspected medico legal cases at Peoples Medical College Hospital, Nawabshah, Sindh, Pakistan. Interestingly 60.44% (N = 81 / 132) autopsied persons were died from real medical causes rather than medico legal cause Chart 3. Among them, the most common cause of death was due to cardiovascular disease (69.13%, N = 56 /

81) and cereberovascular disease (20.98%, N = 17 / 81). Descriptive statistics shown in Table No. 1.

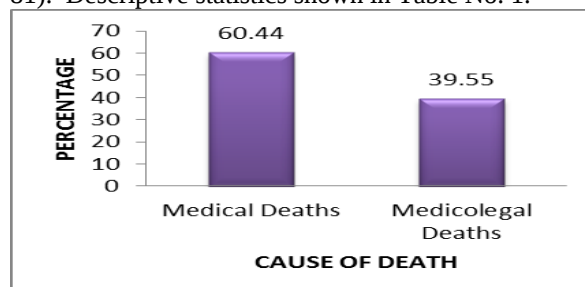


Figure No.3: Prevalence of Medical Cause of Deaths (N = 134)

Table No. 1: Clinical Spectrum of Autopsied Bodies (N = 81)

Medical Causes of Deaths	Percentage	Number
Cardiovascular Disease	69.13	56
Cereberovascular Disease	20.98	17
Respiratory Disease	6.17	5
Kidney disease	3.7	3
Miscellaneous	2.46	2

DISCUSSION

Any case of injury or ailment where some criminality is involved is called a Medico Legal Case (MLC). A medico legal case is where a person is injured or harmed in any way and needs medical attention for it. That is why; sometimes people use medical cases and file a case against someone to gain some ransom. The actual burden of medico legal cases in Pakistan is still unknown but some of the smaller local studies have shown scattered data from different areas of Pakistan^{8,9}. In our study we have observed mean age of the autopsied performed were 41.31 ± 13.51 years and the age ranges between 20 to 60 years. Among all the 134 autopsies performed, mostly the autopsied persons were belongs to rural areas (85.52, N = 115 / 134). Our study's mean age showed that most of the persons belonged to middle aged population and higher number of autopsies performed from rural area represents people were not so illiterate and belongs to socioeconomic backgrounds. The findings of our study are similar to the findings shown in both international and national data published^{10,11}.

The main objective behind conduction of this study was to evaluate the determine the real medical cases among all autopsies performed on the basis of suspected medico legal cases at Peoples Medical College Hospital, Nawabshah, Sindh, Pakistan. Interestingly 60.44% (N = 81 / 132) autopsied persons were died from real medical causes rather than medico legal cause. The reason behind false accusation could be due to they want some money from them. But there is no study has been conducted in Pakistan or even internationally to compare our findings with them.

Worldwide cardiovascular diseases are considered to be responsible for approximately 17 million deaths every

year and about 25% are sudden cardiac deaths (SCD)¹²⁻¹⁴. Any person who died without any noticeable cause should be evaluated for cardiovascular disease. The similar findings are observed in our study in which we have also observed that the most common cause among such persons were due to cardiovascular disease (69.13%, N = 56 / 81). Previous literature have suggest that in adolescents and young adults (<35 years), the approximate incidence of death is 0.01 per 1000 per year caused by cardiovascular related deaths such as cardiomyopathies, myocarditis, premature coronary artery disease, congenital coronary artery anomalies, and channelopathies. The incidence of SCD then increases, reaching about 1 per 1000 per year in the subjects 35–45 years, 2 per 1000 per year by 60 years, and 200 per 1000 per year in the elderly. This indicates a global burden of cardiovascular disease is a major concern that needed to be accounted on a larger scale particularly in our area based on autopsy findings¹⁵⁻¹⁷.

CONCLUSION

Besides medicolegal causes of deaths ascertained during autopsy, the burden of actual medical causes of deaths which were suspected as medicolegal cases impose a huge burden. Hence, suspected medicolegal cases most often turned out to be actual medical cause of death that our study findings have shown.

Author's Contribution:

Concept & Design of Study:	Ejaz Ahmed Awan
Drafting:	Pardeep Kumar
Data Analysis:	Abrar-ul-Hasnain Memon
Revisiting Critically:	Ejaz Ahmed Awan Pardeep Kumar
Final Approval of version:	Ejaz Ahmed Awan

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

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Efficacy of Spectinomycin versus Ceftriaxone in the Treatment of Gonorrhea

Tayaba Basharat¹, Shandana Altaf², Muhammad Iftikhar Adil³ and Waheed Iqbal²

ABSTRACT

Objective: The aim of this study was to compare the efficacy of spectinomycin versus ceftriaxone in the treatment of gonococcal infection.

Study Design: Observational Study

Place and Duration of Study: This study was conducted at the Nowshera Medical College, Nowshera Pakistan during the period of January 2017 to December 2018.

Materials and Methods: Purposive sampling technique was used to enroll the patients. Two hundred patients were enrolled for the study. The patients were randomly divided into two groups of 100 patients each. Group A was given injection spectinomycin 2gm intramuscularly and Group B was given Injection Ceftriaxone 500mg intramuscularly in single dosage. All the patients were reexamined after 5 days and their clinical and laboratory findings were recorded and analyzed.

Results: The patients in Group A (n=100) who were given spectinomycin Showed 94% full response, 4% partial response and 2% no response, while the patients in Group B (n=100) who were given ceftriaxone showed 90% full response, 4% partial response and 6% showed no response at all. Furthermore, increasing age does not play any statistically significant role in etiology of gonorrhea infection.

Conclusion: There is no statistically significant difference between cure rates of spectinomycin and ceftriaxone. However, due to pain at injection site, less effective in pharyngeal gonorrhea, contraindication in pregnancy and breast feeding, the spectinomycin may be reserved only for ceftriaxone resistant cases.

Key Words: Neisseria Gonorrhea, Spectinomycin, Ceftriaxone

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INTRODUCTION

Gonorrhea is known to mankind since medieval time. It is a purulent inflammation of the urogenital tract caused by *Neisseria gonorrhea*, a gram-negative diplococcus and is highly contagious among the sexually transmitted diseases¹. Presence of risk factors like unprotected sex, multiple sexual partners and previous history of infection with *N. gonorrhea* in both genders are responsible for its transmission. It can also be transmitted vertically to baby from infected mother during delivery causing ophthalmic neonatorum^{2,3}. The chances of transmission of infection through single unprotected sexual contact from male to female is

80% while female to male risk of transmission is 20%⁴. If maltreated or left untreated, both men and women suffer from many obvious complications like epididymitis, encephalitis, endocarditis and arthritis, cervicitis leading to pelvic inflammatory disease (PID) which may cause ectopic pregnancy, peri hepatitis (Fitz Hugh Curtis syndrome) or infertility³⁻⁵. The association between gonorrhea and prostatic cancer is widely studied and no direct association has been found so far but it is proved that the risk of prostatic cancer is increased among men who report a history of gonorrhea or syphilis⁶. In the pre antibiotics era, various herbs like Cubebs (Indonesian pepper), Metals like Arsenic, Bismuth, Antimony, Gold, Silver nitrate were used for gonorrhea⁷. The advent of antibiotic in 1937, which might be tagged as sulphonamide year, revolutionized the field of chemotherapy. Sulphonamide established an effective chemotherapy against gonorrhea for some time⁸. Penicillin since its discovery in 1940 remained the mainstay of treatment for gonorrhea till 1980, when the first gonococcal isolates were identified resistant to penicillin. Then the clinical efficacy of the various drugs used in the treatment of gonorrhea have been studied and reported at different geographical locations. These studies have shown decreasing antimicrobial susceptibility among *N. gonorrhea* at different geographical locations of the world⁹. The emergence of antibiotics resistant strains of gonorrhea to sulpha

¹. Department of Pharmacology, Nowshera Medical College, Nowshera.

². Department of Pharmacology KMC, Peshawar.

³. Department of Pharmacology Gajju Khan Medical College Swabi.

Correspondence: Dr. Tayaba Basharat Assistant Professor, Department of Pharmacology, Medical College, Nowshera.
Contact No: 0092333 5493311
Email: drtayababasharat@gmail.com

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drugs, penicillin, tetracycline, macrolides and quinolones is a growing challenge. In 1983 local epidemic caused by penicillin resistant strains were successfully treated by using Spectinomycin¹⁰. Since then spectinomycin and ceftriaxone are used more confidently in the treatment of gonorrhea with minimal resistance.

Spectinomycin is an aminocyclitol antibiotic derived from *Streptomyces spectabilis*, introduced in 1961 was used in patients allergic or resistant to penicillin and cephalosporin. Spectinomycin acts by inhibiting protein synthesis and elongation by binding to the bacterial 30S ribosomal subunit and interfering with peptidyl tRNA translocation. A mutation in *rpsE*, the gene for ribosomal protein S5, prevents the binding of spectinomycin. Spectinomycin is used for gonococcal urethritis, cervicitis and proctitis but is not effective against gonococcal pharyngitis. It is reserved for patients who cannot be treated with ceftriaxone, cefixime, azithromycin or doxycycline. Common side effects include pain at the area of injection, rash, nausea, fever and disturbed sleep pattern. It is generally safe to use during pregnancy.

Ceftriaxone a third-generation broad spectrum cephalosporin introduced in United States in 1984 and approved for respiratory, genitourinary, gastrointestinal, meningococcal, gonococcal and soft tissues infections, respectively. Adverse effects reported are hypersensitivity, pancytopenia, glossitis and pseudo-cholelithiasis¹¹. There is a tentative evidence that ceftriaxone is relatively safe during pregnancy and breastfeeding rather than spectinomycin.

MATERIALS AND METHODS

This study was conducted in Nowshera Medical College, Nowshera after permission from institutional ethical committee. Informed consent was taken from all subjects included in the study before administration of the drugs.

Two hundred patients coming to medical and gynae departments during the period of January 2017 to December 2018 with the diagnosis of gonorrhea were included in this study. Their history, clinical and laboratory findings were recorded on a specific proforma. The age of the subjects was ranged between 14–55 years of which 152 were males and 48 were females. In male patients, the clinical diagnosis was almost straightforward with cloudy urethral discharge and dysuria after a recent history of sexual exposure¹². Urine examination and gram staining of urethral discharge were carried out to confirm the diagnosis. High vaginal swabs of all female patients were collected for gram staining and culture confirmation. Because females often do not show any symptoms, the intracellular presence of gram-negative diplococci in vaginal discharge was the main diagnostic criteria. The patients were randomly divided into 2 groups of 100

patients without any regard for the gender. Group-A patients were given single dose spectinomycin 2 grams intramuscularly, Group-B patients were given single dose Ceftriaxone 500 mg intramuscularly. It was thought that I/M injection has depot effect in gonococcal infection but it is reported by Workowski in 2010 that ceftriaxone I/M and I/V has the same plasma concentration after 24 hours. After 5 days following the initial treatment all the patients were re-examined clinically along with laboratory investigations and data was recorded for the analysis. At follow up, urine microscopy, along with gram staining and microscopy of the prostatic fluid in males and vaginal secretion in females were carried out and recorded on a proforma.

RESULTS

All 200 patients in the study including 52 males (76.33%) and 48 females (23.66%) with age range between 14–55 years, were clinically diagnosed cases of gonorrhea. Table-1 shows age and gender distribution of the patients and also impact of age on the occurrence of gonorrhea

To confirm the diagnosis, apart from urine routine examination, gram staining of the vaginal discharge for the presence of gram-negative diplococci in pus cells was carried out in all female patients. Table-III shows clinical response of antimicrobial drugs in gonorrhea. The criteria used to differentiate between partial response and no response at all were symptoms of dysuria and/or urethral discharge in males and vaginal discharge in females, gram staining and microscopy of the prostatic fluid in males and vaginal secretion in females. Group-A (n=100) patients who were given inj. spectinomycin on the first day, were followed up on 5th day. 94 patients (94%) reported with full cure. A total of 4 (4%) cases complained of dysuria only.

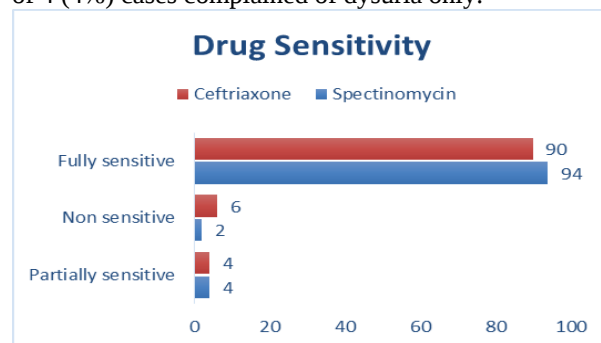


Figure No.1: Drug sensitivity response of ceftriaxone and spectinomycin

Table No. 1: Age and sex distribution of Patients

Age in years	Total	Male	Female	P-value	OR(95%CI)
< 20	81	62	19	Reference	Reference
20-40	99	77	22	0.98	0.93(0.46-1.87)
> 40	20	13	7	0.44	1.75(0.615.03)

In these cases, gram staining of prostatic fluid in males and vaginal secretion in females revealed the presence of diplococci in pus cells (++) and urine examination showed pus cells (+++). We considered those cases as partially responsive, while the rest of the 2 patients (2%) did not respond at all having no improvement in symptoms and laboratory investigations. Hence in a total of 6% of the patients, spectinomycin was clinically ineffective. Group-B (n=100) patients received Injection Ceftriaxone 500 mg single dose I/M on the 1st day, and were followed up on 5th day. 90 patients (90%) were found to be cured. Four patients (4%) complained of mild dysuria on 5th day. Gram staining,

of prostatic secretion in males and vaginal secretions in females, revealed intracellular presence of gram-negative diplococci (+) and microscopic examination of urine showed pus cells (++) . These cases were considered to be partially responsive to ceftriaxone.

The remaining 6 cases (6%) were absolutely non-responsive to this drug having complaints and laboratory findings same as before. Hence in a total of 10% of the cases in this group, there was no response. However, there was no statistically significant difference when we compared the use of spectinomycin versus ceftriaxone in the treatment of gonorrhea

Table No. 2: Clinical efficacy of antimicrobials in the treatment of gonorrhea

Groups	Drugs	Single dose	Fully sensitive	Partially sensitive	Non sensitive	p-value
A(n=100)	Spectinomycin	2 gm. (I/M)	94 (94%)	04 (4%)	02 (2%)	NS*
B(n=100)	Ceftriaxone	500mg (I/M)	90 (90%)	04 (4%)	06 (6%)	

NS: Non significant

DISCUSSION

Gonorrhea is highly contagious Sexually Transmitted Disease and due to its causation and specific clinical features, it was usually referred to as “the clap” and “the drip” before the advent of antibiotics ¹. Due to effective public awareness campaigns in the developed countries the incidence of gonorrhea has declined significantly but rising in some developing countries due to lack of public awareness campaigns. According to World health organization report the number of gonorrhea cases were 106 million in 2008 reduced to 78 million in 2016 ¹³.

Most of the gonorrhea victims in this study are of 20–40 years of age and the number of male patients significantly higher than females producing signs symptoms of urethral discharge with dysuria by males and vaginal discharge with dysuria by females is consistent with studies done in other countries ¹⁴⁻¹⁶.

If treated early, gonorrhea can be cured. But unfortunately most of the women with gonorrhea do not experience symptoms which could alert them to seek medical advice.³ No follow up visits after single dose of antibiotics, improper choice of antibiotics and emergence of resistant cases of gonococci are other causes of increasing cases of gonorrhea in some parts of the world¹⁷. The antimicrobial resistance of N. gonorrhea occurs as plasmid mediated resistance to Penicillin and Tetracycline ¹⁸⁻¹⁹ and chromosomally mediated resistance to Penicillin, Fluor quinolones, Tetracycline and Spectinomycin ¹⁹⁻²⁰. In a study conducted by Bala M in 2005 reported occasional spectinomycin resistant isolates from U.S, India and China. Our study showed spectinomycin susceptibility in 94% cases and non-responsiveness was noted in 6% cases. Spectinomycin in 6% of the cases is either partially (4%) or completely (2%) resistant. It was

reported by Hands field that Neisseria gonorrhea had been eradicated in 99% cases by administering 125mg of ceftriaxone to 155 patients. By using 500mg ceftriaxone, our study showed 90% eradication of the gonococci and showed resistance in 10% cases. A study conducted by Collier in 1984 showed that spectinomycin eradicated 96% anorectic and 50% pharyngeal gonorrhea, while ceftriaxone eradicated 98% anorectic and 90% pharyngeal. Judson in 1985 reported that both spectinomycin and ceftriaxone cured anorectic gonorrhea 100% and pharyngeal gonorrhea 43% and 94% respectively. Keeping in view all these studies, if ceftriaxone is used in high doses and is combined with other antibiotics it will be highly effective than spectinomycin ^{21 22 23}.

CONCLUSION

Although spectinomycin is more effective than ceftriaxone in the treatment of uncomplicated gonorrhea but because of scarce availability, pain at the injection site and less effect on pharyngeal gonorrhea it should be reserved only for ceftriaxone resistant gonorrhea or patients hypersensitive to other antibiotics. Furthermore, ceftriaxone is relatively safe during pregnancy and breast feeding as compared to spectinomycin. Based on previous studies, being broad spectrum, effective against all anatomical sites and easily available, ceftriaxone should be used the drug of first choice for gonorrhea.

Author's Contribution:

Concept & Design of Study:	Tayaba Basharat
Drafting:	Shandana Altaf
Data Analysis:	Muhammad Iftikhar
	Adil, Waheed Iqbal
Revisiting Critically:	Tayaba Basharat
	Shandana Altaf
Final Approval of version:	Tayaba Basharat

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

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To Compare the Mean Corneal Endothelial Cell Count Between the Sodium Hyaluronate 1% VS Hydroxy Propyl Methyl Cellulose (HPMC) in Patients Undergoing Phacoemulsification

Naresh Kumar, Rabia Chaudhry, Imran Ali, Wejai Kumar, Nasar Qamar khan and
Areej Riaz

ABSTRACT

Objective: To determine mean corneal endothelial cell count between the sodiumhyaluronate1% vs. Hydroxy propyl methyl cellulose (HPMC) in patients undergoing phacoemulsification.

Study Design: Randomized control trial (RCT).

Place and Duration of Study: This study was conducted at the Ophthalmology Department, Jinnah Postgraduate Medical Centre; Karachi from 1st April, 2018 to 30th September, 2018.

Materials and Methods: There were 61 patients having cataract were included in this study. Patients were randomly allocated into two groups. Patients in group 1 were treated with sodium hyluronate 1% and group 2 was treated with Hydroxy-propyl-methyl-cellulose 2%. All the patients were underwent phacoemulsification. Foldable intraocular lens (IOL) was implanted in all cases. Measurements of the endothelial cell count were made 1 day before the surgery and at the end of 6 weeks. All the data was entered on the pre-designed proforma.

Results: There were 28(45.2%) male and 34(54.8%) female. Reduction in mean endothelial cell count was significantly high in group 2 as compare to group 1 ($p=0.0005$).

Conclusion: In conclusion, our study suggests that 2% Hydroxypropyl methylcellulose, compared with sodium hyaluronate 1%, is superior in protecting the corneal endothelial cells.

Key Words: Phacoemulsification, Corneal endothelial cell, Hydroxy propyl methyl cellulose, sodium hyaluronate

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INTRODUCTION

The most recent estimates from World Health Organization (WHO) reveal that 47.8% of global blindness is due to cataract.¹ phacoemulsification have become the most commonly used procedure in cataract surgery owing to the development of new devices and Surgical techniques; However, corneal endothelial damage still represents a serious complication.² Ultrasound energy used during phacoemulsification is known to damage the corneal endothelium and other intraocular structures. Ophthalmic viscosurgical devices (OVD) enlarge and maintain the anterior chamber in cataract surgery.³ their basic function is to create anterior chamber depth, protects the corneal endothelium and the posterior capsule.⁴

The corneal endothelium is a barrier for metabolic activity that plays an important role in maintaining transparency by utilizing an ATPase pump⁵. The clarity of the cornea is dependent on endothelial cell pump function (Shaw et al. 1978). If the number of cells decreases to below a certain density, corneal edema appears. Adult the mean endothelial cell count [Cells/mm² (SD)] of group Celoftal (Methylcellulose) preoperative 2684(338) and 3-months postoperative endothelial cell count 2200(619)⁶. Mean endothelial cell count(cells/mm²) Group B (OVD 1% sodiumhyaluronate)preoperative 2786.24 ,SD 286.57,postoperative 2568.24 , SD 378.78⁷. Various types of viscoelastic like cohesive and dispersive in nature are available in the market. All of them claim to provide maximum endothelial cell protection during surgery. But again quality is associated with a high price tag. In a developing country like Pakistan where per capita income is low and health insurance is a rarity, use of these costly viscoelastics becomes a burden both for the patient and for the surgeon. Especially when high volume cataract surgery is performed and resources are limited; its use becomes more and more difficult⁸. The OVD hydroxy-propyl-methyl-cellulose (HPMC) has low zero-shear viscosity

Department of Ophthalmology, JPMC, Karachi.

Correspondence: Dr. Naresh Kumar PG Trainee Department of Ophthalmology, JPMC, Karachi.

Contact No: 03337575488

Email: dranareshairani@gmail.com

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and dispersive characteristics⁹. Since the introduction of sodium hyaluronate 1% in 1979. Sodium hyaluronate has become the most popular and indispensable viscoelastic substance for use in intraocular surgery. It is also found in the aqueous humor and the vitreous and coats the corneal endothelium¹⁰. To the best of my knowledge very few studies have been done on this important topic in Pakistan. Now a day a large number of patients undergoing for phacoemulsification surgery with different chemical composition ophthalmic viscosurgical device (OVDs) and different cost tag ophthalmic viscosurgical device (OVDs), so this study is designed to provide us the Mean and SD of endothelial cell count of the two groups and thus it may help us in providing information about better and cost effective OVD to system which was finally improvement in phacoemulsification surgery.

MATERIALS AND METHODS

This RCT study was carried out at Department of Ophthalmology, Jinnah Postgraduate Medical Centre, and Karachi from 1st April, 2018 to 30th September, 2018 after approval from ethical review board of the hospital. Patients having grade I, II & III cataract (graded and diagnosed according to LOCS-III classification on slit lamp examination) Both gender (male and Female) Aged between 35 to 70 years. Duration of symptoms 3 months or more. Endothelial cell count > 1500 cell/mm² were recruited in the study through non probability consecutive sampling. An informed consent was taken from all participants. These patients were randomly divided into two groups by lottery method. The study population was divided into two groups, group 1 received sodium hyaluronate 1% and group 2 was received Hydroxy-propyl-methyl-cellulose 2% patients. All the patients underwent phacoemulsification by a single surgeon associate professor, more than 10 year experience with same phacoemulsifier (Laureate phacoemulsification system-1002723001X). Foldable intraocular lens (IOL) was implanted in all cases. Measurements of the endothelial cell count were made 1 day before the surgery and at the end of 6 weeks. The endothelial cell in the cornea (cells/mm²) was calculated with a non-contact specular microscope (SPOI: CSO, ITALY).

All the data was entered on the pre-designed proforma by the researcher which will include age, gender, duration of symptoms, pre and post phacoemulsification endothelial cell count 1 day before surgery, and at the end of the 6 weeks of surgery. Sample size By taking the mean and SD of corneal endothelial cell count group 1 (SODIUMHYALURONATE) 2568.24±378.78 and in group 2 (hydroxyl propyl methyl cellulose) 2200±619, power

of study equal to 80%, confidence interval equal to 95% then at least sample of 31 in each group was required. Patients having cataract of grade IV & V. Corneal disease e.g. corneal opacity and corneal dystrophies & degeneration. Uveitis, glaucoma & pseudo exfoliation syndrome. Previous intraocular surgery and diabetes type I. Endothelial cell count below 1500 cell/mm². Aged below 35 & above 70 years were excluded. Complete ophthalmic examination including visual acuity, slit lamp examination and IOP measurement was done. Corneal endothelial cell count for each patient was evaluated using specular microscopy done by the same examiner between 9 and 11 am. An average of three readings taken from central cornea was taken. The data was analyzed by SPSS version 18. Quantitative variable i.e. age, duration of symptoms and pre & post Phacoemulsification endothelial cell count 1 day before surgery and at the end 6 weeks of surgery was presented as mean ± standard deviation. Frequency of percentages was calculated for gender and grade of cataract. t test was applied to compare the mean endothelial cell count at 6 weeks in both groups. Stratification with respect to age gender and grade of cataract was done. Post stratification t test was applied value ≤0.05 was taken as a significant.

RESULTS

There were 61 patients having cataract were included in this study. Independent sample t test Patients were randomly allocated into two groups. Patients in group 1 were treated with sodium hyaluronate 1% and group 2 was treated with Hydroxy-propyl-methyl-cellulose 2%. There were 28(45.2%) male and 34(54.8%) female. Most of cases had grade I cataract 35(56.6%) followed by 20(32.2%) and 7(11.3%) as shown in figure. Pre-phacoemulsification, mean endothelial cell count was not significant between groups while post-phacoemulsification mean endothelial cell count was significantly low group 1 as compared to group 2 (p=0.017).

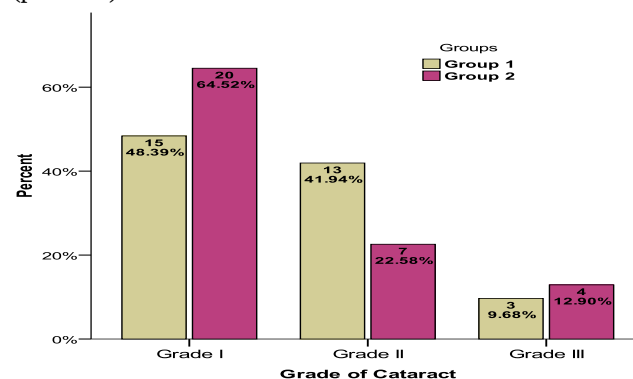


Figure No.1: Grade of Cataract (N=62)

Table No. 1: Comparison of Mean Endothelial Cell Count between Groups

Endothelial Cell Count (cells/min ²)	Group 1 n=31	Group 2 n=31	P-Value
Pre-Phacoemulsification (1 day before)	2652±150.78	2706.58±99.75	0.09
Post-Phacoemulsification (At the end of the 6 weeks of surgery)	2439.84±138.72	2346.91±158.25	0.017
Difference (Pre-Post)	212.16±12.06	359.67±58.50	0.0005

Pre and post reduction in mean endothelial cell was 359.67±58.50 in group 2 and 212.16±12.06 in group 1.

Reduction was also significantly high in group 2 as compare to group 1 as shown in table. Stratification analysis was also performed and observed that mean reduction was also high in group 2 as compare to group 1 for different age groups, both gender and grade I cataract while mean reduction was not significant between groups for the grade II and III cataract patients.

DISCUSSION

Cataract is an important public health issue and the leading cause of blindness in Pakistan. Phacoemulsification and intraocular lens implantation is the preferred method to treat cataract, however, the quality of surgery is a problem that needs to be addressed¹¹. PRIOR to the use of viscoelastic materials (VEMs), corneal edema was the most common cause of failed cataract surgery.¹² Postoperative corneal edema or corneal decompensation results from corneal endothelial damage during surgery.^{13,14} The introduction of viscoelastic materials VEMs in the 1970s greatly improved the outcome and safety of anterior segment surgery. Ophthalmic viscosurgical devices (OVDs) facilitate any surgical manoeuvres and decrease the possible damage of the corneal endothelium due to surgical trauma.^{15,16} An OVD is believed to protect the CECs during the phacoemulsification maneuver due to suppression of free radical formation.¹⁷ Endothelial cell loss is a primary indicator of corneal injury. Since endothelial cells do not regenerate, adjacent cells expand to fill in the gaps. As a result, endothelial cell density or count decreases and cell size increases in response to injury. Endothelial cell hexagonality and corneal thickness have been shown to increase as a result of corneal stress.^{13,14} The damage of the corneal endothelium can be evaluated by measuring the endothelial cell decrease after surgery.¹⁸ Adult human corneal endothelium is considered a non-replicative tissue and there is a natural decrease in endothelial cell density by age.¹⁹ In our study there were 61 patients who were divided into two groups. Patients in group 1 were treated with sodium hyaluronate 1% and group 2 was treated with Hydroxypropyl-methyl-cellulose 2%. Post-phacoemulsification mean endothelial cell count was significantly low in group 1, treated with sodium hyaluronate 1%, as compare to group 2, treated with Hydroxy-propyl-methyl-cellulose 2% (p=0.017). Stratification analysis was also performed and observed that mean reduction was also high in group 2 as compare to group 1 for different age groups, both gender and grade I cataract. Chaudhuri et al in their prospective study found that 2%

Hydroxypropyl methylcellulose, compared with sodium hyaluronate 1%, is superior in protecting the corneal endothelial cells, has the same effect on central corneal thickness. It compares favorably with sodium hyaluronate 1% and can be used as an effective and cheaper alternative in routine small incision cataract surgery with implant.²⁰ Glasser et al.²¹ and Probst et al.²² found no significant differences in endothelial cell loss after phacoemulsification using two different drugs. These studies found that 2% Hydroxypropyl methylcellulose has a higher likelihood of being retained during surgery and may confer better endothelial cell protection. It is possible that advances in phacoemulsification instrumentation and techniques may have sufficiently improved the safety and efficiency of cataract surgery such that the type of VEM used is of secondary importance. This belief is supported by a recent study by Kiss et al. It revealed similar changes in corneal edema and endothelial cell morphology, whether the VEM used during phacoemulsification was expensive or low-cost.²³ In our study we also found that other factors, such as patient age and degree of nuclear sclerosis, may be important determinants affecting the way the corneal endothelium recovers from surgery. The process of endothelial damage is likely to be multifactorial in nature. Surgical skill and technique are also likely to be important factors in determining surgical outcomes.

CONCLUSION

In conclusion, our study suggests that 2% Hydroxypropyl methylcellulose, compared with sodium hyaluronate 1%, is superior in protecting the corneal endothelial cells. It compares favorably with sodium hyaluronate 1% and can be used as an effective and cheaper alternative in routine small incision cataract surgery with implant.

Author's Contribution:

Concept & Design of Study:	Naresh Kumar
Drafting:	Rabia Chaudhry, Imran Ali
Data Analysis:	Wejai Kumar, Nasar Qamar khan, Areej Riaz

Revisiting Critically: Naresh Kumar, Rabia Chaudhry

Final Approval of version: Naresh Kumar

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

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Frequency of Hypertension and Diabetes Millitus in Patients Presenting With Acute Ischemic Stroke

Muhammad Haroon Shahid¹, Abdul Hanan Bangash¹, Muhammad Khalid¹, Muhammad Shabir¹, Shabir Hussain¹, and Rifayatullah²

ABSTRACT

Objective: To find the frequency of hypertension and diabetes mellitus in patients with acute ischemic stroke.

Study Design: Descriptive / cross sectional study.

Place and Duration of Study: This study was conducted at the Medicine, Qazi Hussain Ahmad Medical Complex, Nowshera Medical College, and Nowshera. One year from July 2018 to June 2019.

Materials and Methods: 100 patients of acute ischemic stroke were collected by convenient (non-probability) sampling technique. Patients fulfilling the inclusion criteria were further assessed through a detailed history from patients or from relatives, CT scan brain, random and fasting blood sugar, lipid profile, chest x-ray and ECG was done in all patients.

Results: Hypertension was present in 45% patients. Hypertension and diabetes mellitus was present in 24% cases, 23% patients were not having any of these diseases. Diabetes mellitus was present in only 8% cases.

Conclusion: Hypertension and diabetes collectively are the two main risk factors for ischemic stroke. The frequency of diabetes mellitus alone was very low in this study.

Key Words: Cerebrovascular-Accident, Cerebral-Infarction, Stroke-risk actors; hypertension; diabetes mellitus, Stroke-Diagnosis.

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INTRODUCTION

Stroke is the leading cause of disability and second most common cause of death worldwide.^{1,2,3} Almost 15 million people sustain stroke worldwide on annual basis. Burden of stroke has a greater impact in developing world including Pakistan, causing 350,000 people to suffer from it leading to death or long term disability^{4,5,6}. An increase of 78% mortality mostly in developing world has been estimated by World Health Organization between 1990 to 2020. The main pathological types of stroke are cerebral infarction, Primary intra-cerebral hemorrhage and subarachnoid Hemorrhage.

¹. Department of General Medicine, Nowshera Medical College and Qazi Husain Ahmad Medical Complex Nowshera.

². Department of Pediatrics Medicine, Nasser Teaching Hospital Peshawar.

Correspondence: Dr. Muhammad Haroon Shahid Senior Registrar Department of General Medicine, Nowshera Medical College and Qazi Husain Ahmad Medical Complex Nowshera.

Contact No: 0333 9363488

Email:haroon92001@yahoo.com

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In developed countries, about 85-90% of strokes are due to cerebral infarction and 10-15% due to

Intracranial hemorrhage. Ischemic stroke can be further subdivided into etiologic subtypes or categories which represent the causes of the stroke: cardio embolic, atherosclerotic, lacunar, other specific causes (dissections, vasculitis, specific genetic disorders, and others), and strokes of unknown cause.⁷ Hypertension, diabetes mellitus, smoking, atrial fibrillation, hyperlipidemia, Homocysteinemia, and alcohol consumption, waist to hip ratio, physical inactivity, diet and apolipoprotein B to A1 are the most significant modifiable risk factors of stroke.⁸ Of these, hypertension, diabetes, smoking, hyperlipidemia, homocysteinemia and alcoholism are obviously affected by lifestyle and nutrition⁹.

Reduction of modifiable risk factors in primary prevention of stroke has core importance.¹⁰ much is known about long-term stroke risk factors, such as hypertension, diabetes mellitus, and atherosclerotic disease as opposed to the short-term risk factors, or triggers which can lead to stroke.¹¹

The relationship between hypertension and cerebrovascular disease is well established. As blood pressure is a dynamic and distributed variable, 24 hours ambulatory blood pressure monitoring may be valuable as a risk stratifying tool in determining the "hypertensive load" as assessed by the presence of dipping or non-dipping status of an individual. Raised

Blood pressure is often seen in those presenting with Strokes, although the precise mechanisms are uncertain¹². Diabetes mellitus is considered an independent risk factor for stroke which can double the risk of stroke for diabetic patients, and stroke accounts for $\approx 20\%$ of deaths in diabetics. Pre diabetics are also at increased risk of stroke.^{14, 15, 16}. On the other hand hypertension is the only significant factor related with intra-cerebral hemorrhage¹⁷. According to a study hypertension is also a significant independent risk factor for ischemic stroke in the elderly¹⁸. Another study suggests that most of ischemic strokes are attributable to the effects of diabetes alone or in combination with hypertension¹⁹. In Pakistan 18-42% cases of cerebral hemorrhage have been reported. This higher rate of cerebral hemorrhage has been attributed to uncontrolled hypertension. In Pakistan 30-60% prevalence of hypertension has been reported in stroke patients (both ischemic and hemorrhagic). These studies support a strong role of hypertension in ischemic stroke in our population^{20, 21}.

Due to severe morbidity and mortality associated with stroke and limited effective therapies, this research was mainly focused on identification of two common risk factors (hypertension, diabetes) and prevention of stroke by modification of these two in northern Pakistan. Because local studies conducted on frequencies of hypertension and diabetes mellitus in ischemic stroke are limited, so it was beneficial to conduct this study so as to adopt primary preventive measures against ischemic stroke in the light of results of the study.

MATERIALS AND METHODS

The study was conducted at Department of Medicine, Qazi Hussain Ahmad Medical Complex, Nowshera Medical College, and Nowshera. One year from July 2018 to June 2019. All patients of age more than 15 years of either gender admitted with first episode of focal neurological deficit of sudden onset lasting for more than 24 hours or leading to death clinically and radio logically confirmed as ischemic stroke. Patients presented with transient ischemic attack or other stroke mimics like hypoglycemia, seizures or metabolic cause of global or focal deficit. Patients having hemorrhagic stroke. Patients with recurrent stroke in all these patients stroke was initially diagnosed on clinical grounds and confirmed on CT scan brain/MR brain. The patients were declared as hypertensive if systolic blood pressure was more than 140 mmHg, diastolic blood pressure more than 90 mmHg or both on two separate occasions or if the patient gave previous history of hypertension or used antihypertensive medicines. On the other hand patients were declared as diabetic if found to have fasting plasma glucose more than 126 mg/dl, random plasma glucose more than 200 mg/dl on two separate occasions in asymptomatic

patients or on one occasion in symptomatic patients or if the patient gives previous history of diabetes mellitus or use of ant diabetic drugs. After taking formal consent, patients fulfilling the inclusion criteria were further assessed through a detailed history, from patient or from the relatives, including personal particulars, complaints, past history of stroke, TIA, hypertension, diabetes mellitus, and drugs. The information was entered into a proforma. Blood pressure was recorded at arrival and 24 hours after admission. All the patients underwent investigations including CT scan/MR brain without contrast, ECG, X-ray chest, random and fasting blood sugar, lipid profile All the studied variables including demographic features of patients, history of hypertension, diabetes mellitus, family history, drug history, general physical examination findings, systemic examination findings, CT scan brain findings, random/fasting blood sugar, lipid profile, ECG, x-ray chest were analyzed for descriptive statistics. The results of these variables were expressed/presented through frequency tables, and graphs. For age-wise distribution average and $\pm$ standard deviation was calculated. For sex-wise distribution male to female ratio was calculated all the data was analyzed by computer program SPSS for windows version 20. Due to the nature of the study design (descriptive study)

RESULTS

Out of 100 patients with ischemic stroke included 54 (54%) were females and 46 (46%) were males with female to male ratio of 1.17: 1. Mean age of patients was 62.56 ± 13.69 SD years. Age wise stratification of patients is given in table 1.

Only one patient was unmarried, 99 were married, all the female patients 54 (54%) were house wives. Among male patients, majority 23 (23%) were farmers, followed by 6 (6%) laborers, 6 (6%) retired persons from government service, 5 (5%) patients businessmen, and 1 (1%) each cobbler, driver, government servant, shopkeeper, imam-e-masjid, and TV mechanic respectively. Family history of 100 patients of ischemic stroke showed that majority 61 (61%) had no family history of hypertension or diabetes mellitus. 17 (17%) patients had family history of hypertension, 14 (14%) patients had family history of diabetes mellitus, while only 8 (8%) patients had family history of both hypertension and diabetes mellitus.

Table No.1: Age-Wise Distribution of Patients (N=100)

Age Ranges (In Years)	No. of Cases	Percentage
21-30 years	03	03%
31-40 years	05	05%
41-50 years	12	12%
51-60 years	29	29%
61-70 years	23	23%
71-80 years	20	20%

Table No.2: Clinical Presentation of Patients (N=100)

Clinical Finding	No. of Cases	Percentages
Hemiparesis/hemiplegia and sudden decrease in consciousness	34	34%
Hemiparesis/hemiplegia and dysarthria/aphasia	19	19%
Hemiparesis/hemiplegia	14	14%
Hemiparesis/hemiplegia and confusion	14	14%
Hemiparesis/hemiplegia, confusion and dysarthria/aphasia	06	06%
Hemiparesis/hemiplegia, confusion and sudden decrease in consciousness	02	02%
Sudden decrease in consciousness	02	02%
Hemiparesis/hemiplegia and headache	01	01%
Hemiparesis/hemiplegia, headache and confusion	01	01%
Monoplegia, confusion and sudden decrease in consciousness	01	01%

Hypertension alone was the most prevalent risk factor for the development of stroke followed by hypertension and diabetes mellitus in combination. (Table)

Hemiplegia/hemiparesis with sudden decrease in consciousness was the most common presenting feature (34%) followed by hemiparesis/hemiplegia and dysarthria/aphasia (19%), followed by hemiparesis/hemiplegia only (14%). Computed tomography scan showed that cerebral infarction was noted in right parietal lobe in majority 19 (19%) of patients, followed by right temporal lobe in 16 (16%) patients, left temporo-parietal region in 13 (13%) cases, left parietal region in 11 (11%) cases.

Different other routine investigations were also performed in all (100%) patients of stroke which include electrocardiography (ECG) which was normal in 43 (43%) cases, left axis deviation and left ventricle hypertrophy was noted in 27 (27%) cases, left axis deviation was noted in 26 (26%) cases, left axis deviation, left ventricle hypertrophy and left bundle branch block was noted in 01 (1%) case, left bundle branch block was noted in 1 (1%) case, old inferior wall myocardial infarction noted in 1 (1%) case, and ST elevation in leads v2 to v5 was noted in 1 (1%) case.

X-ray chest was normal in 98 (98%) cases. Cardiomegaly was noted in 1 (1%) case, consolidation was noted in 1 (1%) case.

Table No3: Mean and standard deviation of different variables

Finding	Maximum	Minimum	Mean	+ SD
AGE (YEARS)	90	25	62.56	13.69
Blood pressure	240/110 mmHg	100/70 mmHg	148/99 mmHg	24.911
Pulse rate	116/minute	68/minutes	82/minutes	8.48919
Temperature	101 °F	98 °F	99 °F	0.726 °F
Random blood sugar	350 mg/dl	49 mg/dl	152 mg/dl	68.53
Fasting blood sugar	438 mg/dl	45 mg/dl	124.24 mg/dl	66.34
Cholesterol	288 mg/dl	75 mg/dl	183.99 mg/dl	47.036
Triglyceride	376 mg/dl	50 mg/dl	134.39 mg/dl	59.21

Table No4: Frequency of Hypertension and Diabetes Mellitus in Patients with Ischemic Stroke (N=100)

Diagnosis	No. of Patients	Percentage
Hypertension alone	45	45%
Both hypertension and diabetes mellitus	24	24%
Non-diabetic and non-hypertensive	23	23%
Diabetes mellitus alone	08	08%
Total	100	100%

DISCUSSION

Stroke is the second leading cause of death worldwide and the leading cause of long-term disability. Strategies for stroke prevention, including the control of

hypertension, treatment of atrial fibrillation, and smoking cessation, have reduced the disease burden, but stroke still remains an important public health challenge²².

Modifiable risk factors for stroke include hypertension, diabetes, atrial fibrillation, dyslipidemia, smoking, and alcohol abuse. Among these risk factors, hypertension and diabetes are rapidly growing epidemics leading to a substantial increase in cardiovascular disease and stroke²³. In a most recent study while a number of conditions and risk factors that increase stroke risk have been identified, arterial hypertension was the most consistent and powerful predictor. Besides hypertension, majority of patients had other co-morbidities, of which most frequent were hypercholesterolemia, diabetes mellitus, coronary heart disease, and left ventricular hypertrophy²⁴. Our data showed that among the 100 ischemic stroke patients included in this study, hypertension was

one of the most important risk factors in ischemic stroke patients. Similar or higher incidences of stroke in hypertensive patients are also reported by other studies from Pakistan²⁵.

In this study females were in preponderance than males, with female to male ratio of 1.17: 1. Few studies have reported that female were in preponderance than males²⁶. While in contrast to our results, few local studies reported male preponderance²⁷.

Stroke is considered as disease of aging and its incidence doubles for each decade after 55 years of age²⁸. Higher rates of percentage have been reported in the age range of 51-60 years (overall mean age of 60 years)²⁹. These findings are also observed in my study which shows that the majority of patients suffered from ischemic stroke were in the age range of 51-60 years with overall mean age of 62.56 years.

Adequate control of blood pressure is a cornerstone of stroke prevention. It is reported that 10mmHg reduction in systolic blood pressure reduces stroke incidence by 40%³⁰. In a study it was estimated that approximately 45% of all strokes among subjects with treatment for hypertension might be attributed to uncontrolled blood pressure³¹. High and low blood pressure levels are common following acute stroke, with up to 60% of patients being hypertensive (SBP > 160 mmHg) and nearly 20% having relative hypotension (SBP ≤ 140 mmHg), within the first few hours of presentation, both conditions being associated with an adverse prognosis³². An overall mean blood pressure of 148/99 mmHg was observed in my study, while the maximum blood pressure recorded in patients of ischemic stroke, was 240/100 mmHg, and minimum was 100/70 mmHg. These finding are little higher than other studies reported on national level³³.

Diabetes mellitus is a major risk factor for the development of ischemic cerebrovascular disease. Patients with diabetes are at least two times more likely to have a stroke than non-diabetics; they are more likely to suffer increased morbidity and mortality after stroke³⁴. Duration of diabetes has a direct relation with stroke risk. In our study 8% patients were found to be diabetic alone, while diabetes mellitus with hypertension was found in 24% patients. These findings are opposite to some national studies in which 33% to 100% incidence of diabetes mellitus has been reported³⁵.

CONCLUSION

Diabetes and hypertension are the two main modifiable risk factors for ischemic stroke which collectively comprises 77% of the risk factor proportion. Burden of stroke can be reduced significantly if these two risk factors are properly addressed.

Author's Contribution:

Concept & Design of Study: Muhammad Haroon Shahid

Drafting:	Abdul Hanan Bangash Muhammad Khalid
Data Analysis:	Muhammad Shabir Shabir Hussain Rifayatullah
Revisiting Critically:	Muhammad Haroon Shahid, Abdul Hanan Bangash
Final Approval of version:	Muhammad Haroon

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Cephalometric Norms for Population of Khyber Pakhtunkhwa Province - A Pilot Study

Tallat Firdos¹, Shahab Adil¹, Muhammad Tayyab Khalili², Syed Salman Shah¹
and Saqib Ali³

ABSTRACT

Objective: This study was carried out to determine normal cephalometric values for the population i.e., Pathan descent presented at dental colleges of Peshawar, Pakistan.

Study Design: Prospective / cross-sectional study

Place and Duration of Study: This study was conducted at the carried out at dental colleges of Peshawar, Pakistan from Feb 2018 to Feb 2019.

Materials and Methods: Consecutive non-probability sampling technique was used for selection of subject. Assessment of cephalometric parameters on standardized lateral cephalograms was done in 53 subjects (fulfilling inclusion criteria) aged 18-25 years with class I molars, canines and incisors relationship, straight profile, mild crowding and native Pashtuns. Data was analyzed using SPSS version 20.

Results: Twelve out of 16 (75%) parameters for subject population was significantly different from that of Caucasians'. A statistically significant increase was noticed in point A-Nasion-Point B angle, Witt's Appraisal, Y-axis, posterior facial height/total anterior facial height percentage, Upper incisor-sella nasion angle and lower incisors-mandibular plane angle whereas statistically considerable decrease was noticed in the gonial angle, lower anterior facial height/total anterior facial height percentage, inter incisal angle, upper lip-e line distance, naso-labial angle and lower lip-e line distance.

Conclusion: Cephalometric normal values determined for the population presented at Dental Colleges of Peshawar had 75% of parameters significantly different from that of Caucasians'. This behooves an orthodontist to consider cephalometric norms specific to the Pashtun race when deciding between extraction and non-extractions therapies with/without orthogenetic surgery.

Key Words: Cephalometry; Orthodontics; Dental occlusion; Jaw; Face.

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INTRODUCTION

The cephalometric analysis of the dent facial features was first introduced to dentistry in 1931 by Broadbent in the USA, which carries paramount importance in diagnosing and devising a plan for an orthodontic patient, supports the clinical examination and helps to identify the source of the problems in skeletal and/or dental relationships.¹

Thereafter, many cephalometric analyses became popular for planning orthodontic treatment.² to establish a sound diagnosis and treatment plan in orthodontics, measuring facial and cephalometric characteristics for assessing the differences in morphologic features is crucial. These morphologic differences proving abnormal for some while normal for other races warrant specified cephalometric norms determination.³⁻⁴

Cephalometric standards have been determined for Greek,⁵ Caucasians,⁶ African-Americans,⁷⁻⁹ Japanese,¹⁰ and Chinese¹¹ populations. Significant differences in the facial convexities of Saudi Arabians,¹² Kuwaitis,¹³ Nepalese,¹⁴ Afro-Caucasian.

Brazilians,¹⁵ Chinese,¹⁶ Japanese, Moroccans,¹⁷ and Indians¹⁸ to Native Americans were found earlier. Likewise, facial convexity was found in Asians particularly in lower third of the face. Previously researchers compared Jordanian, Saudi Arabian population features with Eastman standards and found cephalometric features to be significantly different.¹⁹ Researchers compared Pakistani and Caucasian Norms

¹. Department of Orthodontics, Peshawar Dental College Riphah International University Islamabad Pakistan.

². Department of Orthodontics, Bacha Khan Medical College Dental Section Mardan Pakistan.

³. Department of Biomedical, Dental Sciences College of Dentistry, Imam Abdulrehman Bin Faisal University Dammam Saudi Arabia.

Correspondence: Dr. Shahab Adil, Department of Orthodontics, Peshawar Dental College Peshawar Pakistan.
Contact No: 0343-9009494
Email: shahabadil@hotmail.com

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and found significant difference in skeletal, dental and soft tissue parameters, revealing the Pakistani population to have lesser vertical and hypo divergent growth pattern in the mandible and a tendency towards bimaxillary dental protrusion.²⁰

This study was therefore; conducted to determine normal cephalometric values for the population presented at Dental Colleges of Peshawar, Khyber Pakhtunkhwa, Pakistan with Pathan descent and to compare them with accepted Caucasians' norms. Cephalometric norms developed as a result of this study will help in optimizing treatment plan according to the local population's facial features.

MATERIALS AND METHODS

This study was conducted at the carried out at dental colleges of Peshawar, Pakistan from Feb 2018 to Feb 2019. In this consecutive non-probability study, a total of 53 students (22 males and 31 females) from both genders aged from 8-25 years, from dental colleges of Peshawar city Khyber Pakhtunkhwa, Pakistan were included in the study. The study commenced after ethical approval (Ref: Prime/IRB/2017-18-0089) was obtained from the institutional review board.

RESULTS

Students who had no history of orthodontic treatment, fulfilling the following inclusion criteria and volunteered were included in the study

1. straight facial profiles,
2. mild crowding,
3. not more than 1-2mm of overbite and 2-3mm normal over jet,
4. Class I molars, canines and incisors relationships,
5. no history of any trauma or any related surgery
6. Offspring to parents and grandparents belonging to Khyber Pakhtunkhwa.

Those who had history of trauma, abnormal jaws, syndrome, and disease of the jaws and had history of orthodontic treatment were excluded. With teeth in maximum interdegitation, relaxed lips posture and head in its natural position, all cephalograms belonging to the subjects were obtained using the same X-ray unit (Planmeca 2000, USA). The distances between the focus and film and from the mid-sagittal plane of subject's head to the film for each subject was 165 cm and 20.5 cm, respectively. Therefore, adjustments were made in linear measurements to calibrate to the inevitable 8% magnification. Tracing of all head films were carried out according to established procedures.

Table No.1: Different linear and angular measurement used

Variables	Description
SNA(Sella Nasion Point A Angle)	Maxillary apical base relationship to anterior cranial base
SNB(Sella Nasion Point B Angle)	Mandibular apical base relationship to anterior cranial base
ANB(A Nasion Point B angle)	Difference between Maxillary apical base - Mandibular apical base
Witt's Appraisal	Perpendicular drawn from point A and point B on functional occlusal plane (distance in mm between AO and BO)
Cranial base Angle	Angle between Basion - Sella and Nasion
Inclination Angle	Sen. extended to N' Perpendicular drawn at N' joining Palatal plane
Gonial Angle	Relation of the posterior border of Ramus to lower border of the Mandible (Ar-Go-Me)
Y- axis	Angle between N – S – Gn
PFH- TAFH	Percentage of posterior face height to total anterior face height (S-Go / Na –Me) x 100
LAFH-TAFH	Percentage of lower anterior face height to total anterior face height (ANS –Me / Na – Me) x 100
UI – SN	Inclination of maxillary incisors to Sella Nasion plane
IMPA	Inclination of mandibular incisors to mandibular plane
IIA	Inter incisal angle
UL– E Line	Upper lip to E- line
LL- Eline	Lower lip to E- Line
NLA	Nasio Labial angle

The standard deviation along with mean value and the range for each variable were calculated through SPSS version 20. Independent t-test was performed for comparison of measured cephalometric values with Caucasians' norms. Parameters (table I) with the probability value of 0.05 or lesser (P value) were considered statistically significant. Quantitative variables such as age and cephalometric values were calculated as Mean $\pm$ SD. Qualitative variable like genders were calculated as frequencies and percentages.

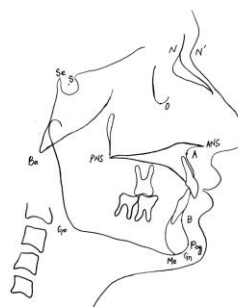
Table No.2: Comparison between KPK population and Caucasians norms

Variables	KPK Population Norms (Mean± SD)	Caucasian's Norms (Mean± SD)	P-Value
Sella Nasion Point An Angle	82.0°± 3.92°	82.0°± 2.0°	0.944
Sella Nasion Point B Angle	79.4°± 3.75°	80.0°±2.0°	0.262
A Nasion Point B angle	2.6°± 1.91°	2.1°±2.0°	0.022*
Witt's Appraisal	0.5 mm±1.85mm	0 mm±2.0 mm	0.000*
Cranial base angle	130.5°±4.85°	130°±5.0°	0.40
Inclination Angle	84.3°±4.19°	84.0°±4.0°	0.231
Gonial Angle	121.2°±4.73 °	128.0°±3.0°	0.000*
Y- axis	67.5°±3.80°	66.0°±3.0°	0.000*
PFH/TAFH** (%)	68.1%±4.99%	65.0%±4%	0.000*
LAFH/TAFH*** (%)	52.5%±2.61%	54.0%±4 %	0.000*
UI- SN****	106.7°± 6.32°	102.0°±5.0°	0.000*
IMPA *****	99.7°±6.12°	90.0°±5°	0.000*
Inter incisal angle	122.2°±7.99°	130.0°±5.0°	0.000*
Upper lip to E- line	-5.3 mm±1.98 mm	0mm±2.0mm	0.000*
Lower lip to E- Line	-2.2mm±3.27mm	2mm±2mm	0.000*
Nasio Labial angle	96.3°±9.83°	102°±5.0°	0.000*

Statistically significant parameter; Percentage of posterior face height to total anterior face height; Percentage of lower anterior face height to total anterior face height, Inclination of maxillary incisors to Sella Nasion plane; Inclination of mandibular incisors to mandibular plane.

Table 2 compares mean cephalometric norms of KP population with Caucasians. 12 out of 16 (75 percent) variables of KP population are significantly different from the Caucasians'. An increase in cephalometric values for KP population was noticed for sella-nasion-point A angle (SNA), point A-Nasion-Point B angle (ANB) , Witt's Appraisal, cranial base angle (CBA), Y-axis, posterior facial height/total anterior facial height percentage (PFH/TAFH%) , upper incisor-sella nasion line angle (UI-SN) and lower incisors- mandibular plane angle (IMPA).

Cephalometric values Lesser than that of Caucasians' include sella-nasion-point B (SNB), Gonial angle, lower anterior facial height/total anterior facial height percentage (LAFH/TAFH %) , inter incisal angle (IIA), upper lip-E line distance (UL-E line), lower lip-E line distance (LL-E line) and naso-labial angle (NLA) while amongst the aforementioned parameters of lesser values, only the difference in value for SNB was found statistically insignificant.

**Figure No.1: Points and landmarks used in the present study.**

Key:(Se) Sella entry, (S) Sella , (N) Nasion, (N') Soft tissue nasions, (O) Orbitale, (ANS) Anterior Nasal Spine, (PNS) Posterior Nasal Spine, (Ba) Basion (A) Point A, (B) Point B, (Go) Gonion, (Me) Menton, (Gn) Gnathion, (Pog) Pogonion.

DISCUSSION

Cephalometric analysis carries key importance in treatment planning for patients seeking orthodontic treatment. It analyzes not only skeletal and dental parameters but also includes their relationship to each other and the soft tissues.

Cephalometric values for the Caucasians (European-Americans) have been globally accepted as cephalometric norms. Though the KP population has different ethnic background, nutrition, life style, and environment, yet the European-American norms are used for the said population. In our study, it was attempted to establish cephalometric norms for the said population through sample presented at different Dental College of Peshawar, Pakistan in order to device the best treatment plan and achieve optimum orthodontic treatment outcomes.

The subjects have 12 out of 16 (75%) of variables for a sample of 53 subjects of age range 18-25 years significantly different than Caucasians. Significant difference was observed in, ANB, Witt's Appraisal, Gonial Angle, y-axis, posterior face height to total facial height, lower anterior face height to total facial height, UI-SN, IMPA, IIA, UL-Eline, LL-Eline and NLA. A local study²¹ supporting the results of our study also reported that males and females demonstrated a significant difference in saddle angle, gonial angle, articular angle, upper gonial angle and lower gonial angle ($p < 0.0001$) as compared to the Caucasian norms²¹. These findings are consistent with previous studies.^{12,13,19,22}

According to Table-2 SNB angle was of lesser value as compared to Caucasians'. Interestingly, the difference in ANB values was statistically significant. Hence it shows that the former population has class I skeletal sagittal relationship with a greater ANB. Our study further shows, that the gonial angle and lower anterior face height to total anterior face height were significantly smaller. Similar findings of a smaller lower anterior facial height was found in a Saudi population¹² of 18-28 years while in contrast the Kuwaiti¹³ (36 individuals, aged 11-14 years) and central Indian¹⁸ (76 individuals aged 18-28 years) population was found to have an increased lower anterior facial height.

Y-axis, posterior face height was considerably larger indicating towards a deeper bite. Other important significant variables were UI to SN plane and LI to Mandibular plane (IMPA) which indicate that the sample has more proclined maxillary and mandibular incisors (bimax proclination). Similar bimaxillary dental proclination was found in the Kuwaiti²⁰, Nepalese¹⁴ (120 cephalograms of individuals aged 16-21 years), Brazilian (40 individuals with average age of 13.02 years)¹⁵, Moroccan (102 university students at an average age 21.5 ± 1.5 years)¹⁷, Central Indian¹⁸, and Saudi (87 individuals aged 21-27 years)²³ population while only LI to Mandibular plane angle was found obtuse in the Japanese¹⁰ population (25 individuals at an average age of 25.1 ± 2.7 years).

UI to SN plane and LI to Mandibular plane (IMPA) affect Inter Incisal Angle, Nasolabial angle and Upper Lip to E line, which means that the sample has

comparatively acute nasiolabial angle and recumbent upper lip due to a lesser upper lip to E line value whereas the Kuwaiti¹³ and Japanese¹⁰ Population had more procumbent lips on cephalometric values comparison to that of Caucasians'.

Hence in accordance with SNB, Witt's value, Gonial Angle, Y-Axis, Posterior facial height to total facial height percentage (PFH/TAFH %), Lower anterior facial height to total anterior facial height percentage (LAFH/TAFH%), Upper Incisor to SN line angle, lower incisors to mandibular plane angle, Interincisal angle, Upper and lower lips to E-line and Nasolabial angle one may misinterpret the sample to have skeletal class I sagittal relationship with a greater ANB, bimaxillary protruding teeth in deep bite with recumbent lips due to a poky nose and a stronger chin when compared to cephalometric values of Caucasians. This article falls short with regard to the fact that the sample size is small. The sample collected was only from the capital city (Peshawar) of the province and the study being a small study, therefore results cannot be extrapolated over the whole population of Khyber Pakhtunkhwa. To make the study applicable throughout the province, it demands the sample to be collected equally from every district. Although while acquiring the cephalograms the subjects were placed in natural head position, there was no standardized reference plane used during cephalometric analysis such as the Frankfurt's horizontal plane for better reliability of sella nasion plane. Therefore detailed studies should be conducted on a bigger scale in order to determine the percent population with normal occlusion, opening doors to more research with regard to cephalometry and orthodontics.

CONCLUSION

Cephalometric normal values determined for the population presented at Dental Hospitals of Peshawar had 75 % of parameters significantly different from that of Caucasians'. When compared to the Caucasians' cephalometric norms, one may misinterpret the normal dent facial characteristics of this population to be skeletal class I with a greater ANB, bimaxillary protruding teeth in deep bite and recumbent lips due to strong chin with a prominent nose. It is important to establish norms for regional population for accurate diagnosis, interpretation, deformity assessment and optimized treatment planning of orthodontic patients according to local population's facial features.

Author's Contribution:

Concept & Design of Study:	Tallat Firdos
Drafting:	Shahab Adil, Muhammad Tayyab Khalili
Data Analysis:	Syed Salman Shah, Saqib Ali

Revisiting Critically: Tallat Firdos, Shahab Adil
 Final Approval of version: Tallat Firdos

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

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Idris Teaching Hospital/Sialkot Medical College Sialkot

Brig Shahid Raza¹, Asif Javed², Manzoor Hussain Bajwa³, Aamir Waheed⁴, Anwar Khan² and Nasreen Hamid⁵

ABSTRACT

Objective: To study the Fate/Outcome of Endoscopy at Idris Teaching Hospital Sialkot Medical College Sialkot

Study Design: Experimental and observational study

Place and Duration of Study: This study was conducted at the Idris Teaching Hospital Sialkot during Jan 2018 to July 2019.

Materials and Methods: This study comprises 1021 patients undergoing endoscopic examination. The demographic data and complications were noted down and lab tests were also advised for example hepatitis A, B and C HIV. Written informed consent was also taken from every patient before the start of the endoscopic examination. The Permission of ethical committee was also considered before collection of data and get publishing in the medical journal. The results were analyzed on SPSS version 10.

Results: Mean Age was 45.34 years and SD (standard deviation) was 16.23 years. At the age of 10-20 years, there were 50(10.18%) male and 51(9.62%) female of endoscopy were included in this study. At the age of 21-30 years there were 101(20.57%) male and 85(16.04%) females. At the age of 31-40 years there were 100(20.36%) male and 75(14.15%) female, At the age of 41-50 years there were 101(20.57%) male and 130(24.52%) female, at the age of 51-60 years there were 25(5.09%) male and 75(14.15%) female, At the age of 61-70 years there were 75 (15.27%) male and 85(16.04%) female, at the age 70 years and above there were 35(7.12%) Male and 29(5.47%) female's patients were included in the study. It was observed that female patients of endoscopy were more prevalence than male patients. There were 17(3.46%) Male and 15(2.83%) female patients were found in bleeding during endoscopic examination, the perforation was found in 07 (1.42%) Male and 06(1.13%) Females. The hepatitis A 15(3.05%) Male and 07(1.32%) Female, the hepatitis B 13(2.64%) Male and 03(0.56%) females, the hepatitis C were 18(3.66%) Male and 13(2.45%) female and HIV 02(0.41%) male and 00(00%) female patients.

Conclusion: In conclusion, the very elderly cohort received more therapeutic interventions proceeding routine endoscopy as compared to the younger group. Moreover, routine endoscopy in the very elderly carries increased risk of AEs, especially with concomitant use of pethidine hydrochloride sedation

Key Words: Hepatitis A, B and C, HIV, Demographic Data.

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INTRODUCTION

In recent years, Japan's aging population has surged to unprecedented levels. A 2015 census of the very elderly (85 years and older) exceeded 4.9 million (3.9%).¹

¹. Department of Gastroenterology, Idris Teaching Hospital Sialkot Medical College Sialkot

². Department of Medicine, Sialkot Medical College, Sialkot.

³. Department of Anesthesia, MIM&DC, Gujranwala.

⁴. Department of Pulmonology, SMC Sialkot.

⁵. Department of Gynae, Obst SMC Sialkot.

Correspondence: Brig Dr. Shahid Raza Associate Professor
Department of Gastroenterology Idris Teaching Hospital
Sialkot Medical College Sialkot

Contact No: 0321 5126452

Email: hrd@smc.edu.pk

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According to the 2013 World Health Organization Report, life expectancy has increased throughout most parts of the world². The incidence of gastrointestinal disease, particularly gastrointestinal cancers, inevitably increases with age^{3,4,5}. Based on a report issued by the US National Cancer Institute, 21.6 and 192.6 patients per 100,000 diagnosed with esophageal and colorectal cancers, respectively, were aged 65 and over⁶. Besides malignant diseases, elderly patients tend to present with benign diseases such as gastrointestinal ulcers⁷. As a result, the number of elderly patients for whom esophagogastroduodenoscopy (EGD) and colonoscopy (CS) are indicated has been increasing in both Japan and western countries^{8,9}.

By comparison, the complication rate for endoscopy is reported to be lower in younger patients; however, EGD and CS tend to induce cardiac and respiratory stress in elderly patients^{10,11}. To date, cohort study data have been insufficient for assessing the safety and efficacy of endoscopy in the elderly^{4,12,13,14,15,16}, particularly studies reporting on the very elderly population (85 years and older)^{17,18}. The safety and

efficacy of both EGD and CS remain unconfirmed within the literature. To that end, this study aimed to evaluate the safety and efficacy of EGD and CS in the very elderly in routine clinical practice.

Material and Methods: This study comprises 100 patients undergoing endoscopic examination. The demographic data and complications were noted down and lab tests were also advised for example hepatitis A, B and C HIV. Written informed consent was also taken from every patient before the start of the endoscopic examination. The Permission of ethical committee was also considered before collection of data and gets publishing in the medical journal. The results were analyzed on SPSS version 10.

MATERIALS AND METHODS

This study was conducted at the Idris Teaching Hospital Sialkot during Jan 2018 to July 2019. This study comprises 1021 patients undergoing endoscopic examination. The demographic data and complications were noted down and lab tests were also advised for example hepatitis A, B and C HIV. Written informed consent was also taken from every patient before the start of the endoscopic examination. The Permission of ethical committee was also considered before collection of data and gets publishing in the medical journal. The results were analyzed on SPSS version 10.

RESULTS

Mean Age was 45.34 years and SD (standard deviation) was 16.23 years. At the age of 10-20 years, there were 50(10.18%) male and 51(9.62%) female of endoscopy were included in this study. At the age of 21-30 years there were 101(20.57%) male and 85(16.04%) females. At the age of 31-40 years there were 100(20.36%) male and 75(14.15%) female. At the age of 41-50 years there were 101(20.57%) male and 130(24.52%) female, at the age of 51-60 years there were 25(5.09%) Male and 75(14.15%) female. At the age of 61-70 years there were 75 (15.27%) male and 85(16.04%) female, at the age 70 years and above there were 35(7.12%) Male and 29(5.47%) female's patients were included in the study. It was observed that female patients of endoscopy were more prevalence than male patients as shown in table 1.

Table No.1: Age and Gender Distribution In endoscopic Examination Patients

Sr. No.	Age	Male	Female
1	10-20	50(10.18%)	51(9.62%)
2	21-30	101(20.57%)	85(16.04%)
3	31-40	100(20.36%)	75(14.15%)
4	41-50	101(20.57%)	130(24.52%)
5	51-60	25(5.09%)	75(14.15%)
6	61-70	75(15.27%)	85(16.04%)
7	70 and above	35(7.12%)	29(5.47%)
Total		491(100%)	530

Table No.2: Pre-endoscopic medications

	Very elderly	Younger group	P value
Esophagogastro-duodenoscopy, n (%)	185 (100%)	609 (100%)	
• Glucagon, n (%)	102 (55.1%)	52 (8.5%)	<0.01
• Flunitrazepam, n (%)	106 (57.3%)	456 (74.9%)	<0.01
• Pethidine hydrochloride, n (%)	3 (1.6%)	17 (2.7%)	0.37
• Midazolam, n (%)	7 (3.8%)	132 (21.7%)	<0.01
Colonoscopy, n (%)	70 (100%)	262 (100%)	
• Glucagon, n (%)	52 (74.3%)	19 (7.3%)	<0.01
• Flunitrazepam, n (%)	2 (2.9%)	37 (14.1%)	<0.01
• Pethidine hydrochloride, n (%)	48 (68.6%)	241 (92.0%)	<0.01
• Midazolam, n (%)	1 (0.5%)	6 (2.3%)	0.66

Table No.3: Characteristics of the study groups

	Very elderly	Younger group	P value
Number of patients (n)	255	871	
Male/female (n/n)	491/530	491/530	<0.01
Mean age (min-max)	Mean Age was 45.34 years and SD (standard deviation) was 16.23 years 21-70 and above	40.5 (17-49)	<0.01
Initial procedure, n (%)	21 (8.2%)	229 (26.3%)	<0.01
EGD/CS (n/n)	185/70	609/262	0.42
Outpatient/inpatient (n/n)	190/65	778/93	<0.01
Comorbidity			
• Respiratory disease, n (%)	46 (18.0%)	65 (7.5%)	<0.01
• Hypertension, n (%)	168 (65.9%)	77 (8.8%)	<0.01
• Cardiovascular disease, n (%)	104 (40.8%)	45 (5.2%)	<0.01
• Cerebrovascular disease, n (%)	32 (12.5%)	5 (0.6%)	<0.01
• Malignancy (Post-therapy inclusion), n (%)	118 (46.3%)	153 (17.6%)	<0.01
• Diabetes mellitus, n (%)	43 (16.9%)	34 (3.9%)	<0.01
• Abdominal surgical history, n (%)	76 (29.8%)	126 (14.4%)	<0.01
Medications			
• Antihypertensive drug, n (%)	163 (63.9%)	64 (7.3%)	<0.01
• Antithrombotic drug, n (%)	109 (42.7%)	30 (3.4%)	<0.01
• Hypoglycemic drug, n (%)	27 (10.6%)	30 (3.4%)	<0.01
• Tranquilizer, n (%)	30 (11.8%)	86 (9.9%)	0.38

TableNo.4: Therapeutic interventions post-routine endoscopy

	Very elderly	Younger group	P value
Total number of patients, n (%)	43 (16.9%)	60 (6.9%)	<0.01
Drug administration, n (%)	14 (5.5%)	15 (1.7%)	
EVL and/or EIS, n (%)	1 (0.4%)	5 (0.6%)	
APC, n (%)	3 (1.2%)	0 (0%)	
EMR, n (%)	16 (6.3%)	32 (3.7%)	
ESD, n (%)	4 (1.5%)	2 (0.2%)	
Open surgery, n (%)	2 (0.8%)	4 (0.8%)	
Chemo and/or radiation therapy, n (%)	2 (0.8%)	0 (0%)	
Others	2 (0.8%)	2 (0.2%)	

Table No.5: Fate/outcome In Patients Undergoing Endoscopic Examination

Ser. No	Complications	Male	Female
1	Bleeding	17(3.46%)	15(2.83%)
2	Perforation	07(1.42%)	06(1.13%)
3	Hepatitis A	15(3.05%)	07(1.32%)
4	Hepatitis B	13(2.64%)	03(0.56%)
5	Hepatitis C	18(3.66%)	13(2.45%)
6	HIV	02(0.41%)	00(00%)

There were 17(3.46%) Male and 15(2.83%) female patients were found in bleeding during endoscopic examination, the perforation was found in 07 (1.42%) Male and 06(1.13%) Females. The hepatitis A 15(3.05%) Male and 07(1.32%) Female the hepatitis B 13(2.64%) Male and 03(0.56%) females, the hepatitis C were 18(3.66%) Male and 13(2.45%) female and HIV 02(0.41%) male and 00(00%) female patients as shown in table 3.

DISCUSSION

We evaluated safety and efficacy of endoscopy in a routine clinical setting targeting the upper bracket of the elderly population. In the current cohort, very elderly Pakistani patients had multiple comorbidities and received numerous medications. By comparison, an American population-based study reported that severe AEs (colonic perforations and gastrointestinal bleeding) with outpatient colonoscopy were associated with chronic and multiple comorbidities in the elderly³. However, in our multivariate analysis, even though comorbidity was not an independent predictive factor for AEs, cardiovascular disease showed a trend toward risk complications ($P=0.15$).

In the current study, the rate of AEs in the very elderly was 6.3%, greater than that in the younger group, observed at 1.1%. In another study, Clarke et al.¹⁷ conducted a single-arm observational study of 214 consecutive participants who underwent endoscopic procedures including EGD, CS and endoscopic

retrograde cholangiopancreatography (ERCP), including patients aged above 70 years. Ten percent of the time, the procedures were performed by emergency care as a result of upper gastrointestinal hemorrhage. In contrast, we recruited the elective cohort without therapeutic procedures or emergency care in routine - clinical practice. The authors of the aforementioned study also reported no procedure-related mortality, rates of colonic perforation and of cardiopulmonary complications in sedated patients were 1.42% and 2.83% respectively. They concluded that gastrointestinal endoscopy in the very elderly is an extremely safe procedure. Comparatively, our results show no procedure-related mortality, non-existent perforation, and a slightly higher rate of cardiopulmonary complications (hypoxemia, 3.5%; hypotension, 0.8%). These differences arose from the observed cohort and how AEs were defined. Furthermore, three separate studies^{4, 15, 18} have confirmed the safety of colonoscopy in elderly populations. Day et al.¹⁹ conducted a meta-analysis reporting that elderly patients, particularly octogenarians, appear to have a higher risk of complications both during and after colonoscopy. Our results suggest that the very elderly incurs some complications in routine endoscopy, especially hypoxemia; however, procedure-related mortality was not observed in this study.

We subsequently calculated independent variables potentially influencing AEs in routine endoscopy using logistic multivariate analysis. These variables included age ≥ 70 years, inpatient status, and administration of pethidine hydrochloride as risk factors for AE associated with routine endoscopy. Results of our multivariate analysis indicate that in the very elderly, routine endoscopy carries various risk factors. In patients undergoing endoscopic examination may have more unmeasured risk factors than outpatients. In particular, administration of pethidine hydrochloride was the most influential parameter in this study (OR 3.44, 95%CI 1.51–7.81, $P<0.01$). In general, benzodiazepines and opioids are typically utilized for sedation in gastrointestinal endoscopy²⁰; however, for this study, flunitrazepam and/or pethidine hydrochloride were administered as a means of sedation. Benzodiazepines and particularly opioids²⁰ reportedly carry risks of respiratory and hemodynamic depression^{20, 21}. Based on these results, we propose a dosage reduction for pethidine hydrochloride when administered to very elderly patients. Alternatively, unseated endoscopy has been suggested as an option to avoid complications in this cohort²².

Some previous reports^{15, 17} have highlighted the high diagnostic yield of endoscopy in the elderly. Our results indicate that the very elderly receive therapeutic interventions subsequent to routine endoscopy. This suggests that endoscopy appears to be an effective surveillance modality in the elderly population. However, it remains inconclusive whether endoscopy

improves prognosis in this population. Large-scale observational studies to evaluate the efficacy of endoscopy and prognosis in the very elderly will help to elucidate this unanswered question.

CONCLUSION

In conclusion, the very elderly cohort received more therapeutic interventions proceeding routine endoscopy as compared to the younger group. Moreover, routine endoscopy in the very elderly carries increased risk of AEs, especially with concomitant use of pethidine hydrochloride sedation.

Author's Contribution:

Concept & Design of Study: Brig Shahid Raza
 Drafting: Asif Javed, Manzoor Hussain Bajwa
 Data Analysis: Aamir Waheed, Anwar Khan, Nasreen Hamid
 Revisiting Critically: Brig Shahid Raza, Asif Javed
 Final Approval of version: Brig Shahid Raza

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Incidence of Hypocalcaemia in Patients Undergoing Total Thyroidectomy

Muhammad Akram Dogar¹, Adeel Riaz², Muhammad Umar², Nasir Naseem³, Wasif Majeed Chaudhry⁴, and Ammarah Afzal²

ABSTRACT

Objective: To determine the incidence of hypocalcaemia in patients undergoing total thyroidectomy.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of General Surgery, Central Park Teaching Hospital, and Lahore from 1st March 2016 to 31st March 2019.

Materials and Methods: Two hundred and seventy eight patients who underwent total thyroidectomy for benign multinodular goiter and thyroid carcinoma after ethical committee approval. Euthyroid patients between the ages of 20 to 60 years without any gender bias having ASA class I, II and III were included in the study. Patients having concurrent parathyroid pathologies, redo surgery, coagulation disorders, renal failure and vitamin D deficiency were excluded. Post-operative hypocalcaemia was measure in immediate follow-up period and after 6 months.

Results: The mean age of patients was 42.22±9.25 years. The frequency of transient hypocalcaemia was found to be 11.15% and permanent hypocalcaemia was 1.8%. Transient hypocalcaemia varied by statistically significant frequency amongst different age groups (p=0.000) while permanent hypocalcaemia did not vary significantly amongst different age groups (p=0.116). There was no association of development of transient or permanent hypocalcaemia with gender and diagnosis of the patients (p>0.05).

Conclusion: The frequency of transient hypocalcaemia and permanent hypocalcaemia following total thyroidectomy was found to be 11.15% and 1.8% respectively.

Key Words: Hypocalcaemia, Multinodular goiter, Thyroid carcinoma total thyroidectomy.

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INTRODUCTION

Total thyroidectomy has gradually cemented its place as the standard procedure of choice nowadays for the management of most patients presenting with multinodular goitre and thyroid carcinoma because of the increased recurrence rates with more conservative surgical options.¹

The parathyroid glands lie in close proximity to the thyroid gland and thus they can be inadvertently damaged during surgery of thyroid gland leading to hyperparathyroidism which principally manifests as Postoperative hypocalcaemia which is the commonest complication of total thyroidectomy these days.^{2,3}

¹. Department of General Surgery, CPTH, Lahore.

². Department of Surgery, CPMC, Lahore.

³. Department of Surgery, KEMU, Lahore.

⁴. Department of Surgery, LM&DC, Lahore.

Correspondence: Dr. Muhammad Akram Dogar Associate Professor Department of General Surgery, Central Park Teaching Hospital, Lahore.

Contact No: 0333 5434247

Email: makramdogar@gmail.com

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The incidence of transient hypocalcaemia has been reported to range from 1.6% to 71% while the incidence of permanent hypocalcaemia has been reported between 0.2% to 17%.⁴⁻⁷ Hypocalcaemia results from damage to parathyroid glands which may result from parathyroid gland devascularisation, direct damage to the parathyroid glands during dissection, thermal damage, venous congestion, incidental Parathyroidectomy, local edema and non-visualization of parathyroid glands during surgery.^{8,9}

Hypocalcaemia can manifest clinically as carp pedal spasm, circumoral numbness, parenthesis, muscle cramps, stridor, lethargy, Trousseau sign, Chvostek sign, convulsions and cardiac arrhythmias.¹⁰ Serum calcium levels and intact parathyroid hormone (iPTH) are the most common tests used for assessment of postoperative hypocalcaemia and hyperparathyroidism but due to the increased cost and decreased availability, measurement of iPTH has not been employed as a standard test. Moreover, serum calcium levels are a reliable predictor of determining hypocalcaemia and hyperparathyroidism after total thyroidectomy.¹¹.

MATERIALS AND METHODS

We conducted this cross-sectional study on a total of 278 patients who were admitted to the Department of General Surgery, Central Park Teaching Hospital Lahore from 1st March 2016 to 31st March 2019 and

underwent total thyroidectomy operation. The inclusion criteria consisted of patients of either sex between the ages of 20 to 60 years; ASA Grade I to III; and diagnosed cases of carcinoma thyroid and multinodular goitre having normal thyroid functions test undergoing Total Thyroidectomy. Patients having concurrent parathyroid abnormalities; chronic renal failure; vitamin D deficiency; hypertension; ASA Grade IV and V; deranged thyroid function tests and previous history of neck surgery including thyroid and parathyroid surgery were excluded from the study. Patients were operated on the elective operation list. The workup started with history, detailed clinical assessment and relevant laboratory investigations including thyroid profile and radiological investigations like ultrasound of neck. Fine needle aspiration cytology (FNAC) was requested from histopathology department of the hospital. The baseline serum calcium level was also recorded and only patients with normal calcium levels were included in the study. All the patients underwent total thyroidectomy by the conventional knot tie. The surgery was led by a professor or an associate professor who were assisted by a senior registrar or post graduate trainees.

Serum calcium levels were assessed in all patients daily till discharge from the hospital. Most patients were discharged on the third post-operative day. Serum calcium level less than 8 mg/dL at any instance was taken as hypocalcaemia. Patients will be given calcium and vitamin D3 supplement (calcium carbonate 1250mg; cholecalciferol 125IU, Qalsan D) one tablet twice daily. Patients were then followed for serum calcium levels at 3 and 6 months of surgery. The calcium levels were checked on follow up visits such that calcium supplements were not taken for 24 hours. Patients having serum calcium levels below 8 mg/dL after 6 months of surgery were labeled as cases of permanent hypocalcaemia while those in which hypocalcaemia settled were labeled as cases of transient hypocalcaemia. Follow up was ensured by taking contact numbers of all patients. The data was analyzed through SPSS-25.

RESULTS

The mean age of patients included in the study was 42.22 ± 9.25 years.

Table No. 1: Stratification of transient and Permanent hypocalcaemia amongst different age groups

Groups				
Variable	Age groups (years)		Total	P value
	20-40	41-60		
Transient hypocalcaemia				
	2	29	31	0.000
	150	97	247	
Permanent hypocalcaemia				
	1	4	5	0.116
	151	122	273	

There was a female predominance with 212 out of 278 patients (76.26%) while 68 patients (23.74%) were male giving the female to male ratio of 3.2:1. Out of 278 total patients, 152 patients (54.68%) were between the ages of 20-40 years while 126 patients (45.32%) had ages between 41-60 years. Ninety one patients (32.73%) were classified as ASA Grade I, 142 patients (51.08%) were ASA Grade II, while the remaining 45 patients (16.19%) were classified as ASA Grade III respectively.

Table No. 2: Stratification of transient and permanent hypocalcaemia according to gender

Permanent hypocalcaemia according to gender				
Variable	Gender		Total	P value
	Male	Female		
Transient hypocalcaemia				
	8	23	31	0.774
	58	189	247	
Permanent hypocalcaemia				
	2	3	5	0.389
	64	209	273	

Table No. 3: Stratification of transient and permanent hypocalcaemia according to diagnosis

Permanent hypocalcaemia according to diagnosis				
Variable	Diagnosis		Total	P value
	MNG	Carcinoma		
Transient hypocalcaemia				
	25	6	31	0.774
	205	42	247	
Permanent hypocalcaemia				
	3	2	5	0.175
	227	46	273	

As regards the diagnosis, 230 patients (82.73%) were cases of benign multinodular goiter while 48 patients (17.27%) cases undergoing total thyroidectomy were cases of thyroid carcinoma. The mean preoperative serum calcium level of all the patients included in the study was 9.25 ± 0.54 mg/dL. The mean serum calcium level on the third post-operative day (day of discharge) was 8.67 ± 0.67 mg/dL. The frequency of transient hypocalcaemia was calculated to be 11.15% (31 out of 278 patients), while the frequency of permanent hypocalcaemia came out to be 1.8% (5 out of 278 patients) respectively (Table Figs. 1-2). There is statistically significant difference in frequency of transient hypocalcaemia ($p=0.000$), however the frequency of permanent hypocalcaemia between different age groups was statistically non-significant ($p=0.116$) [Table 1]. There was no statistically significant difference in the frequency of transient hypocalcaemia ($p=0.774$) as well as permanent hypocalcaemia ($p=0.389$) [Table 2]. There was no statistically significant difference in the frequency of transient hypocalcaemia ($p=0.744$) as well as permanent hypocalcaemia ($p=0.175$) [Table 3].

DISCUSSION

Total thyroidectomy has become the surgical procedure of choice for both multinodular goiter and most cases of thyroid carcinoma and hypocalcaemia are one of the most common complications.¹² Studies have reported a disparate results regarding the frequency of hypocalcaemia after total thyroidectomy.

In this study, the mean age of patients was found to be 42.22 ± 9.25 years. A study from Karachi by Baloch et al¹³ reported a comparable mean age of 42.1 years. Edafo et al¹⁴ reported a mean age of 46.7 years, while a higher mean age of 50.7 ± 15.9 was reported in a study by Baldassarre et al.¹⁵ Our study comprised of 76.26% female patients. Baloch et al¹³ reported a comparable frequency of female patients equal to 78.45%, while studies by Edafo et al¹⁴, Baldassarre et al¹⁵ and Basim et al¹⁶ reported the frequency of female gender to be 77.3%, 81.1% and 83.5% respectively.

In our study, 82.73% were diagnosed cases of benign multinodular goiter while the 17.27% patients had diagnosis of thyroid carcinoma. However in the study by Baloch et al¹³, thyroid carcinoma was the predominant diagnosis in 87.58% cases and only 12.41% patients were cases of benign diseases.

The frequency of transient hypocalcaemia was found to be 11.15% while the frequency of permanent hypocalcaemia i.e. Hypocalcaemia persisting for more than 6 months after surgery was observed in 1.8% patients. The frequency of transient hypocalcaemia was found to be significantly associated ($p=0.000$) with the age of the patients at the time of surgery as shown in Table 1. The odds of development of permanent hypocalcaemia were also greater in older patients. However there was no gender predisposition of developing postoperative hypocalcaemia after total thyroidectomy. Similarly the preoperative diagnosis had no bearing on the development of hypocalcaemia.

A study by Nair et al⁹ published in 2013 reported the frequency of transient hypocalcaemia following total thyroidectomy to be 23.6% which was higher than our result while the frequency of permanent hypocalcaemia was reported as 1.61% which was comparable to our study. Contrary to our results, the study reported that there was no difference in the frequency of transient hypocalcaemia ($p=0.732$) or permanent hypocalcaemia ($p=0.332$) between different age groups. Total thyroidectomy was also found to be significantly associated with the diagnosis of multinodular goiter for transient hypocalcaemia ($p=0.02$).

A similar study from Karachi by Baloch et al¹³ reported that the frequency of transient and permanent hypocalcaemia was 7% and 0.11% respectively. Another study by Basim et al¹⁶ from India in 2017 reported the incidence of hypocalcaemia to be 24.27%. The study also reported that the frequency of hypocalcaemia was greater in patients more than 50 years of age but the frequency didn't vary by a statistically significant proportion ($p=0.35$).

Baldassarre et al¹⁵ reported the incidence of hypocalcaemia in total thyroidectomy to be 9% which

was comparable to our study. However this study reported that postoperative hypocalcaemia was significantly associated with female gender ($p<0.001$, and malignancy ($p<0.001$).

Edafe et al¹⁷ reported the frequency of post-thyroidectomy transient and permanent hypocalcaemia as 29% and 5.5% respectively.¹⁴ Iqbal et al in 2010 reported the frequency of transient hypocalcaemia to be 21.6% with none of the patients developing permanent hypocalcaemia. Esimontas et al in 2018 from Lithuania reported a much higher frequency of post-operative hypocalcaemia in 64.2% patients.¹⁸ While Ritter et al¹⁹ reported the frequency of transient and permanent hypocalcaemia to be 18% and 1.9% respectively.

The above mentioned studies highlight the wide disparity in the reported incidence of postoperative hypocalcaemia. Hypocalcaemia is an important post-operative complication following total thyroidectomy that develops due to hyperparathyroidism resulting from direct or indirect damage to the parathyroid glands. It not only increases the hospital stay with studies reporting an increase in stay up to 7 days but also increases the financial burden.²⁰

Various techniques have been reported by different studies for prevention of postoperative hypocalcaemia such as prophylactic postoperative calcium supplementation, identification and preservation of parathyroid glands and their vasculature, auto transplantation of parathyroid glands and use of magnification loupes for better visualization amongst others.²¹⁻²⁴ Moreover there is an increased tendency of overprescribing calcium and vitamin D supplements in these patients which predisposes the patients to development of complications like renal stones etc.²⁵

Thus we recommended that meticulous dissection technique aimed at preserving parathyroid glands should be employed to prevent hypocalcaemia after total thyroidectomy. Prophylactic administration of calcium and vitamin D supplements can prevent postoperative hypocalcaemia, however their prolonged use should only be prescribed in the light of serum levels of calcium since the overall frequency of permanent hypocalcaemia after total thyroidectomy is very less. Owing to the increased cost of iPTH assay, it was not done in our patients. Further research is recommended to find out frequency of hypocalcaemia following total thyroidectomy with the newer dissection techniques like LigaSure small jaw, Focus harmonic scalpel and laparoscopic thyroidectomy.

CONCLUSION

The frequency of transient hypocalcaemia and permanent hypocalcaemia following total thyroidectomy was found to be 11.15% and 1.8% respectively. We recommend the use of calcium and vitamin D supplements in the postoperative period to prevent the development of hypocalcaemia; however prolonged use of these supplements should be based on serum calcium levels.

Author's Contribution:

Concept & Design of Study: Muhammad Akram Dogar
 Drafting: Adeel Riaz, Muhammad Umar
 Data Analysis: Nasir Naseem, Wasif Majeed Chaudhry, Ammarah Afzal
 Revisiting Critically: Muhammad Akram Dogar, Adeel Riaz
 Final Approval of version: Muhammad Akram Dogar

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

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Frequency of Depression among Caregivers of Patients with Parkinson's Disease

Bushra Faheem¹, Ayesha Aslam¹, and Saima Batool²

ABSTRACT

Objective: To determine the frequency of depression in caregivers of Parkinson's disease patients.

Study Design: Descriptive cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Neurology, Services Hospital, and Lahore from 1st May 2017 to 31st October 2017.

Materials and Methods: One hundred and fifty cases fulfilling the inclusion/exclusion criteria were enrolled from Neurology Department, Services Hospital Lahore. Detailed history was taken from the caregivers by the researcher herself. The caregivers were evaluated for depression according to DSM-IV criteria. The presence/absence of depression was recorded.

Results: Caregiver's common age was calculated as 49.64±5.30 years, 48.67% (n=73) were male and 51.33% (n=77) were females. Frequency of depression in caregivers of Parkinson's disease patients was recorded in 44.67% (n=67) whereas 55.33% (n=83) did not have depression.

Conclusion: The frequency of depression is higher in caregivers of Parkinson's disease patients, however, the results of our study generated the baseline data and it will be helpful for the caregivers and psychiatrists as well while managing the Parkinson's disease.

Key Words: Parkinson's disease, Caregivers, Depression.

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INTRODUCTION

Worldwide, Parkinson's disease (PD) is the most common neurodegenerative disorders with almost ten million people are effected with this neurological disorder.¹ In Asia the number is expected to increase from 2.57 million in 2005 to 6.17 million in 2030.² It is a progressive condition with both motor and non-motor symptoms that can have a profound impact not only on the patients but also on family members who often adopt the role of a caregiver.³ Parkinson's disease can place significant demands on the caregiver, as they take on more daily tasks and increasingly provide physical, emotional and economic support.⁴⁻⁵

It is recognized that caregivers of people with PD have a reduced quality of life (QoL),⁴ where their social activities and work schedules reduce to be more involved in caring.⁶ Caregiver spouses are less likely to spend time outside of house or take a than caregiver spouses,⁵ and older spousal caregivers often have to face age-related challenges themselves.

Caregiver burden (CB) is a factor that increases in caregivers looking after relatives with PD. Caregiver burden refers to stress and impact of looking after a relative and refers to the physical, mental and socioeconomic problems that caregivers may encounter.⁷ There is a significant correlation between increasing CB and a reduction in a caregiver's QoL⁸ and level of depression.⁹ Research has shown that PD caregivers have more psychological distress than the general population.¹⁰ This commonly manifests with higher levels of depression, anxiety, and stress, which are associated with increasing disease progression. The present study was conducted aimed to examine the frequency of depression among caregivers of patients with PD.

MATERIALS AND METHODS

This descriptive cross-sectional study conducted in Out Patient Department of Neurology, Services Hospital Lahore from 1st May 2017 to 31st October 2017. One hundred and fifty caregivers of Parkinson's disease patients were included. Detailed history was taken from the caregivers. Age, gender, educational status, and other demographic information belonging to the cares were included. In addition to the demographic information, degree of relation of the cares to the patient, their circumstances to care for them and patients' clinical information on PD duration were also recorded. Professional careers, patients with additional neurodegenerative disease and those who were not interested to participate were excluded. The caregivers

¹. Department of Neurology, Services Hospital Lahore.

². Department of Psychiatry, FMH, Lahore.

Correspondence: Dr. Ayesha Aslam, Assistant Professor, Department of Neurology, Services Hospital Lahore.

Contact No: 0333 5192758

Email: drayasha_azlam15@yahoo.com

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were evaluated for depression according to DSM-IV criteria. The presence/absence of depression was recorded. Comparison of depression in care givers of Parkinson's disease according to relation was recorded. All the data was analyzed by SPSS 24. Chi-square test was applied to compare the depression according to duration and relation. Frequencies and percentages were obtained. P-value <0.05 was set as significant. The data was entered and analyzed in through SPSS-20.

RESULTS

Table No. 1: Baseline characteristics (n=150)

Variable	No.	%
Gender		
Males	73	48.67
Females	77	51.33
Age (years)		
40 – 50	82	54.67
51 – 60	67	45.33
Depression		
Yes	67	44.67
No	83	55.33

Table No. 2: Comparison of depression according duration of care giving

Duration of care giving (months)	Depression		P value
	Yes	No	
7 – 12	23	25	0.77
>12	44	53	

Table No. 3: comparison of depression in care givers of Parkinson's disease according to relation

Relation	Depression		P value
	Yes	No	
Spouse			
Yes	22	29	0.58
No	45	49	
Son			
Yes	11	30	0.003
No	56	48	
Daughter			
Yes	17	10	0.05
No	50	68	
Sister			
Yes	10	14	0.62
No	57	64	
Brother			
Yes	7	11	0.50
No	60	67	

There were 48.67% (n=73) males and 51.33% (n=77) were females with mean age was 49.64±5.30 years. Depression in caregivers of Parkinson's disease patients was recorded in 44.67% (n=67) whereas 55.33% (n=83) had no depression (Table 1).

The mean duration of care giving was recorded as 14.67±4.29 months. The data was stratified for age, gender, duration of caregiving, relation with the patient i.e. spouse, brothers, sisters, son, daughter to address the effect modifiers. Post stratification chi-square test was applied to see the significance. P value ≤0.05 was considered as significant (Tables 2-3)

DISCUSSION

This study was planned with the view that previous studies determined that caregivers of Parkinson's disease have higher rate of depression but we found no local and international study showing the frequency of depression in caregivers of Parkinson's disease. However, the results of our study may generate a baseline data and helpful for the caregivers and psychiatrists as well while managing the Parkinson's disease. We compared our results with a previous study⁸ who recorded 57.4% of the cases with depression in PD patients.

In present study we found depression in 44.67% caregivers. A study conducted by Eloise et al¹¹ reported that depression rate was significantly high among caregivers whom duration of care giving was more than 6 months. In our study 48.67% patients were males while 51.33% were females. In this study, we found frequency of depression was high caregivers whom duration of caregiving was above 12 months (29.33%) and depression in 23 caregivers whom duration of care-giving was less than 12 months. These results showed similarity to many other studies in which depression rate reported quite high among caregiver of PD patients and mostly caregivers had duration of caregiving were above 12 months.¹²⁻¹⁴

Better QoL in the psychological domain was associated with caregivers being more conscientious. Conscientious people have been shown to have problem-solving coping mechanism with strong attention regulation, which allows them to disengage from negative thoughts allowing them to have a better psychological health.¹⁵ This coping method could be beneficial in caregivers with high levels of neuroticism.¹⁶⁻¹⁷ A person who is conscientious may overcome unexpected obstacles more easily than a person who is less motivated to achieve important life tasks.¹⁸ In this context such people may gain a sense of pleasure and gratification from successfully operating in the role of a caregiver.

In the present study, comparison of depression in care givers of Parkinson's disease according to relation, 14.67% caregivers were spouse and had depression, 7.33% were son of patients and had depression, 11.33% caregivers were daughters, 10 caregivers were sisters and 7 caregivers were brothers of PD patients whom were found depression. Many of previous studies illustrated that QoL of caregivers of PD patients affected due to potential caregiving. Previous studies

reported spouse caregivers had a high depression rate.¹⁹⁻²⁰.

CONCLUSION

Parkinson's disease is one of the most common neurodegenerative disorders with high rate of morbidity in all over the world. Caregivers of patients with PD played an important role in the treatment of PD. Anxiety and depression are most common among caregivers of PD patients and these factors affected caregivers QoL. We concluded from this study that the frequency of depression is higher in caregivers of Parkinson's disease patients, however, the results of our study generated the baseline data and it will be helpful for the caregivers and psychiatrists as well while managing the Parkinson's disease.

Author's Contribution:

Concept & Design of Study: Bushra Faheem
 Drafting: Ayesha Aslam
 Data Analysis: Saima Batool
 Revisiting Critically: Bushra Faheem, Ayesha Aslam
 Final Approval of version: Bushra Faheem

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

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Detection of DNA Mismatch Repair System in Carcinoma of Breast

Hadia Rafique Rana¹, Shamaila Razzaq¹, Amina Qayyum¹, Sakina Jamil² and Arooj Sattar¹

ABSTRACT

Objective: To correlate the immunohistochemical expression of MLH1 and PMS2 antibodies in carcinoma of breast.

Study Design: Descriptive study.

Place and Duration of Study: This study was conducted at the Department of Morbid Anatomy and Histopathology, Central Park Medical College Lahore from 1st July 2016 to 31st March 2017.

Materials and Methods: Ninety blocks of already diagnosed breast cancers were collected. The histological grading was done on conventional H&E, according to Nottingham grading system. For MLH1 and PMS2 labeling was done according to nuclear and cytoplasm staining.

Results: All the cases were of ductal invasive carcinoma. MLH 1 was found strongly positive in 51(56.7%) cases, weakly positive in 4 (4.4%) and negative in 35 (38.9%) of the cases and PMS2 was found strongly positive in 55 (61.1%) cases, while, weakly positive in 5 (5.5%) and negative in 30 (33.3%) of the cases.

Conclusion: Loss of expression of MLH1 and PMS2 reveals that microsatellite instability (MSI) has a role in the development of breast carcinoma.

Key Words: Breast carcinoma, Invasive ductal carcinoma, DNA mismatch repair system (MMR), Microsatellite instability (MSI), MLH1, PMS2.

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INTRODUCTION

According to World Health Organization, in 2015, cancer is the leading cause of death before the age of 70 years. Low and middle income countries are mostly involved in these deaths. A total figure of 2,088,849 cases was reported for breast carcinoma (11.6% of all the cancer cases) with mortality of 626,679 cases. Breast carcinoma is the most common in the developing countries including Pakistan. Almost 180,000 breast carcinoma cases present in the United States annually.^{1,2} The transmission of genetic information to the subsequent generations in a very accurate way is Necessary for the survival of a cell and it depends on the Proper functioning of protein factors involved in the regulation of cell cycle. If these protein factors do not work well it will lead to the development of mutation, instability in genetic makeup and chromosome breakage thereby leading towards transformation of cancer cells.³

During DNA replication certain miss-incorporations, insertions and deletions of the bases occur that are recognized and repaired by DNA mismatch repair (MMR) system.⁴ It also repairs some forms of DNA damage and has a vital role in the development of genetic stability. In the humans, seven MMR proteins work in a specific orders to initialize the repair of DNA mismatches, these are MLH1, MLH3, MSH2, MSH3, MSH6, PMS1 and PMS2.⁵ The cancers with the DNA repair deficiency have epigenetic alterations that reduce the DNA repair gene expression. In colorectal cancers, about 13% are having DNA mismatch repair mechanism deficiency, most commonly due to the loss of MLH1 and sometimes PMS2, MSH2 or MSH6.^{6,7} To recognize and repair mismatches is important for cells and failure to do so, results in microsatellite instability (MSI) resulting in increased mutation rate. MMR-deficient (MSI) cancers have high frequency of mutations.⁸ with the help of immunohistochemical expression of MMR proteins we can find out the involvement of MMR gene. Some studies have worked on the positive expression and loss of expression of MMR by immune histological staining.

In this study we will check the expression of two antinuclear antibodies MLH1 and PMS2 in breast carcinoma (invasive ductal carcinoma) with the help of immunohistochemistry. To our knowledge no such study has been carried out so far in Pakistan.

MATERIALS AND METHODS

This study was conducted in the Department of Morbid Anatomy and Histopathology Department of Morbid Anatomy and Histopathology, Central Park Medical

¹. Department of Pathology, CPMC, Lahore.

⁴. Department of Pathology, Gujranwala, Medical College Gujranwala.

Correspondence: Dr. Hadia Rafique Rana, Senior Demonstrator of Pathology, CPMC, Lahore.
Contact No: 0335 4690706
Email: hadiarana123@yahoo.com

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College Lahore from 1st July 2016 to 31st March 2017. Ninety samples were collected through non-random convenient sampling. Female patients with breast carcinoma and above 18 years of age were included in this study. Clinical parameters of these patients were recorded. Paraffin embedded blocks were collected and labeled appropriately. A specific lab number was issued. These blocks were processed and three sections were taken from each i.e. one section was taken on a frosted microscope slide for staining with conventional H&E stain and other two sections were taken on poly-L-lysine coated slides and were stained with antibodies to MLH1 and PMS2 by indirect immunohistochemical method.

The histological diagnosis, tumor sub-typing and grading was done on conventional H&E, according to Nottingham grading system.⁹ For MLH1 and PMS2, labeling was done according to nuclear and cytoplasm staining.¹⁰ (Table 1). The data was entered and analyzed using SPSS version 23. A p-value <0.05 was considered as statistically significant.

RESULTS

This study was carried out on ninety mastectomy specimen from the females of 32 to 68 years with an average age of 52.4±9.0 years. Mean age of menarche was 13.1±0.7 years. Among these 81 (90.0%) were married, 74 (82.2%) had history of pregnancy or lactation, 17 (18.9%) had positive family history and 22 (24.4%) used contraceptive pills ever.

All the ninety cases were of invasive ductal carcinoma. The histological grading and scoring was done according to Nottingham Grading Score. There were 50 (55.6%) assigned as Grade-I, 33 (36.7%) as Grade-II and 7 (7.8%) as Grade-III. 12.0% Grade I, 48.5% grade-II and 42.9% grade III tumors were having areas of necrosis. The presence of area of necrosis was significantly different among three grades with p-value 0.001. There were 5 (10%) cases in grade-I who involved nipple, while there were 24.2% in grade-II and 42.9% in grade-III. This difference among three groups was very close to significant with p-value 0.060. The skin was involved in 12 (13.3%) cases. The distribution of these cases was not significantly different for the three grades of tumor with p-value 0.228.

Table No. 1: MLH1 and PMS2 staining

Strong Positive	Strong, diffuse, brown nuclear staining with positive labeling of cytoplasm in >10% of tumor cells
Weak/focal positive	Strong, diffuse, brown nuclear staining with positive labeling of cytoplasm in <10% of tumor cells
Negative	Complete absence of nuclear staining with or without positive labeling of cytoplasm in tumor cells

Table No. 2: DNA Mismatch repair antibodies (MLH1) in relation to Nottingham Histological Grades

Msh2	Nottingham Histological Grades							
	Grade I		Grade II		Grade III		Total	
	No.	%	No.	%	No.	%	No.	%
Strongly Positive	33	66.0	16	48.5	2	28.6	51	56.7
Focal / Weakly Positive	2	4.0	2	6.1	0	0.0	4	4.4
Negative	15	30.0	15	45.5	5	71.4	35	38.9
Total	50	100.0	33	100.0	7	100.0	90	100.0

P-value = 0.001

Table No 3: DNA Mismatch repair antibodies (PMS2) in relation to Nottingham Histological Grades

Msh2	Nottingham Histological Grades							
	Grade I		Grade II		Grade III		Total	
	No.	%	No.	%	No.	%	No.	%
Strongly Positive	39	78.0	14	42.4	2	28.6	55	61.1
Focal / Weakly Positive	1	2.0	2	6.1	2	28.6	5	5.6
Negative	10	20.0	17	51.5	3	42.9	30	33.3
Total	50	100.0	33	100.0	7	100.0	90	100.0

P-value = 0.002

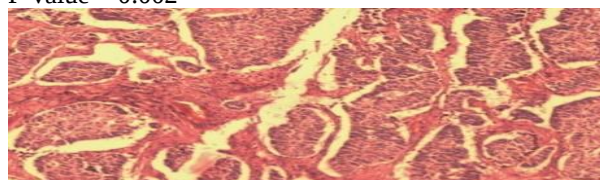


Figure No.1: Solid tumor pattern in high grade tumor

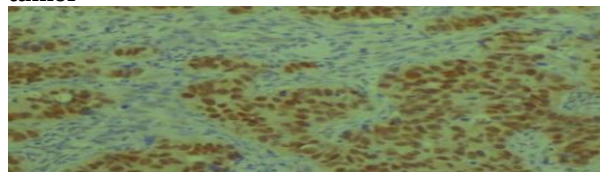


Figure No.2: Positive nuclear staining of MLH1 expression

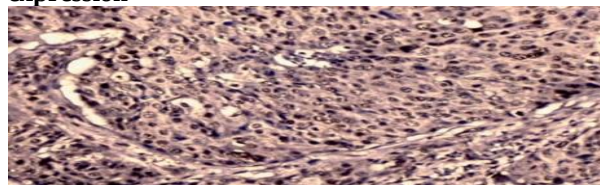


Figure No.3: Positive nuclear staining of PMS2 expression

The MLH 1 was found strongly positive in 51 (56.7%) cases, weakly positive in 4 (4.4%) and negative in 35 (38.9%) of the cases. The negative rate for MLH 1 was highest among the four observed. When distributed among three grades, it was found that the negative rate

had an increasing trend with 30.0%, 45.5% and 71.4% in grade-I, II and III respectively. So the difference among three grades for MLH 1 was not found significantly different with p-value 0.190 (Table 2).

The PMS 2 was found strongly positive in 55 (61.1%) cases, while, weakly positive in 5 (5.5%) and negative in 30 (33.3%) of the cases. When distributed among three grades, it was found that the negative rate was 20.0%, 51.5% and 42.9% in grade-I, II and III respectively. Still the difference among three grades was highly significant with p-value 0.002 (Table 3).

DISCUSSION

Breast carcinoma is the most common malignancy in the women of any race, area or ethnicity worldwide. According to the Glob can cancer statistics, breast carcinomas comprise of 11.6% of all the cancer cases having mortality rate of 30%.¹ In Pakistan it is the most prevalent cancer in females. In this study, average age of the female was 52.4±9.0 years and range was 32-68 years. Khokher et al¹¹ and Mahmood et al¹² stated the mean age of 47±12 and 47.57±12.02 years respectively and range of 16 to 100 years and 18 to 90 years in their studies respectively. Out of ninety females eighty one were married, 74% were having history of pregnancy and 22.4% have used oral contraceptive pills.

All the cases were diagnosed as invasive ductal carcinoma. Grading was done according to the percentage of tubular formation, severity of pleomorphism and atypical mitosis (Nottingham Grading System). 50(55.6%) of tumors labeled as Grade-I, 33(36.7%) were as Grade-II and 7(7.8%) were as Grade-III category. Only 12% of cases have involvement of skin. Previous study reveals 20% of cases having skin involvement which almost favors this study.¹³

Earlier studies reveal evidence of malfunctioning of DNA mismatch repair (MMR) genes in hereditary non-polyposis colon cancer, prostatic carcinoma, endometrial carcinoma and gastric carcinoma. MMR proteins work in specific orders to initiate the repair of DNA mismatches. We checked expression of MLH1 and PMS2 with the help of immunohistochemistry.

In this study, 51(56.7%) cases shows strong positive nuclear staining of MLH1, 4 (4.4%) of cases show weak positive nuclear staining and 35 (38.9%) of the cases have negative nuclear staining. One study reveals the loss of expression of MLH1 in 26 (31.1%) cases out of 83 cases. In India, similar kind of study documents loss of expression of MLH1 in 43.5% cases. Another study reveals 46% loss of expression of MLH1 in sporadic breast cancer.¹⁴⁻¹⁷

In this study 55(61.1%) cases show strong positive nuclear staining for PMS2, 5(5.5%) cases show weak positive nuclear staining and 30(33.3%) of the cases express negative nuclear staining. These results favor the studies conducted by Schrader et al¹⁸, Wen et al¹⁹

and Roberts et al²⁰ which document the roles of DNA mismatch repair proteins in development of breast carcinoma.

Paulson et al²¹ stated that microsatellite instability (MSI) in the breast cancer can lead to more aggressive carcinoma and poor prognosis. They observed eleven patients with MSI out of which seven developed metastasis. They also observed twenty five patients which were MSI negative and only four patients developed metastasis. They also stated that the tumors having more microsatellite instability are more prone to the metastasis. On the other hand some studies reveal very low or no loss of MSI. Shia et al²² worked on 66 samples of breast cancer but not found MSI in any case. Clades et al²³ revealed MSI in 6 cases out of 88 cases of breast cancer. Anbazhagen et al²⁴ observed no MSI in 267 cases of breast cancer.

CONCLUSION

This study revealed the loss of expressions of MLH1 and PMS2 in the breast carcinoma. Loss of expression reveals that deficiency of DNA mismatch proteins has a role in the development of breast carcinoma.

Author's Contribution:

Concept & Design of Study: Hadia Rafique Rana
Drafting: Shamaila Razzaq

Amina Qayyum
Data Analysis: Sakina Jamil, Arooj Sattar

Revisiting Critically: Hadia Rafique Rana
Shamaila Razzaq

Final Approval of version: Hadia Rafique Rana

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

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Acute Kidney Injury: Incidence And Mortality in Critically ill Neonates

Sajid Hussain Sherazi¹, Sidra Farooq², Sadaf Liaqat³, and Asima Khanam⁴

ABSTRACT

Objective: To examine the incidence of acute kidney injury and associated mortality in neonates admitted in neonatal intensive care unit.

Study Design: Prospective study.

Place and Duration of Study: This study was conducted at the Department of Pediatrics, Niazi Medical College Sargodha from 1st July 2018 to 30th June 2019.

Materials and Methods: Total 240 critically ill neonates of both gender admitted to NICU were analyzed in this study. Patients age from 2 to 30 days. Patients detailed history including age, sex and causes of admission to NICU were recorded after taking consent from patient's parents and guardians. Serum creatinine >1.5mg/dl and BUN >20mg/dl on admission and at 24 hours was defined to have acute kidney injury. Risk factors of acute kidney injury and mortality rate were examined.

Results: Twenty six (10.83%) patients had acute kidney injury, in which 18 (69.23%) patients were males while 8 (30.77%) were females with mean age 6.34±5.68 days. 16 (61.54%) patients were preterm and 10 (38.46%) were term neonates. 15 (57.69%) neonates had low birth weight while 11 (42.31%) had normal birth weight. The most common risk factor was sepsis found in 17 (65.38%) neonates followed by birth asphyxia 12 (46.15%) and shock in 7 (26.92%). All patients had one or more risk factors associated to AKI. Mortality rate was significantly high in patients with AKI as compared to patients with non-AKI 34.62% vs. 25 (11.68%).

Conclusion: The incidence rate of acute kidney injury was high in critically ill neonates admitted to NICU. Mortality rate was also high in patients with AKI as compared to non-AKI patients.

Key Words: Critically ill neonates, acute kidney injury, Mortality

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INTRODUCTION

Acute kidney injury (AKI) is a complex disorder and has clinical manifestations ranging from mild dysfunction to complete acute kidney failure. The lack of a universal definition for AKI, till recently, has rendered comparative studies limited and harder to achieve.¹ Acute kidney injury in the newborn is a common problem in the neonatal intensive care unit (NICU) and ranges from 6% to 24%.^{2,3} Many underlying factors may contribute to AKI development, such as asphyxia, respiratory distress syndrome and urogenital anomalies.⁴

In a full-term neonate, the kidney functions are not fully mature and functional maturation continues in the postnatal age. Under normal circumstances, the kidneys adapt to various endogenous and exogenous stresses. However, in sick neonates and in stressful conditions like sepsis and shock, the adaptive capacities of the kidney may be overcome, leading to renal dysfunction.⁵ Permanent renal damage may develop in survivors of AKI in up to 40% of the cases.⁶ It is diagnosed on the basis of clinical history such as decreased urine production (oliguria), and laboratory findings such as elevated blood urea nitrogen and creatinine. Although non-oliguric neonatal kidney injury is being detected with increasing frequency.⁷

A wide variety of predisposing factors such as asphyxia (40%), sepsis (22%), feeding problems (18%), and heart failure, prematurity and urogenital anomalies are commonly reported causes of AKI in the developed countries.⁸ Mortality among hospitalized neonate due to kidney injury was 20-50% and patient with sepsis had significantly higher rate.^{9,10}

The present study was conducted aimed to examine the frequency of acute kidney injury and associated mortality and risk factors in critically ill neonates admitted to NICU.

¹. Department of Pediatrics, Niazi Medical College Sargodha.

². Department of Community Medicine / Pediatrics³, Rai Medical College Sargodha.

⁴. Department of Pediatrics, Sargodha MC, Sargodha.

Correspondence: Dr. Sajid Hussain Sherazi, Assistant Professor of Pediatrics, Niazi Medical College Sargodha.

Contact No: 0342 7535828

Email: sajidhussainsherazi@gmail.com

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MATERIALS AND METHODS

This prospective study was conducted at Department of Pediatrics, Niazi Medical College Sargodha from 1st July 2018 to 30th June 2019. Total 240 critically ill neonates of both gender admitted to NICU were analyzed in this study. Patients ages ranges from 2 to 30 days. Patient's history including age, sex and causes of admission to NICU were recorded after taking consent from patient's parents and guardians. Neonates with several congenital anomalies, with post-operative AKI, patients with maternal history of AKI were excluded. Blood samples were collected from all the patients to examine the blood urea, serum creatinine and serum electrolytes. Serum creatinine >1.5mg/dl and BUN >20mg/dl was defined to have acute kidney injury. Urine output <1ml/kg/h defined oliguria. Risk factors of acute kidney injury and mortality rate was examined. Data was analyzed by SPSS 24. Chi square test was applied to compare the mortality among AKI and non-AKI patients. P-value less than 0.05 were considered as statistically significant.

RESULTS

Twenty six (10.83%) patients had acute kidney injury (Fig. 1). In which 18 (69.23%) patients were males while 8 (30.77%) were females with mean age 6.34 ± 5.68 days. 16 (61.54%) patients were preterm and 10 (38.46%) were term neonates. 15 (57.69%) neonates had low birth weight while 11 (42.31%) had normal birth weight. 16 (61.54%) patients were oliguric and 10 (38.46%) patients were non-oliguric (Table 1)

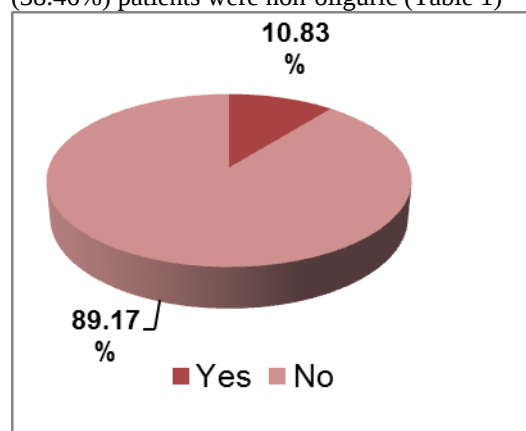


Figure No.1: Frequency of acute kidney injury among all the patients

The most common risk factor was sepsis found in 17 (65.38%) neonates followed by birth asphyxia 12 (46.15%), shock in 7 (26.92%), nephrotoxic drug use in 4 (15.38%), surgical cause in 4 (15.38%) and intrauterine growth retardation (IUGR) in 3 (11.54%) patients. All patients had one or more risk factors associated to AKI (Table 2).

At admission and at 24 hours the mean serum creatinine value, mean blood urea nitrogen (BUN) value, mean

serum sodium value and mean serum potassium value was 2.7 ± 1.24 and 2.6 ± 1.02 , 54.3 ± 22.5 and 43.3 ± 21.5 , 129.8 ± 5.4 and 127.6 ± 4.3 , 6.1 ± 2.3 and 5.8 ± 2.01 (Table 3)

Mortality rate was significantly high in patients with AKI as compared to patients with non-AKI 34.62% vs. 25 (11.68%) [Table 4]

Table No. 1: Demographical details of AKI patients (n=26)

Variable	No.	%
Age (days)	6.34±5.68	
Gender		
Male	18	69.23
Female	8	30.77
Gestational age		
Term	10	38.46
Preterm	16	61.54
Birth weight		
Normal	11	42.31
Low	15	57.69
Oliguric		
Yes	16	31.54
No	10	38.46

Table No. 2: Risk factors associated to acute kidney injury

Risk factors	No.	%
Sepsis	17	65.38
Asphyxia	12	46.16
Shock	7	26.92
Nephrotoxic drugs	4	15.38
Surgical cause	4	15.38
IUGR	3	11.54

Table No 3: Serum creatinine and serum electrolyte among AKI patients

Variables	At admission	At 24 Hours
Serum creatinine mg/dl	2.7 ± 1.24	2.6 ± 1.02
BUN mg/dl	54.3 ± 22.5	43.3 ± 21.5
Serum potassium mmol/l	6.1 ± 2.3	5.8 ± 2.01
Serum sodium mmol/l	129.8 ± 5.4	127.6 ± 4.3

Table No 4: Comparison of mortality between AKI and non-AKI patients

Mortality	AKI	Non-AKI	P value
Yes	9 (34.62%)	25 (11.68%)	0.036
No	17 (65.38%)	189 (88.32%)	

DISCUSSION

Acute kidney injury is one of the most common life threatening disorders found all over the world with high rate of morbidity and mortality.^{11,12} Neonates admitted to NICU due to critical illness were on high risk to

develop AKI. Many of studies reported that AKI rate was high in neonates admitted to NICU.^{13,14} the present study was conducted to examine the prevalence of acute kidney injury in critically ill neonates admitted to NICU. Also examine the mortality among AKI and non-AKI patients. In our study 240 neonates were analyzed. Out of 240 patients 26 (10.83%) neonates had developed acute kidney injury. A study conducted by Haider et al¹⁵ regarding frequency of acute kidney injury in critically ill neonates and reported incidence rate of AKI was 4.66% among 300 neonates. A study conducted in Turkey reported the incidence rate of AKI was 8.4%.¹⁶ another multicenter studies reported the incidence rate of AKI among newborn was 29.9%.¹⁷ In present study majority of patients were males 69.23% as compared to females 30.77% with mean age 6.34±5.68 days. These results showed similarity to several previous studies in which male patients were high in numbers as compared to females with ages ranging 1 to 30 days.^{18,19}

In this study, the most common risk factor was sepsis found in 17 (65.38%) neonates followed by birth asphyxia 12 (46.15%), shock in 7 (26.92%), nephrotoxic drug use in 4 (15.38%), surgical cause in 4 (15.38%) and IUGR in 3 (11.54%) patients. All patients had one or more risk factors associated to AKI. A study by Haider et al¹⁵ reported sepsis was the most common predisposing factor found in 71.43% followed by birth asphyxia in 52.86% and shock 21.43%. Another study conducted by El-Badawy et al¹⁹ reported that sepsis was the most common risk factor for developing AKI in neonates. In our study we found that preterm neonates and neonates with low birth weight had high incidence rate of AKI as compared to non-AKI patients. Many of previous studies reported that preterm delivery and low birth weight were the most common risk factors associated in developing acute kidney injury.²⁰⁻²²

In present study mortality rate was significantly high in patients with AKI as compared to patients with non-AKI 34.62% vs. 25 (11.68%). These results showed similarity to many of other studies in which patients with AKI had high mortality rate 15 to 35% as compared to patients with non-AKI.^{23,24}

CONCLUSION

Acute kidney injury is a common clinical disorder with high rate of mortality and morbidity especially in critically ill neonates. The incidence rate of acute kidney injury was high in critically ill neonates admitted to NICU. Preterm, low birth weight, sepsis, birth asphyxia and shock were the factors associated to AKI. Mortality rate was also high in patients with AKI as compared to non-AKI patients.

Author's Contribution:

Concept & Design of Study: Sajid Hussain Sherazi
Drafting: Sidra Farooq

Data Analysis: Sadaf Liaquat, Asima Khanam
Revisiting Critically: Sajid Hussain Sherazi, Sidra Farooq
Final Approval of version: Sajid Hussain Sherazi

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

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Hypertension and Dyspnea: Role of Age and Hypertension Duration

Sana Naz¹, Alina Saqib², Muhammad Sarwar Khalid³, Jawed Iqbal⁴, Ahmad Yar⁵ and Mazhar ul Haque⁵

ABSTRACT

Objective: Examination of the relation of age and hypertension duration on relationship between hypertension with dyspnea.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Anatomy and Medicine Shahida Islam Medical Complex, Lodhran January 2018 to July 2018.

Materials and Methods: A cross-sectional study was conducted in the outpatient division after taking ethical approval from Shahida Islam Medical Complex, Lodhran. The inclusion criteria of the study were 18 years or above age, either gender, having history of hypertension which was self-reported or intake of anti-hypertensive medication. After analyzing the capability and obtaining oral informed consent, all the demographic statistics and hypertension related clinical signs and symptoms were recorded through interview by using a structured questionnaire whereas the blood pressure levels were measured by a sphygmomanometer with stethoscope. Chi-square test was used for inferential analysis whereas the significant level was placed at 0.05.

Results: The study results showed that overall dyspnea was not notably related with systolic and diastolic hypertension but among patients aged up to 35 years it was notably related with diastolic hypertension ($p=0.016$) while among patients aged 56 years or above it was markedly related with systolic hypertension ($p=0.016$). Moreover, among patients with 10 years or more duration of hypertension it was remarkably related with systolic hypertension ($p=0.037$).

Conclusion: According to the study findings it is established that both age and hypertension duration modify the relationship between hypertension and dyspnea. While deciding the management plan for hypertensive patients, the role of their age and hypertension duration should not be ignored.

Key Words: Hypertension, Dyspnea, Age Groups.

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INTRODUCTION

Hypertension has been defined as a systolic blood pressure (SBP) of 140 mm Hg or above, or a diastolic blood pressure (DBP) of 90 mm Hg or above, or on antihypertensive medication.¹

¹. Department of Anatomy, Roshan Suleman Medical College Tando Adam.

². Department of Anatomy, CMH Medical College Bahawalpur.

³. Department of Cardiology, Quaid Azam College Bahawalpur.

⁴. Department of Biochemistry, Al-Tabri Medical College Karachi.

⁵. Department of Anatomy, Shahida Islam Medical College Lodhra.

Correspondence: Dr. Mazhar Ul Haq Department of Anatomy, Shahida Islam Medical College Lodhran.

Contact No: 0331 3565277

Email: drmazhar79@gmail.com

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As per the suggestion of the seventh report of the Joint National Committee on elimination, recognition, assessment, and management of hypertension (JNC 7), blood pressure for adults aged 18 years or above has been categorized as normal, prehypertension, stage 1 hypertension and stage 2 hypertension: Normal (systolic <120 mm Hg, diastolic <80 mm Hg); Prehypertension (systolic 120-139 mm Hg, diastolic 80-89 mm Hg); Stage 1 Hypertension (systolic 140-159 mm Hg, diastolic 90-99 mm Hg) and Stage 2 Hypertension (systolic 160 mm Hg or greater, diastolic 100 mm Hg or greater).² There are two categories of hypertension: Primary/Essential and Secondary. Only 5–10% of patients with arterial hypertension suffer from secondary hypertension, whereas the vast majority has primary/essential hypertension.³

Raised blood pressure values have repeatedly been associated with the hazard of stroke and coronary heart disease; in addition, peripheral vascular disease, renal impairment, retinal hemorrhage and visual impairment are few of the complications of high blood pressure.⁴ The relative Risk Assessment Collaborating Group has recognized hypertension as the foremost risk factor of mortality and as the third most important risk

factor for disease load globally.⁵ According to a World Health Organization estimate; hypertension annually results in 7.5 million deaths globally.⁶ It has been recently estimated that 28.5% grownups in cost-effective countries and 31.5% adults in countries on the breadline had hypertension; moreover, from 2000 till 2010, the age-standardized occurrence of hypertension decreased by 2.6% in cost-effective countries however raised by 7.7% in under-privileged countries.⁷ This heterogeneity in the global prevalence of hypertension has been linked with lifestyle changes, racial and ethnic differences, and nutritional status and birth weight of an individual.⁸ In 2010, the East Asia or Pacific region of the world had the highest burden of hypertension globally.⁹ Locally in Pakistan, according to a 2014 World Health Organization estimate, the total occurrence of high blood pressure is 25.2%¹⁰, though a recent large scale cross-sectional study reported the age-standardized occurrence of hypertension in a Pakistani population to be 34.4%.¹¹ A systematic review in 2009 reported that frequency, responsiveness and management of hypertension in budding countries are impending to those in already developed countries.¹² The presentation of hypertension varies clinically considerably among patients, depending upon several factors including their age and duration of their illness. Understanding the specific role of each factor may facilitate in subsequent management of such patients. The available recent literature regarding association of high blood pressure with dyspnea is limited at best¹³⁻¹⁵, and has not been examined in the context of potentially mediating role of age and hypertension duration. As a systematic research by the investigators did not disclose any relevant published confined data, this study was therefore carried out with the purpose of examining the effect of age and hypertension period on association linking hypertension with dyspnea.

MATERIALS AND METHODS

This cross-sectional study was conducted at the Department of Anatomy and Medicine in the outpatient sector of a secondary care hospital after taking ethical approval from Shahida Islam Medical Complex, Lodhran January 2018 to July 2018. The inclusion criteria of the study were 18 years or above age, either gender, having self-reported hypertension history and

intake of anti-hypertensive medication. History of diabetes, cardiac events, neurological disorders, cluster headache, gastrointestinal disease, visual problems and epistaxis prior being recognized with hypertension and morbid obesity were the exclusion criteria of the study. After analyzing the capability and obtaining oral informed consent, patients were included in this study by using non-probability sampling method.

All the demographic information and hypertension related clinical signs and symptoms were recorded through interview by using a prearranged feedback form designed particularly for the study whereas the blood pressure levels were measured by a sphygmomanometer with stethoscope. The patients were divided into three groups based each on their age; up to 35 years old, 36 to 55 years old and 56 years old or above; and their duration of hypertension: up to 1 year, 2 to 9 years and 10 years or more, for the purpose of analysis. After data collection, SPSS version 20 was utilized for information cleaning, access and investigation. Chi-square test was used for inferential analysis whereas the significant level was kept at 0.05. The study duration was 6 months.

RESULTS

The whole information analyzed were of 304 cases out of which 157 (51.6%) were male, 166 (54.6%) were 36 to 55 years old whereas 193 (63.5%) had hypertension for 2 to 9 years. The study results showed that overall dyspnea was not notably related with either systolic or diastolic hypertension (table 1) The outcome of the study further displayed that among subjects aged up to 35 years dyspnea was importantly related with diastolic hypertension only ($p=0.016$) where patients with dyspnea were more likely to have stage 1/stage 2 diastolic hypertension than those who did not (65.2% vs. 30.8%) (table 2A); among patients aged 36 to 55 years dyspnea was not notably related with systolic or diastolic hypertension (table 2B) while among patients aged 56 years or above dyspnea was significantly associated with systolic hypertension only ($p=0.016$) where patients with dyspnea were more likely to have stage 1/stage 2 systolic hypertension than those who did not (82.0% vs. 59.0%) (Table 2C).

Table No1: Association between Dyspnea and Hypertension (Overall)

Variable (n=304)	Systolic Blood Pressure		p	Diastolic Blood Pressure		p
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	46(28.5)	115(71.4)	0.089	74(46.0)	87(54.0)	0.211
No	54(37.8)	89(62.2)		76(53.1)	67(46.9)	

The study results further revealed that among patients with up to 1 year duration of hypertension dyspnea was not significantly related with either systolic or diastolic hypertension (table 3A); among cases with 2

Table No.2a: Association between Dyspnea and Hypertension (Up to 35 Years Old)

Variable (n=49)	Systolic Blood Pressure		P	Diastolic Blood Pressure		P
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	9(39.1)	14(60.9)	0.445	8(34.8)	15(65.2)	0.016
No	13(50.0)	13(50.0)		18(69.2)	8(30.8)	

Table No.3 B: Association between Dyspnea and Hypertension (36 to 55 Years Old)

Variable (n=166)	Systolic Blood Pressure		P	Diastolic Blood Pressure		P
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	28(31.8)	60(68.2)	0.974	42(47.7)	46(52.3)	0.899
No	25(32.1)	53(67.9)		38(48.7)	40(51.3)	

Table No.4 C: Association between Dyspnea and Hypertension (56 Years Old or Above)

Variable (n=89)	Systolic Blood Pressure		P	Diastolic Blood Pressure		P
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	9(18.0)	41(82.0)	0.016	24(48.0)	26(52.0)	0.759
No	16(41.0)	23(59.0)		20(51.3)	19(48.7)	

Table No. 5 a: Association between Dyspnea and Hypertension (Up to 1 Year Hypertension Duration)

Variable (n=73)	Systolic Blood Pressure		P	Diastolic Blood Pressure		P
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	11(28.2)	28(71.8)	0.157	17(43.6)	22(56.4)	0.425
No	15(44.1)	19(55.9)		18(52.9)	16(47.1)	

Table No 6 B: Association between Dyspnea and Hypertension (2 to 9 Years Hypertension Duration)

Variable (n=193)	Systolic Blood Pressure		P	Diastolic Blood Pressure		P
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	32(31.7)	69(68.3)	0.766	51(50.5)	50(49.5)	0.816
No	31(33.7)	61(66.3)		48(52.2)	44(47.8)	

Table No. 7: C Association between Dyspnea and Hypertension (10 Years or More Hypertension Duration)

Variable (n=38)	Systolic Blood Pressure		P	Diastolic Blood Pressure		P
	Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive		Normotensive/Pre Hypertensive	Stage 1/Stage 2 Hypertensive	
	N (%)	N (%)		N (%)	N (%)	
Dyspnea						
Yes	3(14.3)	18(85.7)	0.037*	6(28.6)	15(71.4)	0.06
No	8(47.1)	9(52.9)		10(58.8)	7(41.2)	

*Fisher's Exact Test

The study results further revealed that among patients with up to 1 year duration of hypertension dyspnea was not significantly related with either systolic and diastolic hypertension (table 3A); among cases with 2 to 9 years duration of hypertension dyspnea was not notably related with systolic or diastolic hypertension (table 3B) while among patients with 10 years or more duration of hypertension dyspnea was significantly. Associated with systolic hypertension only ($p=0.037$) where patients with dyspnea were more likely to have stage 1/stage 2 systolic hypertension than those who did not (85.7% vs. 52.9%) (Table 3 C).

DISCUSSION

This study was conducted with the aim of examining the effect of age and hypertension period on association linking hypertension with dyspnea in a Pakistani population. The study results showed that overall dyspnea was not notably related with systolic or diastolic hypertension.

The outcome of the results further presented that among cases aged up to 35 years dyspnea was considerably linked with diastolic hypertension only; among cases of age 36 to 55 years dyspnea was not notably linked with either systolic or diastolic hypertension while among patients aged 56 years or above dyspnea was significantly associated with systolic hypertension only. Moreover, among patients with up to 1 year duration of hypertension dyspnea was not appreciably linked with either systolic or diastolic hypertension; among subjects with 2 to 9 years duration of hypertension dyspnea was not notably related with either systolic or diastolic hypertension while among patients with 10 years or more duration of hypertension dyspnea was significantly associated with systolic hypertension only. The relationship between hypertension and dyspnea has been reported previously, but the available literature is hardly thorough. Arras DJ et al., in 2005 proclaimed dyspnea to be significantly connected with elevated blood pressure.¹³ Karras DJ et al., in 2005 again found dyspnea to be associated with greater blood pressure values.¹⁴ Karras DJ et al., in 2006 also reported severely elevated blood pressure to be related with malady of dyspnea (OR 3.1; 95% CI 1.1 to 8.7).¹⁵

Moreover, with regard to effect of age and/or hypertension extent on such a correlation, no pertinent data could be extracted. It is nothing but expected that as a hypertensive patient grows older and the duration of illness increases, the clinical manifestations of the illness may increase, as a result of potentially poor blood pressure control. It has already been reported that blood pressure management whilst on anti-hypertensive Medications can differ considerably among hypertensive patients, from 5.4% to 58% in different regions of the world.¹⁶ Moreover, locally in Pakistan,

Blood pressure control among those taking anti-hypertensive therapy has been found to be 32.3%.¹¹ But the question remains as to whether variables like age and duration of illness affect manifestations of both systolic and diastolic hypertension in a similar way. Though a meaningful comparison of the study results could not be built because of lack of relevant available research, it was interesting to observe the mediating role each of the age and, to a lesser extent, the duration of hypertension plays in defining the relationship between hypertension and dyspnea.

CONCLUSION

Based on the study findings it can be concluded that both age and hypertension duration modify the relationship between hypertension and dyspnea, albeit to different extents. While deciding the management plan for hypertensive patients, the role of their age and hypertension duration should not be ignored, particularly in patients who present with dyspnea.

Author's Contribution:

Concept & Design of Study:	Sana Naz
Drafting:	Alina Saqib, Muhammad Sarwar Khalid
Data Analysis:	Jawed Iqbal, Ahmad Yar, Mazhar Ul Haque
Revisiting Critically:	Sana Naz, Alina Saqib
Final Approval of version:	Sana Naz

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

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Association of Right Ventricular Infarction in Patients with Inferior Wall Myocardial Infarction

Muhammad Sarwar Khalid¹, Usama Munir¹, Sana Naz², Alina Saqib³, Jawed Iqbal⁴ and Mazhar ul Haque⁵

ABSTRACT

Objective: Inferior wall myocardial infarction (MI) which presents hypotension is highly suggestive of associated Right ventricular (RV) Infarction leading to high mortality, therefore demand special precautions in its management. We conducted this study to see this potentially lethal combination of inferior wall MI with RV infarction.

Study Design: Descriptive cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Cardiology, Bahawalpur Victoria Hospital, Bahawalpur, during 23rd September 2015 to 22nd March 2016.

Materials and Methods: This study was conducted at Department of Cardiology, Bahawalpur Victoria Hospital, Bahawalpur. It's a descriptive, cross sectional study comprises of 87 patients who were diagnosed on admission as inferior wall myocardial infarction of age 30-60 years of either gender were included. Patients with anterior wall MI, Left bundle branch block, cor-pulmonale, pulmonary hypertension and renal failure were excluded. In all patients standard twelve ECG along with right sided chest leads was performed and evaluated for association of RV infarction.

Results: Mean age was 52.55 ± 9.27 years. Number of male patients was 68 (78.16%) and females were 19 (21.84%) in the study with ratio of 3.6:1. Right ventricular infarction was found in 35 (40.23%) patients, whereas 52 (59.77%) patients had no associated RV infarction.

Conclusion: This study showed that inferior wall MI is significantly associated with RV infarction.

Key Words: Myocardial infarction, inferior wall, right ventricular infarction.

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INTRODUCTION

Unstable angina (UA), ST-elevation myocardial infarction (STEMI) and non-ST-elevation are components of Acute Coronary Syndrome (ACS)¹. Myocardial Infarction (MI) results from ischemia leading to necrosis and death of cardiac myocytes due to ischemia, which results from sudden occlusion or blockage of blood supply to myocardium.

¹. Department of Cardiology, QAC, Bahawalpur.

². Department of Anatomy, RSMC, Tando Adam.

³. Department of Anatomy, CMH Medical College Bahawalpur.

⁴. Department of Biochemistry, Al-Tabri Medical College Karachi.

⁵. Department of Anatomy, Shahida Islam Medical College Lodhra.

Correspondence: Dr. Mazhar Ul Haq Department of Anatomy, Shahida Islam Medical College Multan-Bahawalpur Road Lodhran.

Contact No: 0331 3565277

Email: drmazhar79@gmail.com

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The occurrence of ST-segment elevation on ECG in STEMI signifies complete occlusion of a coronary artery threatening the death and necrosis of myocardium^{2,3}.

These days Coronary Artery disease has become major cause of death in our region and Worldwide^{4,5}, more than 3 million people suffer from STEMI⁶. Similarly is heart disease is becoming the second most important cause of morbidity and leading cause of mortality by 2030. Right ventricular infarct is suspected in sub set of patients who present with right ventricular failure, venous congestion and hypotension despite fair or normal ejection fraction⁷. Because of unique anatomical physiological features Right and left ventricles differ markedly in metabolic demands and response to ischemic insults and hence behave differently to myocardial infarction and other cardiac diseases. RV infarction usually occurs in the setting of acute inferior wall MI, however rarely ventricular infarction may also occur⁸. When a patient of inferior wall MI demonstrates distended neck veins along with clear lung basis, RV infarction must be suspected. Dependence of LV and overall cardiac function on RV function speaks the significance of RV infarction. Inferior wall infarction is associated with 34% incidence RV infarction⁹. As occurrence of RV

infarction along with inferior wall infarction is associated with worse outcome including significant hypotension, Brady arrhythmias requiring pacing and increased in hospital mortality. Therefore the rationale was to evaluate the frequency of RV infarction in patients with inferior wall MI. The results would also add up the data in existing literature and also provide the local stats of the problem. Moreover, it would also help the physicians to improve the diagnostic and treatment strategies which may lead to better prognosis with reduction in morbidity and mortality in our population.

MATERIALS AND METHODS

The study comprises of 87 patients and was conducted at Department of Cardiology, Bahawalpur Victoria Hospital, Bahawalpur; during 23rd September 2015 to 22nd March 2016. This was a descriptive cross sectional study. After taking the informed consent case s was selected using non-probability, consecutive sampling criteria. Patients presented with Inferior wall MI of less than 24 hours duration of both genders were included in the study while patient with other types of myocardial infarction, Left bundle branch block (LBBB) on ECG, cor pulmonale, suspected pulmonary embolism, and those not willing for study were excluded from study. In all patients ECG and 2D echocardiography was done and his/her ECG was evaluated by a senior Cardiac physician for presence or absence of RV infarction. Collected data was analyzed by using SPSS version 20. Quantitative variables like age, height, weight, BMI and duration of disease were used to calculate Mean and standard deviation. Qualitative variables like gender, smoker, hypertension, diabetes mellitus, and dyslipidemia and right ventricular infarction were used to calculate Frequency and percentage. Effect modifiers like age, gender, duration of disease, BMI, smoker, hypertension, dyslipidemia and diabetes mellitus were controlled through stratifications. Post-stratification Chi square was applied to see their effects on the outcome and p value ≤ 0.05 was considered as significant.

RESULTS

Mean age of study population was 52.55 ± 9.27 years with age ranges between 30 to 60 years. Most of the patients 43 (49.43%) were between 51 to 60 years of age as shown in Table I

Table No.1: Distribution of patients according to age (n=87)

Age (years)	Total	
	No. of patients	%age
31-40	09	10.34
41-50	35	40.23
51-60	43	49.43
Total	87	100.0

Mean $\pm$ SD= 52.55 ± 9.27 years

Table No.2: Distribution of patients with status of other confounding variables

Confounding variables		Frequency	%age
Diabetes Mellitus	Yes	29	33.33
	No	58	66.67
Hypertension	Yes	35	40.23
	No	52	59.77
Smoking	Yes	39	44.83
	No	48	55.17
Dyslipidemia	Yes	19	21.84
	No	68	78.16

Similarly 68 (78.16%) were male and 19 (21.84%) were females with ratio of 3.6:1. Mean duration of symptoms was 5.52 ± 3.83 hours. Frequency of patients with status of diabetes mellitus, hypertension, smoking and dyslipidemia has shown in Table II. Mean height was 165.33 ± 12.56 cm. Mean weight was 82.78 ± 9.69 kg. Mean duration of symptoms was 27.48 ± 5.64 kg/m². Right ventricular infarction was found in 35 (40.23%) patients, whereas there was no right ventricular infarction in 52 (59.77%) patients. When Stratification was done on age groups and gender, it was found that there was no statistically significant difference of right ventricular

Table No.3: Stratification of right ventricular infarction with respect to age groups

Age (years)	Right ventricular infarction		p-value
	Yes	No	
31-40	03 (33.33%)	06 (66.67%)	0.893
41-50	14 (40.0%)	21 (60.0%)	
51-60	18 (41.86%)	25 (58.14%)	

Table No.4: Stratification of right ventricular infarction with respect to gender

Gender	Right ventricular infarction		p-value
	Yes	No	
Male	28 (41.18%)	40 (58.82%)	0.733
Female	07 (36.84%)	12 (63.16%)	

Table No.5: Stratification of right ventricular infarction with respect to duration of symptoms

Duration of symptoms	Right ventricular infarction		p-value
	Yes	No	
1-6 hours	29 (44.62%)	36 (55.38%)	0.152
7-23 hours	06 (27.27%)	16 (72.73%)	

Infarction between different age groups and genders as shown in Table III & IV respectively while the stratification of duration of symptoms has shown in Table V which also showed no significant difference.

Stratification of right ventricular infarction with respect to confounding variables i.e. diabetes mellitus, hypertension, smoking, dyslipidemia and BMI was shown in Table VI. Respectively and p-value was found >0.05 which is statistically insignificant.

Table No.6: Stratification of right ventricular infarction with respect to Diabetes Mellitus

Diabetes Mellitus	Right ventricular infarction		p-value
	Yes	No	
Yes	15 (51.72%)	14 (48.28%)	0.122
No	20 (34.48%)	38 (65.72%)	

DISCUSSION

Isolated inferior myocardial infarction causes less myocardial damage and dysfunction and usually considered to have good prognosis. Its incidence is about 40-50 % of all myocardial infarctions with mortality only 2-9%. However associated conditions/complications may worsen the favorable outcome leading to worse prognosis^{10,11}. Brady arrhythmias, hypotension mitral regurgitations from papillary muscle dysfunction of mitral valve, apical ventricular septal rupture, right ventricular infarction and hypotension are well described complication of inferior myocardial infarction. Previously right ventricular infarction was considered as clinically unimportant association, however now it's well recognized event effecting the morbidity and mortality. Right ventricular infarction is seen in 25-52% of patients with inferior wall MI. Rarely RV infarction is also seen (13%) in patients with anterior wall MI. Moreover isolated right ventricular infarction is found only in less than 3% of cases. Because of thin RV myocardial wall it bears ischemic conditions better than LV and hence less incidence of RV infarction as compared to LV infarction^{12,13}. May studies suggest that early recognition and proper management strategies may significantly improve the prognosis¹⁴. However low threshold for RVI is needed while considering the presentation and clinical characteristic patients for early detection and management of the Condition¹⁵.

Mean age of study population was 52.55 ± 9.27 years with age range between 30 to 60 years. Most of the patients 43 (49.43%) were between 51 to 60 years of age. Similarly 68 (78.16%) were male and 19 (21.84%) were females with ratio of 3.6:1. RV infarction was found in 35 (40.23%) patients, whereas there was no RV infarction in 52 (59.77%) patients.

In a similar local study Khan et al⁹ showed 34% occurrence of RVI in patients presenting with IWMI. Patients in RVMI group have more smoking and diabetes as compared to isolated IWMI having more hypertension and family history as risk factors. RVMI group showed poor prognosis with higher in hospital mortality (23.5%) as compared to isolated IWMI group

(18.1%). RV infarction was found in approximately one-third of IWMI. Their study results clearly demonstrated that presence of right ventricular infarction leads to significantly increased morbidity and mortality, suggesting high risk group of patients demanding special management and care.

Different ways of diagnosing RV infarction discussed in literature includes right sided ECG, coronary angiography, technetium 99m, hemodynamic measurements and autopsy¹⁶. Right sided ECG is the easiest way of diagnosing RVI with high sensitivity and specificity¹⁷. In a study¹⁹ using right sided leads incidence rate of 54% was reported based on elevated ST-segments in lead V4R. Its sensitivity was shown to be 88%, specificity 78% and diagnostic accuracy 87%. Similarly in a study of 198 patients²⁰, the frequency of RVI on the basis of elevated ST Segments in right precordial leads i.e. V4R was 48.5% and in leads V3R to V6R, it was 40.5%.

Another study comprising of 50 patients showed results and findings similar to our study. In this study 30 had isolated inferior wall infarction and 20 patients had associated RV infarction (40%). Minimum age of the patient was 32 years and the maximum age was 78%. Maximum number of patients was in 51-70 years age group. The mean age was 55.66 ± 33 years. Male patients were 40 and females were 10. 70% were smokers 20 patients had hypertension and 11 patients had dyslipidaemia, 12 had diabetes mellitus and 5 had family history of ischemic heart disease²⁰. Therefore on the whole, it is concluded that the frequency of RV in patients with inferior wall MI is high. It is also evident that association of RV infarction with inferior wall MI makes the patients high risk to have a worse prognosis than those who do not have right ventricular involvement, therefore its early detection with prompt and specific management is vital in reducing the mortality.

CONCLUSION

The results of this study suggest that there is a high frequency of RV infarction in patients with inferior wall MI in our population. As these patients have worse prognosis owing to hypotension, Brady arrhythmias and poor response to inotropic medicines and assist devices with increased in-hospital mortality than isolated inferior infarctions, we recommend that timely detection and treatment of RV infarction should be done in inferior wall MI patients in order to improve the prognosis in our patients.

Author's Contribution:

Concept & Design of Study: Muhammad Sarwar Khalid

Drafting: Usama Munir, Sana Naz
Data Analysis: Alina Saqib, Jawed Iqbal, Mazhar Ul Haq

Revisiting Critically: Muhammad Sarwar
Khalid, Usama Munir
Final Approval of version: Muhammad Sarwar

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Factors Leading to Perineal Tear During Vaginal Delivery

Perineal Tear
During Vaginal
Delivery

Zubia Bugti, Naila Ahsan, Rohana Salam, Sakina Naeem and Marium Shoaib

ABSTRACT

Objective: To determine factors leading to perineal during vaginal delivery presenting sandeman provincial Quetta

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynecology Sandeman Provincial Hospital/BMC, Quetta for six months. 10th January 2019 to 10th June 2019.

Materials and Methods: A Total number 95 patients were selected for study. All participants were given information about and an informed consent was taken from the participants. On arrival of the patient in the labour room, a detailed history menstrual periods, co-morbid like Diabetes Mellitus, hypertension was taken. Labour was managed according to standard protocol. Instrumental delivery and episiotomies were performed where needed. Once the third stage of labour was over, vulva, vagina and cervix were examined for any tears and managed accordingly. Presence of perineal tear was noted. Patients were managed conservatively or surgically.

Results: Ninety five patients fulfilling the inclusion criteria were included in this study. The mean $\pm$ standard deviation age of study population was 23.56 ± 6.62 years. Mean gestational age was 36.67 ± 2.27 weeks. On analysis of demographics data, it was observed 57 (60%) were below 30 years of age & 38 (40%) were age 30 years and above. 86 (71.58%) were nulliparous and 27 (28.42%) were multiparous. 45 (47.37%) patients were of gestational age less than 36 weeks. 56 (58.95%) had degree of tear less than 3.56 (58.9%) were managed conservatively. 68 (71.6%) were primigravida. 20 (21.1%) had high birth weight baby, 30 (31.6%) spontaneous vaginal delivery, 47 (49.5%) had forceps delivery, 40 (42.1%) had increased gestational age.

Conclusion: Primigravida, Forceps delivery and increased gestational age common factors predisposing perineal tear.

Key Words: perineal tear, Forceps, Gestation Age, High birth weight.

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INTRODUCTION

Any damage to the perineum during child birth is defined as perineal injury; it occurs after episiotomy or it may happen automatically. Perineal injury is a serious complication of vaginal delivery that has a severe impact on the quality of life of healthy women¹. More than 85% of females who undergo a vaginal birth will suffer from some degree of perineal tear, with 0.6–11% of all vaginal deliveries resulting in a third-degree or fourth-degree tear³⁻⁴. Fortunately, the incidence of perineal tears decreases with subsequent births, from 90.4% in women who are nulliparous to 68.8% in women who are multiparous undergoing vaginal deliveries⁵. Since 1980, proportion of child birth episiotomy has fallen while perineal tear has risen.⁶

Department of Gyna & Obs Unit I Sandman Provincial Hospital BUMHS Quetta

Correspondence: Dr. Zubia Bugti Senior Registrar of Gyna & Obs Unit I Sandeman Provincial Hospital BUMHS Quetta.
Contact No: 0333 3073009
Email: z.asadullahbugti@gmail.com

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Occurrence of obstetric perineal tears is very common in certain areas as depicted by the high frequency of 9.8% in one study.⁷

Perineal injuries and anal sphincter ruptures are serious complications of vaginal delivery. Most common consequences of perineal injury are pain and incontinence, which affect the quality of life of healthy women. Other consequences identified are negative emotional and psychological effects on women's overall well-being. This trend towards an increasing incidence of third or fourth degree perineal tears does not necessarily indicate poor-quality care. Tearing is a complex issue which could be influenced by a range of factors including: advanced maternal age at first birth, large Maternal BMI and birth weight of the baby, instrumental delivery and better detection and reporting. However, these risk factors do not always allow the accurate prediction of severe tearing. There is therefore a need for early recognition of anal sphincter damage among clinicians as well as appropriate training in repair methods as a poor technique or poor selection of materials may cause a repair to be unsuccessful. Currently, there is a need for further research regarding the optimal mode of delivery following third-or-fourth-degree perineal tears in a subsequent pregnancy. Clear documentation, including drawings, together with providing women with a clear explanation of the possible delivery options and associated risks are

therefore extremely important⁸. Risk factors for anal sphincter rupture during delivery are described as null parity, high birth weight of the child, instrumental deliveries, episiotomy, adverse birth position, maternal age and epidural analgesia. Women who deliver in a semi-sitting position or who squat during the pushing phase are at greater risk of sustaining perineal injuries. It is further reported that prolonged labor significantly increase the risk for perineal injuries. Avoidance of episiotomy has been identified as a protective factor in a voiding perineal injuries among first-time mothers. Forceps delivery cause anal sphincter ruptures more often than vacuum extraction and spontaneous delivery⁹. Instrumental deliveries and Cesarean section has become more prevalent over the past decade, and the prevalence of anal sphincter rupture in second and third births has consequently increased. Lower frequency of perineal injuries and anal sphincter ruptures. Aasheim¹⁰ believed that perineal massage reduces 3rd and 4th degree tears rather than non-contact technique. Granmayh et al. Observed that perineum massage with Vaseline in these second stages of labor had more intact perineum, episiotomy as well as more 1st and 2nd grade tear in intervention group than control group¹¹. One study has shown that about 89.47% patients were less than 30 years of age. Among them 71.91% were primigravida. Birth weight above 3.5kg was associated with perineal tear in 28.7% patients. 19.3% patients had spontaneous vaginal delivery while 30% of patients with perineal tear had Forceps delivery. 31.6% patients of above 40 weeks' gestation developed perineal tear¹².

MATERIALS AND METHODS

This cross sectional study was conducted at Department of Obstetrics and Gynecology Sandeman provincial hospital/BMC, Quetta over duration of six months. 10th January 2019 to 10th June 2019. Non-probability consecutive sampling technique was used. As per following criteria the sample was selected with inclusion criteria, all pregnant patient undergoing labour, perineal tear as per operational definition, patient of age > 14 and < 45 years, single pregnancy; as determined by ultrasound abdomen, parity 1-2 and those consenting to participate in the study.

Antepartum hemorrhage due to placenta Previa and abruption diagnosed on U/S pelvis, women with prior perineal or pelvic surgeries as fistula repairs as per their previous record, cases with obstetrics risk factors indication C-section diagnosed clinically or on previous available record were excluded from the study.

Data was analysed using software of Statistical package of Social Sciences (SPSS version 19). Mean $\pm$ SD was calculated for continuous variable of age and gestational age. Results on categorical variables of parity, degree of tear and patient outcome variable factors of perianal (Maternal age, high birth weight of baby, spontaneous vaginal delivery, forceps delivery, increased gestational age) were expressed in frequencies and proportions. Effect modifier were

controlled through stratification of age, parity and gestational age to see effect of these on outcome variable applying chi square test taken p value ≤ 0.05 significant.

RESULTS

Ninety-five patients fulfilling the inclusion criteria were included in this study. The mean $\pm$ standard deviation age of study population was 23.56 $\pm$ 6.622 years. Mean gestational age was 36.67 $\pm$ 2.271 weeks. On analysis of demographics data, it was observed 57 (60%) were below 30 years of age & 38 (40%) were of age 30 years and above. 86 (71.58%) were primigravida and 27 (28.42%) were multiparous. 45 (47.37%) patients were of gestational age less than 36 weeks. 56 (58.95%) had degree of tear less than 3. 56 (58.9%) were managed conservatively. 68 (71.6%) were primigravida. 20 (21.1%) had high birth weight baby, 30 (31.6%) spontaneous vaginal delivery, 47 (49.5%) had forceps delivery, 40 (42.1%) had increased gestational age.

DISCUSSION

Prim parity and being of Asian ethnicity are non-modifiable risk factors associated with an increased risk of severe perineal tear. 9 Modifiable risk factors associated with an increased risk include epidural anesthesia, labour induction, labour augmentation and persistent occipitoposterior presentation (which may be altered during second stage using manual rotation).

Other potentially modifiable risk factors associated with an increased likelihood of severe perineal tears include an episiotomy and operative vaginal deliveries (both vacuum and forceps)¹³. An infant with a higher birth weight is also a risk factor but more difficult to potentially modify. Use of selective (rather than routine) episiotomy can reduce the incidence of severe perineal trauma (in women where an unassisted vaginal birth is anticipated)¹⁴.

One study investigated third and fourth degree tears in an Italian population and found moderate/severe obesity was associated with such injuries¹⁵.

Episiotomy uses at vacuum deliveries have been associated with a reduction in risk of third and fourth degree tears in observational studies¹⁶.

Intrapartum perineal massage is more likely to result in an intact perineum and reduce the incidence of third- and fourth-degree tears¹⁷.

Hands off technique during the second stage of labour may reduce the incidence of episiotomy¹⁸.

Efforts should be made to develop a national clinical care standard that addresses prevention and management of perineal tears in collaboration with women, professional colleges and organizations and health services. Information for women should be readily available to enable them to make clear decisions about clinical practices. Consumer information produced by the RCOG is one example that might be useful to adapt. Education training of midwives and doctors in perineal anatomy and classification of

perineal tears needs to occur using a nationally available, standardized package or program, preferably online. This would address correct classification and diagnosis of the perineal type ('degree') and hence guide appropriate management and care by skilled staff. Continuity of care from midwives and doctors needs to be enabled so that women feel safe and supported when undergoing repair and postpartum management after severe perineal trauma¹⁹. Perineal tear is a significant morbidity associated with child birth. These tears are associated with short term, intermediate and long term complications. These include perineal discomfort, pain and edema. Later on flatus, fecal urgency or incontinence may develop²⁰⁻²¹. The psychological aspect of such injuries and their complications cannot be ignored.

CONCLUSION

Primigravida, Forceps delivery and increased gestational age are common factors predisposing perineal tear. Forceps delivery was more common in primigravida. Primigravida had more first and second degree tears.

Author's Contribution:

Concept & Design of Study: Zubia Bugti
 Drafting: Naila Ahsan, Rohana Salam
 Data Analysis: Sakina Naeem, Marium Shoaib
 Revisiting Critically: Zubia Bugti, Naila Ahsan
 Final Approval of version: Zubia Bugti

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Effect of Diabetes Mellitus on Corneal Endothelial Cell Count

Rabia Chaudhry, Imran Ali, Naresh Kumar, Nasar Qamar Khan, Wejai Kumar and Kanwal Advani

ABSTRACT

Objective: To determine corneal endothelial cell count in type 2 diabetes mellitus patients.

Study Design: Observational study

Place and Duration of Study: This study was conducted at the Ophthalmology Department, Jinnah Postgraduate Medical Centre, and Karachi from 1st April 2018 to 30th September, 2018.

Materials and Methods: 78 patients of either gender aged between 40 to 60 years who were diagnosed type 2 diabetics and didn't have any other ocular disease were included in the study. 78 non-diabetic control subjects were also recruited. Patient demographics were documented and corneal endothelial cell count was determined using specular microscopy. Data was analyzed using SPSS version 17.

Results: 156 eyes (78 diabetics and 78 controls) were studied. Mean corneal endothelial cell count was found to be 2051 ± 19.039 cells/mm² and 2580 ± 260.3 cells/mm² in both groups respectively. No association of age and duration of diabetes with corneal endothelial cell count were found.

Conclusion: The corneal endothelial cell count in type 2 diabetics is significantly lower in comparison to healthy subjects.

Key Words: diabetes mellitus, specular microscopy, corneal endothelial cell count

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INTRODUCTION

Diabetes mellitus has become a major public health concern globally. International diabetes federation estimated the global prevalence of diabetes to be 246 million in 2007 and it is expected to reach to 380 million by 2025¹. Pakistan too houses 7 million diabetics and this is expected to rise to 14.4 million by 2040 making Pakistan the 8th highest country in terms of burden of diabetes mellitus². Diabetic changes manifest in eye in a multitude of ways including diabetic retinopathy, corneal dysfunction, cataract, glaucoma, ischemic optic neuropathy and maculopathy, among others^{3,4}. Changes in cornea that have been linked to diabetes mellitus include decreased corneal endothelial cell count and hexagonality, increased central corneal thickness, pleomorphism, polymegethism, decreased corneal sensitivity and higher corneal autofluorescence⁵. Variable results have been documented while comparing corneal endothelial cell counts of diabetics with non-diabetics.

Lee et al⁶ and several other authors^{7,8} have reported significantly lower corneal endothelial cell density in diabetics whereas Hugod et al⁹ and a few other authors^{10,11} have documented that there is no significant difference in corneal endothelial morphology in diabetics and normal subjects. An inverse relation between duration of diabetes and corneal endothelial density has been shown by Lee et al⁶ whereas Choo et al¹² have reported absence of any effect of duration of diabetes on corneal morphology. Limited local studies on this topic^{2,13}, have documented decreased endothelial cell counts in diabetics with cell density decreasing with increasing duration of diabetes. Our study aims to evaluate the effect of diabetes on corneal endothelial cell count and the correlation of same with duration of diabetes, thereby adding to the limited local literature available.

MATERIALS AND METHODS

This observational study was carried out at Department of Ophthalmology, Jinnah Postgraduate Medical Centre, and Karachi from 1st April, 2018 to 30th September, 2018 after approval from ethical review board of the hospital. Patients aged between 40 and 60 years of either gender who were diagnosed type 2 diabetic were recruited in the study through non probability consecutive sampling. A control group of non-diabetics was taken. An informed consent was taken from all participants. Patients with previous history of ocular surgery/ trauma/ laser, glaucoma, corneal disease and dry eye syndrome were excluded.

Department of ophthalmology, JMPC, Karachi

Correspondence: Dr. Rabia Chaudhry, PG Trainee JPMC Karachi.

Contact No: 0342 2689751

Email: rabiachaudry19@gmail.com

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Sample size was calculated to be 78 for each group considering mean corneal endothelial density to be 2562.1 ± 36 cells/mm², confidence level 95% and margin of error 8%. All patients were interviewed for their demographics. Complete ophthalmic examination including visual acuity, slit lamp examination and IOP measurement was done. Corneal endothelial cell count for each patient was evaluated using specular microscopy done by the same examiner between 9 and 11 am. An average of three readings taken from central cornea was taken.

The collected data was entered and analyzed in SPSS version 17. Mean and standard deviation of quantitative variables like age, duration of diabetes and corneal cell density was calculated. Frequency and percentage were calculated for qualitative variables like gender. Stratification with respect to age, gender and duration of diabetes was done. Post stratification t-test was applied. The results were considered significant at $p \leq 0.05$.

RESULTS

156 eyes (78 type 2 diabetics and 78 normal subjects) were evaluated. Demographic details of both groups are given in table 1. Mean age of diabetic group was 50.87 ± 7.74 years whereas that of control group was 52.34 ± 8.37 years. Range of age group for both groups was 40 to 60 years. 60.3% subjects were males and 39.7% females in the diabetic group whereas the corresponding values for control group were 58.9% and 41.02 %.

Table No1: Demographic profile

Parameter	Diabetic (n=78)	Control (n=78)
Age	50.87 ± 7.74	52.34 ± 8.37
Gender		
Male	47 (60.3%)	46 (58.9%)
Female	31 (39.7%)	32 (41.02%)
Duration of DM		
<10 yrs.	55 (70.5%)	-
>10 yrs.	23 (29.4%)	-

Mean corneal endothelial cell count (CCC) in diabetic group was found to be 2051.05 ± 19.039 cells/mm² while in the control group it came out to be 2580 ± 260.3 cells/mm². On analysis of association of age with corneal cell count it was observed that in patients with age of less than 50 years mean CCC was 2050.42 ± 21.622 cells/mm² while in patients with age of 50 and above mean CCC was 2051.93 ± 17.252 cells/mm² ($p = 0.735$). On analysis of association of duration of diabetes with corneal cell count it was observed that in patients with diabetes for less than 10 years mean CCC was 2049.93 ± 19.020 cells/mm² while in patients with DM ≥ 10 years mean CCC was 2053.74 ± 19.234 cells/mm².

DISCUSSION

Normal corneal endothelial structure and function is vital for maintaining corneal transparency. Corneal endothelial density has implications in several conditions including dry eye, diabetic keratopathy and glaucoma¹³. Abnormal endothelial cell density also means greater susceptibility to surgical stress and hence affects the final outcome of procedures like cataract extraction, refractive surgery and keratoplasty. Raised blood sugar level affects the cornea in 70% of diabetics through different mechanisms including excessive sorbitol accumulation in corneal endothelium and accumulation of advanced glycation end products in basement membrane or descemet membrane².

In our study, mean corneal endothelial cell count was found to be significantly lower in the diabetic group as compared to the control group (2051.05 cells/mm² versus 2580 cells/mm²; Similar results were documented previously in several studies. Qamar et al² and Batool et al¹³ studied Pakistani population and reported significantly lesser CED in diabetics in comparison to non-diabetic controls. Internationally Sudhir ET al¹⁴, Lee lawongtawun ET al¹¹ and several other studies also reported decreased CED in diabetics. In contrast to previous studies that documented decreased CED with age¹⁵⁻¹⁷, our study didn't show any such association (p -value 0.735). There is a probability that this was because the age group taken in our study was just 40 to 60 years whereas in other studies a larger range of age was studied.

Likewise in our study no association between duration of diabetes and CED was noted (p -value 0.424). Similar results were reported by Modis ET al⁸ and Ashish ET al¹⁸. On the contrary, lower CED with greater than 10 years of diabetes was reported by Qamar ET al², Lee ET al⁶, Briggs ET al¹⁹ and Gupta et al²⁰.

CONCLUSION

This study concludes that corneal endothelial density is lower in type 2 diabetics. Therefore evaluation of corneal endothelial status should be routinely carried out in diabetics in order to better manage their ocular comorbidities.

Author's Contribution:

Concept & Design of Study:	Rabia Chaudhry
Drafting:	Imran Ali, Naresh Kumar
Data Analysis:	Nasar Qamar Khan Wejai Kumar, Kanwal Advani
Revisiting Critically:	Rabia Chaudhry, Imran Ali
Final Approval of version:	Rabia Chaudhry

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The Etiology of Epiphora: Do not Forget ENT causes

Tariq Enver¹, Arif Hussain², and Nasir Mahmood³

ABSTRACT

Objective: There are many causes of epiphora, and treatment is different according to the cause. We aimed to find the etiology and the treatment modalities of affected patients but not forgetting ENT causes of epiphora.

Study Design: Prospective Study

Place and Duration of Study: This study was conducted at the Pak Red Crescent Medical and Dental College in the Departments of Eye and ENT from Jan 2019 to August 2019.

Materials and Methods: This study was done at Pak Red Crescent Medical and Dental College in the Departments of Eye and ENT from Jan 2019 to August 2019. Study included 50 patients. All patients were examined by EYE surgeon and later referred to ENT surgeon to rule out any ENT cause i.e sino nasal disease

Results: A total of 50 cases (32 men & 18 women) were included. The age range was 18 to 60. Bilateral epiphora was present in 5 patients (10%) and unilateral epiphora in 45 (90%). Lacrimal system disease was the commonest cause followed by ocular surface disease. ENT causes were the last including nasal polyps, DNS, allergic rhinitis; hypertrophic inferior turbinate's secondary to chronic rhinitis/ sinusitis and rhinitis medicamentosa. About 2% had previous treatment by ophthalmic surgeons but without any success.

Conclusion: Epiphora not only causes disturbance in the life of the patients but also puts them at risk for eye operations later on. There are several different causes of epiphora but don't forget Sino nasal causes. Treatment depends upon etiology after a thorough history, examination and investigations.

Key Words: Epiphora, Nasal, Polyps, DNS, Hypertrophic Inferior Turbinate's.

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INTRODUCTION

Epiphora is a common complaint of patients consulting eye department. It is not only uncomfortable for the patient but can also be a reason for several eye surgeries at risk.¹ Looking into the history of ophthalmology, epiphora is known from the era of Hippocrates.

The main cause of epiphora is obstruction that blocks the drainage of nasolacrimal duct system or even lack of drainage related to diseases of eyelid. Hyper secretion due to ocular surface diseases such as dry eye or combination of all these can be another cause.²

Other causes are Sino nasal diseases such as DNS, nasal polyps, allergic rhinitis, hypertrophic inferior turbinate's. Detailed examination of nose and sinuses should be done in every case of epiphora as the cause may be Sino nasal and not ophthalmic.

¹. Department of Otolaryngology / Ophthalmology²/ Radiology³, Pak Red Crescent Medical and Dental College Dina Nath.

Correspondence: Dr. Tariq Enver Associate Professor, Department of Otolaryngology, Pak Red Crescent Medical and Dental College Dina Nath.

Contact No: 0302 8431181

Email: hassanabbasenever@gmail.com

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However, it is noted that cases presenting with epiphora are not diagnosed early regarding etiology and also surgical intervention is also delayed due to many factors so that disease become chronic and lingers on.

In this study, we tried to find the etiology of epiphora and treatment options which can be given offered to the patients according to the etiology but not forgetting ENT causes because without ruling out ENT causes of epiphora result of any treatment will be a failure.

MATERIALS AND METHODS

This study included 50 patients who presented with complaint of epiphora from Jan 2019 to August 2019 in the department of EYE and later referred to ENT department of Pak Red Crescent Medical and Dental College Dina Nath to rule out any Sino nasal cause of epiphora.

All patients underwent complete EYE examination and related investigations done. Referral was also made to ENT department for examination of ENT to rule out any Sino nasal cause. In ENT history related to Sino nasal diseases did taken, examination comprise rhinoscopy and investigations comprising x-ray PNS Done in suspected cases of chronic rhinitis / sinusitis in which hypertrophic inferior turbinate's been the culprits causing nasolacrimal duct office obstruction.

RESULTS

Out of 50 patients, 32 (64 %) were males and 18(36%) were female and age range was 18 to 60.

The duration of complain was 2 months to 4 months in 48%, 3 months in 46% and above 4 months in 6% of cases

The causes of epiphora were lacrimal apparatus disease in 46%, ocular surface disease such as blepharitis and dry eye in 36%, eyelid disorder in 4%, allergy nose in 4%, DNS in 4%, nasal polyps in 2%, hypertrophic inferior turbinate's due to chronic rhino sinusitis in 2%, hypertrophic inferior turbinate's due to rhinitis medicamentosa in 2%.

It was noted that 4% of patients had epiphora because of edematous nasolacrimal duct obstruction caused by nasal allergy. ENT examination showed pale, edematous swollen inferior turbinate's almost totally blocking nasal passages. In these patients there was history of sneezing in episodes, watery nasal discharge and nasal obstruction.

In 4% of cases, there was deviated nasal septum pressing the inferior turbinate on the side of epiphora.

In another 2% of cases, nose examination showed bilateral multiple ethmoidal polyps (mucous polyps) totally obstructing the nasal passage.

In another 4% of cases, there were hypertrophic inferior turbinate's totally occluding the nasal passages. Out of these, 2% showed hypertrophic inferior turbinate's secondary to chronic rhinitis/chronic sinusitis and in another 2% of cases the hypertrophic inferior turbinate's were secondary to rhinitis medicamentosa due to misuse and abuse of nasal decongestant drops xylometazoline.

The treatment modalities which all these patients required were medical and surgical as discussed below.

Those having lacrimal apparatus disease and eye lid diseases needed surgery and those with ocular surface disease needed medicine.

Patients with allergic rhinitis needed oral antihistamines and steroid nasal spray. Those with having DNS and nasal polyps needed surgery. In hypertrophic turbinate's due to chronic rhino sinusitis treatment would be antral wash out and inferior turbinectomy. In hypertrophic turbinate's of rhinitis medicamentosa treatment would be stopping nasal decongestant drops and starting steroid nasal spray. If this is not successful then inferior turbinectomy will be needed.

DISCUSSION

Epiphora is a common complaint in Eye clinics and it is uncomfortable and causes problems in the activities of individual such as driving, reading, watching television and working on computer.³

Regarding etiology of epiphora, Mainville and Jordan found that obstruction of lacrimal passage causing to epiphora is found in 48.7% of the cases, followed by

dry eye related reflex tear secretion in 40%.⁴ Cases of epiphora due to chronic dacrocystitis result after inflammation of lacrimal system.⁸ Obstruction of nasolacrimal duct is also a common etiological factor of epiphora with a rate of 33.3%.⁵ On the other hand according to Bukhari though punctum stenosis was the primary cause (37.8%), hyper secretion was the second most frequent cause.⁶ Another study showed that lower lid malposition was the primary cause (33.3%).⁷

According to Kahokouli et al⁹, stenosis of punctum develops due to eyelid ectropion, chronic blepharitis, senility or side effects of drugs. According to Soiberman et al, 10 ectropion and old age causing tissue atrophy also causes stenosis of punctum. Another study showed that punctum stenosis to be significantly higher in women as compared to men.¹² In several studies done, it was found that the rate of punctum stenosis without taking into account the patient complain on eye diseases was 11% to 54.3%^{7,12,13}

Eye lid disorders are also responsible for epiphora and included in the list are entropion, ectropion, trichiasis / distichiasis etc which were reported by Tse et al.¹⁴

However in our study lacrimal pathology was seen in 46% of cases and ocular surface disease (dry eye/blepharitis) was seen in 36% of cases.

Epiphora is also seen in people with entropion which is eye lid disorder and the eye lashes cause corneal and conjunctiva damage there by causing epiphora¹⁵

According to Michell at al¹⁶, with increasing age rate of entropic rises in people aged fifty and above and the rate of ectropion occurrence was 3.9%.

Diseases of ocular surface such as blepharitis and dry eye may affect the corneal and conjunctiva sensory receptors and cause reflex hyper secretion of the lacrimal gland resulting in epiphora. This is in accordance with the study by Schmazaki at al.¹⁷

It is to be noted that in a recent study the majority of bacteria in chronic dacrocystitis were gram (+) which was compatible with the bacterial spectrum of end ophthalmitis, the most dangerous infection^{18,19}

The above mentioned discussion was related to lacrimal pathway diseases, ocular surface diseases and eye lid disorders.

However, there were cases in our study in which epiphora was secondary to Sino nasal pathology. There were 2 cases of nasal allergy, 2 cases of DNS and one case of nasal polyps. Also two patients (4%) had hypertrophic inferior turbinate's. One due to chronic rhino sinusitis and one resulting from misuse and abuse of xylometazoline nasal drops (rhinitis medicamentosa) These patients had received previous nasolacrimal duct surgery which failed to eliminate epiphora.

In 2 cases (4%) of allergic rhinitis, odema of nasal mucosa and swollen pale inferior turbinate's were thought to be factor in functional obstruction of nasolacrimal duct office and responsible for the epiphora.

Allergic rhinitis and allergic conjunctivitis have similar pathogenesis. Both are mediated by immunoglobulin E and classified as type one pathological reaction. Communication pathways are thought to increase the chance like hood of inflammatory reaction at both sites following allergen exposure of nasal and ocular tissues.²⁰ Steroid nasal sprays are easily used, do not cause atrophy of nasal mucosa, are not systemically absorbed to any significant amount and can be considered effective in reducing nasal and ophthalmic symptoms and signs.²¹

The other medicine required will be anti-histamines in these cases of allergic rhinitis. They are very effective in blocking H₁ receptors in nasal mucosa.

In our study, 2 cases had DNS pressing over the inferior turbinate and responsible for epiphora, in addition to nasal symptoms. These patients needed SMR operation not only for relief of nasal symptoms but also for relief of epiphora. Naso lacrimal duct obstruction with ipsilateral nasal septal deviation resulting in epiphora is in accord with the study by Taban et al and Lee et al.^{22,23}

In a study by Yazici et al,²⁴ DNS toward the side of nasolacrimal duct obstruction was responsible for epiphora and in our study we found the same.

In our study, one case was of nasal polyps with nasal symptoms and later developed epiphora. This case needed polypectomy and post-operative antihistamines (long term) to avoid recurrence. Those with hypertrophic turbinate's secondary to chronic rhinitis / sinusitis and rhinitis medicamentosa required antral wash out and trimming of turbinate's, while in rhinitis medicamentosa required stoppage of nasal decongestants and giving steroid nasal spray to reduce bulky turbinate's.

CONCLUSION

It should be noted that a complaint of epiphora is not only uncomfortable for the patient but can also generate situations that may result in loss of eye sight. Epiphora has different causes and one should not forget ENT causes and patients who consult about these complaints, their causes should be found and treated accordingly. However, while finding the etiology doesn't forget ENT causes of epiphora and give necessary treatment medical or surgical in these ENT cases, otherwise trying to relieve epiphora without removing the ENT cause will be a failure.

Author's Contribution:

Concept & Design of Study:	Tariq Enver
Drafting:	Arif Hussain
Data Analysis:	Nasir Mahmood
Revisiting Critically:	Tariq Enver, Arif Hussain
Final Approval of version:	Tariq Enver

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Prosthetic Replacement VS Space Closure for Missing Maxillary Laterals: Aesthetic Perceptions of Young Orthodontic Patients

Muhammad Azeem¹, Momina Akram², Waheed ul Hamid¹, Arfan ul Haq¹, Nauman Sadiq¹ and Samina Qadar¹

ABSTRACT

Objective: To find out the opinions of young orthodontic patients regarding aesthetic outcomes of prosthetic replacement of missing maxillary lateral incisors in comparison with the orthodontic space closure.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Orthodontics department and Prosthodontics department of de 'Mont Dental College, Lahore, Pakistan, from June 2018 to June 2019.

Materials and Methods: After selection of 10 intraoral photographs (5 prosthetic replacement images, 5 orthodontic space closure images) by 4 experts (2 orthodontists and 2 prosthodontics), images were presented to 100 young orthodontic patients for judgments of aesthetic outcome. Initially patients were asked to evaluate the attractiveness of 10 randomly arranged isolated photographs. Following this, 5 prosthetic replacement images were paired with 5 orthodontic space closure images, and patients were asked to evaluate these paired photographs by asking them to choose which of the two photographs they preferred.

Results: The proportions of answers that reported the photographs attractive or very attractive were higher for orthodontic space closure photographs. The mean scores for orthodontic space closure photographs were high and difference between the mean scores for both sets of photographs was statistically significant. On most of the occasions while evaluating paired photographs, the patients reported a preference for the orthodontic space closure photographs.

Conclusion: Orthodontic space closure was reported to be more attractive than prosthetic replacement images by young orthodontic patients and most of the patients preferred orthodontic space closure images compared with prosthetic replacement for missing maxillary lateral incisors.

Key Words: Lateral incisors; Orthodontics; Prosthodontics.

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INTRODUCTION

Agenesis of lateral incisors in the maxillary arch is a common orthodontic condition.^{1,2} Missing laterals affect smile esthetics and there are several factors that can affect dental smile aesthetics and it includes dental and facial midlines, incisal show, gingival show, buccal corridors, golden proportions, front to back progression, Size shape color of adjacent teeth, connectors and

Contact points, embrasures, black triangles and many others.^{3,4}

There are usually two management options for missing lateral incisors i.e. orthodontic space closure and prosthetic replacement.^{5,6} Several factors should be considered while selecting the best plan such as esthetics, age, gender, growth, vertical growth, facial profile, smile line, size color and shape of adjacent teeth, socio-economic status, desire of patients, and treatment time.^{7,8}

The main advantage of orthodontic space closure option is avoidance of any prosthetic teeth in the upper anterior region but main disadvantage is need of reshaping of canine to mimic the lateral incisor and reshaping of premolar to mimic the canine.⁹ On the other hand, main advantage of prosthetic replacement is short treatment duration and avoidance of fixed orthodontic appliances while main disadvantage is prosthesis associated alveolar bone loss, loss of dental papilla and gingival discoloration.¹⁰

The discussion on best treatment of choice is still continues regarding function, esthetics and long term

¹. Department of Orthodontics, De Montmorency College of Dentistry Lahore.

². Department of Prosthodontics, De Montmorency College of Dentistry Lahore.

Correspondence: Dr. Muhammad Azeem Assistant Professor Orthodontics, De Montmorency College of Dentistry Lahore.

Contact No: 03458409007

Email: dental.concepts@hotmail.com

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maintenance.¹¹⁻¹⁴ one of the main goals of orthodontic treatment is improvement of esthetics, and establishment of normal occlusion. Studies are there regarding perceptions of orthodontists or dental professional for orthodontic space closure versus prosthetic replacement.¹¹⁻¹⁴ but very few studies have been conducted so far in Pakistan, to find out the opinions of orthodontic patients regarding aesthetic results of prosthetic replacement of missing maxillary lateral incisors in comparison with orthodontic space closure. By finding these judgments and perceptions, management of orthodontic patients with missing maxillary lateral can be done with more pleasing outcomes. Following this rationale the objective of present study was to find out the opinions of young orthodontic patients regarding aesthetic results of prosthetic replacement of missing maxillary lateral incisors in comparison with the orthodontic space closure.

MATERIALS AND METHODS

After taking informed consent and ethics approval, present cross-sectional study was conducted from June 2018 to June 2019. Inclusion criteria for the selected images were intraoral photographs having missing lateral incisor in the upper arch, treated by either prosthetic replacement or by orthodontic space closure, and good quality photographs. Inclusion criteria for the selected patients who were requested to rate the images were orthodontic patients, age range 18 to 25, both the genders, and having no prior knowledge of dentistry or dental esthetics.

The 4 experts (2 orthodontists and 2 prosthodontics), were initially requested to grade 20 standardized photographs (10 prosthetic replacement images, 10 orthodontic space closure images) in order of their attractiveness, and out of them 10 intraoral photographs (5 prosthetic replacement images, 5 orthodontic space closure images) were selected and included in the present study on basis of highest attractiveness scores.¹⁵ One repeat photograph each of space closing and of prosthetic replacement was included to assess intra-examiner reliability. Later, 10 intraoral photographs (5 prosthetic replacement images, 5 orthodontic space closure images) were paired with each other to judge the preferences.¹⁵ One repeat paired photograph was again included to assess the intra-examiner reliability and reproducibility.

Total 100 young orthodontic patients were included in the present study to rate the attractiveness of selected images. Initially patients were asked to evaluate the attractiveness of 10 randomly arranged isolated photographs using a 5-point Likert scale. 5-point Likert scale consisted of rating the images from most attractive (score 5) to least attractive (score 0). Following this, patients were also asked to evaluate the

paired photographs by asking them to select which of the two photographs they preferred.

The score of patients for each of the 5 prosthetic replacement photographs were summed up and divided by 5 to get the mean score of attractiveness similarly score of patients for each of the 5 orthodontic space closure photographs were summed up and divided by 5 to get the mean score of attractiveness. The neutral responses were excluded. The data distribution was normal thus paired t test was used for comparing the difference in attractiveness score between the two sets of photographs. The descriptive statistics was used for reporting the preferences for paired images. Data analysis was done using S.P.S.S version 20.0.

RESULTS

Response rate was 100%. Total 100 patients participated in the study as per inclusion criteria. Out of 100 patients (mean age 22.0±2.45), 56 were female (mean age 22.2±2.34) and 44 were male (mean age 22.4±2.65)

Table No. 1: Attractiveness ratings (N 100)

	Orthodontic space closure (%)	Prosthetic replacement (%)
Very unattractive	2	6
Unattractive	17	25
Neither	30	21
Attractive	39	29
Very Attractive	12	9

The frequency of attractiveness answers are presented in Table I. The proportions of answers that reported the photographs attractive or very attractive were 51% for orthodontic space closure photographs and 38% for prosthetic space closure. In comparison proportions of answers that reported the photographs unattractive or very unattractive were 19% for orthodontic space closure photographs and 31% for prosthetic replacement. The mean attractiveness score for both the sets of photographs are shown in Table II. The mean scores for orthodontic space closure photographs were higher and difference between the mean scores for both sets of photographs was statistically significant. Thus photographs of orthodontic space closure were judged to be more aesthetic as compared to the photographs of prosthetic replacement for missing maxillary lateral incisors by orthodontic patients.

On 60% of occasions while accessing paired photographs, the patients reported a preference for the orthodontic space closure photographs and percentage remain same even on second assessment. Thus photographs of orthodontic space closure were preferred as compared to the photographs of prosthetic replacement for missing maxillary lateral incisors by Orthodontic patients in 5 out of 5 paired photographs. The gender differences were insignificant.

Table No.2: Mean attractiveness (N 100) (Paired-t test)

	Mean score	SD	95% CI	Difference	95% CI	P value
Orthodontic space closure	3.53	0.47	3.36-3.74	0.19	0.17-0.22	0.000
Prosthetic replacement	2.97	0.62	2.76-3.15			

DISCUSSION

The discussion on best treatment of choice for missing maxillary laterals is still continues.¹¹⁻¹⁴ the objective of the present study was to find out the opinion of young orthodontic patients regarding aesthetic results. Intraoral good quality photographs having missing lateral incisor in the upper arch treated by either prosthetic replacement or by orthodontic space closure were selected and orthodontic patients having no prior knowledge of dentistry or dental esthetics, were asked to rate them. This methodology is in agreement with the previous study by Qadri et al. where post-treatment images were rated,¹⁵ however, in the present study orthodontic patients were asked to rate the images instead of laypersons. Methodology is in contrast with the other studies where morphed photographs were used for rating the attractiveness. The use of real post-treatment images in the present study allowed better rating of attractiveness.

In the present study 4 experts (2 orthodontists and 2 prosthodontics), were requested to grade 20 standardized photographs (10 prosthetic replacement images, 10 orthodontic space closure images) in order of their attractiveness, and out of them, 10 images were selected. Initially, these 10 intraoral photographs (5 prosthetic replacement images, 5 orthodontic space closure images) were presented to the patients, one by one for rating the attractiveness using a 5-point Likert scale and later, presented in pairs, to judge the preferences. This is again in accordance with the method adopted by Qadri et al.¹⁵ However in the present study, prosthodontics were also added in expert panel while image selection and orthodontic patients were asked to rate the images instead of laypersons. The rating of photographs by orthodontic patients will allow the orthodontists and prosthodontics to select the best aesthetic option keeping in mind the preferences of orthodontic patients.

Results of the present study reported that the proportions of answers that reported the photographs attractive were higher for orthodontic space closure photographs while proportions of answers that reported the photographs unattractive were lower for the orthodontic space closure photographs. This is in accordance with the studies where orthodontic space closure option was considered to be more attractive.¹⁸⁻²⁰ However these results are in contrast with the findings of other studies where prosthetic replacement option was considered to be more attractive.²¹⁻²³ The mean

attractiveness scores for orthodontic space closure photographs were higher in the present studies as reported by orthodontic patients. The different results in the present study can be linked to the fact that orthodontic patients presents most of the time with desire of achieving results in non-prosthetic way and with higher aesthetics.

Results of the present study showed that on most of the occasions while analyzing paired photographs, the patients reported a preference for the orthodontic space closure photographs and photographs of orthodontic space closure were preferred as compared to the photographs of prosthetic replacement for missing maxillary lateral incisors by orthodontic patients. This is in accordance with the studies where orthodontic space closure option was preferred.¹⁶⁻²⁰ however these results are in contrast with the findings of other studies where prosthetic replacement option was preferred or no differences were found between the two treatment options.²¹⁻²⁴ the preference for orthodontic space closure photographs was higher in the present studies as reported by orthodontic patients. The different results in the present study can be linked to the fact that orthodontic patients comes mostly with desire of achieving higher smile aesthetics.

There are few limitations of the present study that includes lack of standardization of photographs for other variables of smile, quality of printed photographs used, and small sample size. However within these limitations, findings showed that orthodontic space closure was reported to be more attractive than prosthetic replacement images by orthodontic patients and most of them preferred orthodontic space closure images compared with prosthetic replacement of missing maxillary lateral incisors. Further large-scale studies are suggested to find out the opinions of orthodontic patients regarding aesthetic results of prosthetic replacement of missing maxillary lateral incisors in comparison with orthodontic space closure.

CONCLUSION

Orthodontic space closure was reported to be more attractive than prosthetic replacement images by young orthodontic patients and most of the patients preferred orthodontic space closure images compared with prosthetic replacement for missing maxillary lateral incisors.

Author's Contribution:

Concept & Design of Study:	Muhammad Azeem
Drafting:	Momina Akram, Waheed ul Hamid
Data Analysis:	Arfan ul Haq, Nauman Sadiq, Samina Qadar
Revisiting Critically:	Muhammad Azeem Momina Akram
Final Approval of version:	Muhammad Azeem

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Achalasia Cardiac: Examine the Complications of Heller's Myotomy with and Without Anti-Reflux Procedure

Mohammad Dawood Khan¹, Mohyuddin Kakar¹ and Naseebullah Zarkoon²

ABSTRACT

Objective: To examine the outcomes of Heller's Myotomy with and without anti reflux procedure.

Study Design: Interventional/Comparative study.

Place and Duration of Study: This study was conducted at the Department of Pediatric Surgery Bolan Medical College Hospital Quetta from 1st July 2017 to 30th June 2019.

Materials and Methods: Twenty seven patients of both genders presented with achalasia cardia were enrolled in this study. Patient's demographics were recorded after written consent. Patients were divided into two groups. Group A had 16 patients and received Heller's Myotomy (5 to 10cm anterior Myotomy exposing the mucosa, extending distally up to the gastro esophageal junction saving oblique muscle fibers of cardia) and Group B consist of 11 patients and received Heller's Myotomy without an anti-reflux procedure. Outcomes of both groups were examined. Follow-up was taken at 8th and 16th month post-operatively.

Results: The mean age of patients in Group A was 4.46 ± 3.28 years and in Group B it was 5.36 ± 2.49 years. In Group A 81.25% patients were male while 18.75% were females and in Group B 81.82% were male while 18.18% were females. Mostly patients were presented with multiple symptoms. There was no statistical significant difference between both groups regarding complications till postoperative 8th week ($p > 0.05$). At final follow-up, patients of Group B had less complications as compared to Group A ($p = 0.044$).

Conclusion: No significant difference in terms of postoperative complications between both groups. However, at 4th postoperative month, patients received Heller's myotomy without anti reflux procedure had less complications rate as compared to the patients with anti-reflux procedure.

Key Words: Achalasia cardia, Heller's myotomy, Outcomes.

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INTRODUCTION

Achalasia cardia is a rare esophageal disease characterized by incomplete and uncoordinated relaxation of the lower esophageal sphincter associated with a peristaltic esophagus.^{1,2} This condition causes typical symptoms of dysphagia and regurgitation, heartburn, postprandial chest pain, malnutrition and aspiration, all leading to a poor quality of life.³ It is a primary esophageal motility disorder of unclear etiology. It is uncommon, but not rare; affecting approximately 1 in 100,000 individuals per year and affects equally the male and female.⁴

Department of Pediatric Surgery / Surgery², Bolan Medical College Hospital Quetta.

Correspondence: Dr. Mohammad Dawood Khan, Assistant Professor of Pediatric Surgery, Bolan Medical College Hospital Quetta.

Contact No: 0300 3988898

Email: drdawoodkhan1@hotmail.com

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Primary achalasia is the most common subtype and is associated with loss of ganglion cells in the esophageal my enteric plexus. These important inhibitory neurons induce LES relaxation and coordinate proximal-to-distal peristaltic contraction of the esophagus.

Secondary achalasia is relatively uncommon. This condition exists when a process other than intrinsic disease of the esophageal my enteric plexus is the etiology.⁵

Primary treatment of esophageal achalasia is currently based on pneumatic dilatation or surgical myotomy.⁵ whether endoscopic or surgical treatment should be attempted first is still controversial.^{6,7} excellent results are obtained via both techniques, but a long-term result seems to be better after surgical treatment. On the other hand, previous pneumatic dilatations do not preclude successful surgery.⁷ Most authors therefore advocate surgical treatment after pneumatic dilatation failure or as first-intent treatment in patients under 30 or with high amplitude of esophageal contractions (>50 mm Hg) these patients are poor candidates for pneumatic dilatations due to higher risk of perforation and worse functional outcome.⁷⁻⁹

The approach to achalasia management has regained interest and is likely to be modified due to recent development of laparoscopic Heller myotomy.^{10,11} this

surgical procedure is thought to be associated with less postoperative pain, shorter hospital stay, and fewer complications and is now considered by some authors as the first intent treatment. However as most reports have only focused on the feasibility or short-term results; comparative studies to open surgery are still needed for further evaluation.^{11,12} When surgical cardiomyotomy is performed, there is a risk of inducing gastro-esophageal reflux disease. Due to this possible hazard, conventionally a routine anti-reflux operation is added to the surgical procedure.

The present study was conducted aimed to examine the outcomes of Heller's myotomy with and without anti-reflux procedure.

MATERIALS AND METHODS

This interventional comparative study was carried out at Department of Pediatric Surgery Bolan Medical College Hospital Quetta from 1st July 2017 to 30th June 2019 and comprised 27 patients. Patients were divided into two groups. Group A had 16 patients and received Heller's Myotomy (5 to 10cm anterior Myotomy exposing the mucosa, extending distally up to the gastro esophageal junction saving oblique muscle fibers of cardia) and Group B consist of 11 patients and received Heller's Myotomy without an anti-reflux procedure.

All consecutive patients of cardia Achalasia diagnosed on the basis of investigations and selected for surgery were included and recurrent cases were excluded. History of presenting illness (symptoms, severity, and duration) were noted. Routine investigations were performed. A complete record of the patients was maintained in the department. Each case was followed up post operatively to record the development of complications. The data was analyzed using SPSS-20.0. Chi-square test and student t' test was applied to compare the outcomes between both groups. P-value <0.05 was considered as significant.

RESULTS

The mean age of patients in Group A was 4.46 ± 3.28 years and in Group B it was 5.36 ± 2.49 years. In Group A 81.25% patients were male while 18.75% were females and in Group B 81.82% were male while 18.18% were females. According to the presenting symptoms, in Group A 5 (31.25%) patients had throwing up, 2 (12.5%) patients had dysphagia, chest pain found in 1 (6.25%), and 8 (50%) patients had multiple symptoms. In Group B 2 (18.18%), 3 (27.27%), 2 (18.18%) and 4 (36.36%) patients had throwing up, dysphagia, chest pain and multiple symptoms respectively (Table 1).

Fourteen (87.5%) and (72.7%) patients were born through normal vaginal delivery in Group A and B. 2 (12.5%) patients in Group A and 3 (27.3%) in Group B were born by cesarean section (Table 2).

Table No. 1: Baseline characteristics of all the patients

patients				
Variable	Group A (n=15)		Group B (n=10)	
	No.	%	No.	%
Age	4.46±3.28		5.36±2.49	
Gender				
Male	13	81.25	9	81.82
Female	3	18.75	2	18.18
Presenting complaints				
Throwing up	5	31.25	2	18.18
Dysphagia	2	12.5	3	27.27
Retrosternal Chest pain	1	6.25	2	18.18
Multiple	8	50.0	4	36.4

Table No 2: Birth history among study groups

Birth history	Group A (n=16)		Group B (n=11)	
	No.	%	No.	%
NVD	14	87.5	8	72.7
CS	2	12.5	3	27.3

Table No. 3: Post-operative complications among both groups

Complications	Group A	Group B	Total
Wound Infection	3 (18.75%)	2 (18.18%)	5 (18.52%)
URTI	8 (50%)	6 (54.55%)	14 (51.85%)
LRTI	5 (31.25%)	3 (27.27%)	8 (29.63%)
Total	16(100%)	10(100%)	27(100%)

P-Value >0.05

Table No. 4: At 8th week follow-up

Complications	Group A	Group B	Total
No Complications	11(68.7)	10 (90.91)	21 (77.78)
GER	3(18.75)	0 (0)	3 (11.11)
Dysphagia	2(12.5)	1(9.09)	3(11.11)
Total	16(100)	11(100)	27(100)

P-value >0.05

Table No. 5: At final follow-up

Complications	Group A	Group B	Total
No Complications	11(67.7%)	9 (81.82%)	20(74.07%)
Dysphagia	5 (31.25%)	2(18.18%)	7(24.93%)
Total	16(100%)	11(100%)	27(100%)

P-value <0.05

According to the postoperative complications, we found wound infection, upper urinary tract infection and lower respiratory tract infection in 3 (18.75%), 8 (50%) and 5 (31.25%) patients in Group A and 2 (18.18%), 6 (54.55%) and 3 (27.27%) patients in Group B respectively. There was no significant difference observed in term of postoperative complication between both groups ($p > 0.05$) (Table 3).

At 8th week, In Group A and Group B 11 (68.75%) and 10 (90.91%) patients had no complications while in Group A 3 (18.75%) had GER and 2 (12.5%) patients

had dysphagia and in Group B no patient of GER and 1 (9.09%) patient had dysphagia. There was no significant difference observed between both groups ($p \geq 0.05$) (Table 4).

At final follow-up, we found 11 (68.7%) patients in Group A had no complications and 9 (81.82%) patients in Group A had no complications. 5 (31.25%) patients in Group A and 2 (18.18%) patients in Group B found to had dysphagia. We found patients without anti-reflux procedure had less rate of complications as compared to patients who received Heller's myotomy with anti-reflux procedure at long term follow-up (Table 5).

DISCUSSION

Children with achalasia cardia, most commonly present with persistent throwing up, dysphagia, weight loss, failure to thrive, and recurrent respiratory tract infections.¹³⁻¹⁴ A study conducted by Lee et al¹⁵ reported dysphagia 79% was the most common presented symptoms in achalasia cardia patients followed by vomiting, weight loss and chest pain in 59%, 44% and 38% patients. They also reported 52% patients had multiple symptoms such as weight loss, vomiting, chest pain and dysphagia together. In their study the mean age of patients was 13 ± 6 . In our study the mean age of patients was 4.76 ± 2.99 .

Recently Heller's myotomy has also been performed laproscopically through left video assisted thoracic surgery (VATS) saving the phrenoesophageal ligament thus obviating the need of anti-reflux procedure. With a Trans abdominal Heller's myotomy, however, a hiatal hernia is theoretically created and reflux can occur. A routine anti-reflux procedure is controversial because of the concomitant a peristaltic esophagus and because the long-term outcomes may not improve with a fundoplication. A study was conducted on 42 patients in whom 9 were treated with Heller's and a "floppy" Nissan over a 40°F bougie. During the follow up it was seen that, 22% of patients complained if dysphagia to meat or bread and 30% complained of reflux.¹⁶

According to the postoperative complications, we found wound infection, upper urinary tract infection and lower respiratory tract infection in 3 (18.75%), 8 (50%) and 5 (31.25%) patients in Group A and 2 (18.18%), 6 (54.55%) and 3 (27.27%) patients in Group B respectively. There was no significant difference observed in term of postoperative complication between both groups ($p \geq 0.05$). A randomized trial included 43 patients undergoing laparoscopic myotomy for achalasia to Dor vs. no Dor. Patients underwent manometer and 24-hour pH monitoring at 3 to 5 months postoperatively. Pathologic reflux was significantly less in the Dor group (9% vs. 48% in patients without the Dor.¹⁶⁻¹⁷

At final follow-up, we found 11 (68.7%) patients in Group A had no complications and 9 (81.82%) patients in Group A had no complications. 5 (31.25%) patients

in Group A and 2 (18.18%) patients in Group B found to had dysphagia. We found patients without anti-reflux procedure had less rate of complications as compared to patients who received Heller's myotomy with anti-reflux procedure at long term follow-up. The incidence of symptoms recurrence in our patient's population was almost similar to that reported in the literature.¹⁸⁻²²

CONCLUSION

Achalasia cardia is an uncommon malignant disorder with high morbidity and mortality rate. We found no significant difference in terms of postoperative complications between both groups. However, at 4th postoperative month, patients received Heller's Myotomy without anti reflux procedure had less complications rate as compared to the patients with anti-reflux procedure. This study however is very small and more work needs to be done.

Author's Contribution:

Concept & Design of Study:	Mohammad Dawood Khan
Drafting:	Mohyuddin Kakar
Data Analysis:	Naseebullah Zarkoon
Revisiting Critically:	Mohammad Dawood Mohyuddin Kakar
Final Approval of version:	Mohammad Dawood

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Comparative Study of Three Port Versus Four Port Laparoscopic Cholecystectomy for Acute Calculus Cholecystitis

Nasir Naseem¹, Muhammad Umar², Muhammad Akram Dogar², Muhammad Aamir Kiani², Wasif Majeed Chaudhry³, and Adeel Riaz²

ABSTRACT

Objective: To compare laparoscopic cholecystectomy These 3 port versus 4Port terms of Post time taken for operation, pain score following operation, stay, and frequency of complications after surgery.

Study Design: Randomized controlled trial.

Place and Duration of Study: This study was conducted at the Department of General Surgery, Central Park Teaching Hospital, and Lahore from 1st July 2018 to 31st March 2019.

Materials and Methods: One hundred and twenty two diagnosed cases of acute calculous cholecystitis were included and divided into two equal groups of 61 patients each. Patients in group A underwent laparoscopic cholecystectomy by using 3 ports while patients in B Group underwent laparoscopic cholecystectomy by using 4 ports. Both the groups were analyzed in terms of mean operative time, postoperative pain according to visual analogue scale, mean hospital stay and frequency of post-operative complications including rate of conversion to open surgery, port site infection, injury to CBD and bile leak.

Results: The operative time was of 37.13±8.07 minutes in Group A while it was 43.87±7.16 minutes in B Group (p=0.001). The difference between both the groups in regard of mean pain score according to VAS at twelve and twenty four hours after surgery was statistically significant (p<0.05). There was no sufficiently great difference between both the groups in terms of stay in the hospital (p=0.260) and frequency of converted to open surgery (0.154), injury to bile duct (p=0.315), wound infection (p=0.559) and bile leak (p=0.433).

Conclusion: Three port laparoscopic cholecystectomy is better than the standard 04 port lap cholecystectomy in terms of less operative time and pain following surgery with a comparable safety profile.

Key Words: Acute calculous cholecystitis, four port laparoscopic cholecystectomy, Stay following surgery, Time taken for surgery, three port laparoscopic cholecystectomy.

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INTRODUCTION

Gall stone disease is one of the most common presentations to the surgery departments with a prevalence ranging from 5-20% worldwide. The disease is more prevalent in the developed countries.^{1,2}

¹. Department of Surgery, King Edward Medical University Lahore.

². Department of Surgery, Central Park Medical College Lahore.

⁵. Department of Surgery, Lahore Medical & Dental College Lahore.

Correspondence: Dr. Muhammad Akram Dogar, Associate Professor Department of General Surgery, Central Park Teaching Hospital Lahore.
Contact No: 0333 5434247
Email: makramdogar@gmail.com

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In Pakistan, the prevalence of gall stone disease is around 10.2%.³ Laparoscopic cholecystectomy is the preferred procedure in the management of symptomatic gall stone disease and acute cholecystitis.⁴ Since the start of laparoscopic cholecystectomy in 1989, quite a few variations and modifications in the surgical technique have been tried to improve patient outcomes.⁵ Laparoscopic cholecystectomy has been attempted using 1 to 4 ports by surgeons across the globe with variable results.⁶ Single port and 2 port techniques have not been able to gain approval of majority of laparoscopic surgeons due to added technical difficulty and increased frequency of associated complications. However 3 and 4 port techniques have been employed in the management of acute cholecystitis routinely. In patients presenting with acute cholecystitis, the conventional technique employing 4 ports still remains the most widely practiced technique.⁷ In the 3 port laparoscopic cholecystectomy, the additional port inserted to pull the fundus of gall

Bladder upwards and outwards in omitted. The benefit of 3 port technique are that it is associated with better cosmesis, reduced cost, decreased postoperative pain and analgesic requirements and early return to work.⁸ The reluctance of making three port technique as the gold standard in cases of acute cholecystitis is driven by the longer learning curve required, the difficulty in dissection in cases of long or thick walled gall bladder and dense adhesions with frozen Clot's triangle to name a few.⁸⁻¹⁰.

MATERIALS AND METHODS

This randomized controlled trial was conducted on a total of 122 patients diagnosed as cases of acute calculus cholecystitis from 1st July 2018 to 31st March 2019 who underwent laparoscopic cholecystectomy in the Department of Surgery, Central Park Teaching Hospital Lahore. The inclusion criteria included all patients of acute calculus cholecystitis of both genders having age between 20-60 years, BMI ranging from 21-35 Kg/m², and having ASA class from I-III. The exclusion criteria comprised of patients with choledocholithiasis, other causes of obstructive jaundice, acute pancreatitis, deranged coagulation profile, chronic liver disease, ischemic heart disease, empyema gall bladder, mucocele gall bladder, gall bladder malignancy, ASA class IV and V, chronic renal failure and patients having history of endoscopic retrograde cholangiopancreatography (ERCP) within two weeks of surgery. Lottery method was used to divide the patients into two equal groups of 61 patients each. Group A patients underwent laparoscopic cholecystectomy by using three ports. Two 10 mm ports (epigastric and umbilical) while one 5 mm port (right hypochondrial) was inserted to perform the procedure. Patients in Group B were operated by using the standard four port technique in which apart from the above mentioned ports, another port is inserted (right lumbar) to perform laparoscopic cholecystectomy. The diagnosis of acute calculus cholecystitis was confirmed by ultrasonography before including patients in the study.

Surgery was performed by a surgeon with minimum five years' experience in lap cholecystectomy. The operative time was recorded in minutes from the time of incision till the application of last skin suture. During the surgery, the number of patients in which there was injury to the bile ducts, bleeding from the liver bed, perforation of gall bladder leading to spillage of bile, and conversion of laparoscopic procedure to open surgery was documented. All patients were taught to express their post-operative pain according to the visual analogue score (VAS) on a scale of 1-10 depending upon severity. Pain was measured after 12 and 24 hours after surgery. The hospital stay was also recorded in terms of number of hours stayed in the hospital after surgery. Patients were also followed on the 7th and 14th postoperative for development of any surgical site infections. Data of all patients was entered and analyzed by using SPSS version 25. Independent sample T test was used for comparing quantitative variables while Chi square test was applied to compare

all qualitative variables taking p value of ≤ 0.05 as statistically significant.

RESULTS

The overall mean age of patients included in the study was 43.5 ± 9.88 years with a range between 23-60 years. Our study sample showed a female predominance with 95 patients (77.87%), while 27 patients (22.13%) were males. The mean overall BMI of patients included in the study was $27.99 \pm 2.93 \text{ kg/m}^2$. The distribution of patients in terms of age, gender and BMI in both groups is shown in Table 1. The difference between the two groups was statistically significant.

After anesthesia fitness, 48 patients (39.34%) were classified as ASA Class I, 64 patients (52.46%) were classified as ASA Class II and the rest 10 patients (8.2%). The distribution of patients according to ASA class between the groups (depicted in bar graph below)

Table No. 1: Patient's Demographics

Variable	Group A	Group B	P value
Gender			
Male	13(21.31%)	14(22.95%)	0.827
Female	46(75.41%)	47(77.05%)	
Age (years)	43.48 ± 10.67	43.52 ± 9.18	0.978
BMI (kg/m ²)	27.79 ± 2.84	28.19 ± 3.04	0.445

Table No. 2: Comparison of outcomes in both groups

Variable	Group A	Group B	P value
Operative time (minutes)	37.13 ± 8.07	43.87 ± 7.16	0.001
VAS at 12 hours	3.90 ± 1.01	3.28 ± 0.88	<0.001
VAS at 24 hours	1.75 ± 0.92	2.31 ± 1.01	0.003
Hospital stay (days)	1.38 ± 0.64	1.27 ± 0.35	0.260
Overall Complications	11 (18.03%)	8 (13.11%)	0.454
Conversion to Open	2 (3.28%)	-	0.154
Surgical Site Infection	1 (1.64%)	2 (3.28%)	0.559
Bile duct Injury	1 (1.64%)	-	0.315
Bile leak/ Gall bladder perforation	10 (16.39%)	7 (11.48%)	0.433

Yielded a non-significant statistical difference ($p=0.341$). The mean operative time of the study sample was 40.50 ± 7.38 minutes. Comparison of operative time between groups is given in Table 2. There is a statistically significant difference between the two bundle of patients in terms of mean operation time ($p=0.001$). Postoperatively patients were asked to express their pain according to visual analogue score at 12 and 24 hours after surgery. The overall mean VAS score at 12 hours in all the patients was 3.59 ± 0.99 while it was 2.03 ± 1.05 at 24 hours after surgery. The comparison of mean VAS between both groups is also presented in Table 2. The mean hospital stay was 1.38 ± 0.64 days in three port group versus a mean

hospital stay of 1.27 ± 0.35 days in four port bundle of patients with the difference being statistically insignificant ($p=0.454$). Large number of our patients were discharged on the day one postoperatively in both groups. As regards the complications, 11 patients (18.03%) developed complications in three port group while only 8 patients (13.11%) developed complications in four port groups respectively. The difference was statistically insignificant ($p=0.454$). Two patients (3.28%) in three port group were required to be converted to open surgery while lap cholecystectomy was accomplished in rest of the patients in four port group. Out of the 2 cases, one patient was converted to open surgery due to iatrogenic CBD injury managed by repair over a T-tube while the second patient was converted to open cholecystectomy due to difficult anatomy and dense adhesions in the Clot's triangle. Only 1 patient (1.64%) in three port group and 2 patients in (3.28%) in four port group developed superficial SSI with the difference being statistically insignificant (0.559). The port site involved in all cases was epigastric port and patients were successfully treated with oral antibiotics. During dissection, gall bladder perforation leading to bile leak was noted in 10 patients (16.39%) in three port group while 7 patients (11.48%) in four port, the difference was again statistically insignificant ($p=0.433$).

DISCUSSION

Laparoscopic cholecystectomy has brought a revolutionary change in the practice of surgery with an increase in the number of patients willing to undergo surgery nowadays.¹² Any effort aimed at improvement of the practice of laparoscopic cholecystectomy is therefore of significant importance. In this study, we found that laparoscopic cholecystectomy could be safely accomplished via the three port technique in experienced hands.

The mean age of our patients was 43.5 ± 9.88 years. A study by Kumar et al from India in 2018 reported a similar mean age of 42.6 years in patients undergoing laparoscopic cholecystectomy.¹⁰ Two studies from Pakistan by Sheikh et al¹³ and Shah et al¹⁴ reported a comparable mean age of 46 years and 44 ± 12.9 years. In our study, 77.87% patients were females. A study by Harsha et al reported that 76% patients undergoing laparoscopic cholecystectomy comprised of females.¹¹ In the studies by Kumar et al¹⁰ and Shah et al¹⁴, a higher percentage of 87.8% and 88% patients respectively were females.

In our study, we found a significant reduction in the mean operative time in the three ports group ($p=0.001$). Shah et al¹⁴ also reported a mean operative time of 43 minutes in three port group versus 51 minutes in four port groups respectively which was statistically significant ($p=0.002$). On the contrary, Sheikh et al¹³ reported a mean operative time of 46.0 ± 11.0 minutes in three port group versus 47.5 ± 16.6 minutes in four port groups respectively, the difference being statistically insignificant ($p=0.443$). Mirza et al¹⁵ also reported a mean operative time of 40.64 ± 12.29 minutes in three port group versus 39.17 ± 16.23 minutes in four port

group which was also statistically insignificant ($p=0.369$).

There was statistically significant less pain in the three port group as per the VAS at 12 and 24 hours after surgery ($p<0.05$). Kumar et al¹⁰ also reported that there was significantly less pain in patients in the three port group at 6 and 24 hours after surgery as compared to the four port group ($p=0.000$). Harsha et al¹¹ also reported comparable results with significantly less pain reported in the three port group as compared to the four port group ($p=0.008$). However, Mirza et al¹⁵ reported that there was no significant difference between the two groups in terms of postoperative pain ($p=0.323$).

No difference was observed between the two groups in terms of hospital stay that reached statistically significant level ($p=0.260$). Comparable results were reported in studies by Kumar et al¹⁰ ($p=0.820$), Mirza et al¹⁵ ($p=0.471$) and Koirala et al¹⁶ ($p=0.218$). Contrary to our findings, Sheikh et al¹³ reported that mean hospital stay was 2.6 ± 1.08 days in three port group versus 3.6 ± 1.42 days in four port group, which was statistically significant ($p=0.0001$).

Bile leak during dissection of gall bladder from liver bed due to perforation was the most common complication observed in our patients which was successfully managed by suction and irrigation. Kumar et al¹⁰ also reported that the frequency of bile leak was 29.3% in three port group versus 16.7% in four port group with the difference being statistically insignificant ($p=0.17$). Harshast al¹¹ also reported results which were comparable to our study.

No difference was observed between the two groups that reached statistically significant level in terms of SSI (0.559). Kumar et al¹⁰ ($p=0.39$) and Shah et al¹⁴ ($p=0.125$) also reported similar results. Similarly there was no difference between the two groups that reached statistically significant level in terms of CBD injury in our study ($p=0.315$). Kumar et al¹⁰ also reported that there was no significant difference amongst the two groups in terms of bile duct injury with the frequency being 2.2% in three port group versus 0% in the four port group ($p=0.694$).

Finally the conversion to open from laparoscopic procedure in our study was also not significant. Similar to our results, a study by Mayir et al¹⁷ from Turkey also reported that the frequency of conversion to open surgery was 1% in three port group while none of the patients in four port group required conversion to open surgery ($p=0.480$). Kumar et al¹⁰ reported that the conversion rate to open surgery was 2.2% in three port group versus 6.7% in four port group, however the difference was statistically insignificant ($p=0.135$).

Three port laparoscopic cholecystectomy was found to be superior to the standard four port technique in terms of decreased operative time and less postoperative pain while having a comparable safety profile. Another advantage of the three port laparoscopic technique is that it can be promptly converted to standard four port technique if need arises.^{18,19} The procedure is also cheaper and cost effective as compared to four port technique.²⁰ However the procedure requires considerable skill and expertise especially during

dissection in patients having impacted stones in the Hartmann's pouch, dense adhesions, and difficult anatomy of the Clot's triangle.^{10,19} Four port laparoscopic cholecystectomy is still the most commonly practiced technique employed by surgeons in our country. However further studies with systemic reviews and meta-analysis on the comparison of these two techniques consisting of larger samples and assessment of the cost-benefit ratio will help in validation of the better technique.

CONCLUSION

Three port laparoscopic cholecystectomy is better than the standard four port laparoscopic cholecystectomy in experienced hands. The former technique requires less operative time and is associated with significantly less postoperative pain. It has a comparable safety profile to four port laparoscopic cholecystectomy.

Author's Contribution:

Concept & Design of Study: Nasir Naseem
 Drafting: Muhammad Umar
 Muhammad Akram
 Dogar
 Data Analysis: Muhammad Aamir
 Kiani, Wasif Majeed
 Chaudhry, Adeel Riaz
 Revisiting Critically: Nasir Naseem,
 Muhammad Umar
 Final Approval of version: Nasir Naseem

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Incidence of Conversion of Laparoscopic to Open Cholecystectomy in Patients Presenting With Thick Walled Gall Bladder

Amna Shahab¹, Muhammad Akram Dogar² and Muhammad Aqil Razzaq²

ABSTRACT

Objective: To assess the incidence of conversion of laparoscopic cholecystectomy to open in patients presenting with gall bladder wall thickness more than 3mm. Also examine the per-operative complications and post-operative wound infection.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Surgery, Central Park Teaching Hospital Lahore from 1st May 2018 to 30th April 2019.

Materials and Methods: Total 132 patients of both genders with ages 20 to 60 years with gall bladder diseases having wall thickness >3mm were included. Patient's demographics including age, sex, and duration of disease and thickness of gall bladder wall were recorded after taking written consent. All the patients underwent laparoscopic cholecystectomy. Per-operative complications, conversion to open and post-operative wound infection were recorded.

Results: There were 105 (79.55%) females and 27 (20.45%) males with mean age 36.48±13.52 years. Mean duration of disease was 3.95±3.45 years. 92 (69.70%) patients had gall bladder wall thickness 3.5mm to 4.5mm, 29 (21.97%) patients had 4.6 to 5.5mm wall thickness and 11 (8.33%) had more than 5.5mm wall thickness. 45 (34.09%) patients had per-operative adhesion, perforation found in 13 (9.85%) patients and per-operative bleeding during separation was found in 50 (37.88%) patients. 17 (12.88%) patients needed conversion to open cholecystectomy. Post-operative wound infection found in 20 (15.15%) patients.

Conclusion: Thick walled gall bladder is directly associated to conversion laparoscopic to open cholecystectomy with high rate of per-operative complications and post-operative wound infection.

Key Words: Laparoscopic Cholecystectomy, Conversion to Open, Preoperative Complications, Wound Infection.

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INTRODUCTION

Since decades laparoscopic cholecystectomy is the procedure of choice for symptomatic cholelithiasis, with reduced operative time and decreased hospital stay in comparison to the open procedure.^{1,2} However there are still 3.6 to 13.9 % conversion rates in local and international studies.^{3,4} In a number of studies gall bladder wall thickness more than 3mm on ultrasound, has been shown to have a positive relation with prolonged operative time in laparoscopic cholecystectomy and an increased conversion rate to open cholecystectomy.⁵⁻⁸

Ultrasound is the modality of choice for measuring gall bladder wall thickness as it is economical, easily available and noninvasive with accuracy of 92%.⁹

Laparoscopic cholecystectomy has many advantages over open cholecystectomy in terms of minimal postoperative pain, shorter hospital stay, better cosmesis and early recovery.^{10,11} However, in 1-13% conversion to an open procedure has to be done because of multiple reasons.¹² Sherma et al¹³ in their study have noted the reasons for difficulties with more than 3mm gall bladder wall thickness. They noticed 6% had dense adhesions around gall bladder, 0.2% had unclear anatomy of CA lot's triangle even after dissection, 13.3% had bleeding from liver bed and 11.7% had perforation of gall bladder during peeling from liver bed.

MATERIALS AND METHODS

This prospective study was conducted at Department of Surgery, Central Park Teaching Hospital Lahore from 1st May 2018 to 30th April 2019. A total of 132 patients of both genders with ages 20 to 60 years presenting with cholelithiasis with gall bladder wall thickness >3mm were included. Patient's demographics including

¹. Department of Surgery, CMH Medical College, Lahore.

². Department of Surgery, CPMC, Lahore.

Correspondence: Dr. Amna Shahab, Associate Professor of General Surgery, CMH Medical College Lahore.
Contact No: 0334 9886615
Email: amna_shahab@hotmail.com

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age, sex, and duration of disease and thickness of gall bladder wall on ultrasound were recorded after taking written consent. Patients with history of previous abdominal surgery, with Para umbilical hernia, obstructive jaundice, empyema gall bladder and patients who were unwilling were excluded from this study. All the patients underwent 3 port standard laparoscopic cholecystectomy by an experienced surgeon. Per-operative complications such as local adhesion, perforation of gall bladder and bleeding during dissection were recorded. Conversion to open was noted. Post-operative wound infection was recorded. Data was analyzed by SPSS 24. P-value less than 0.05 were considered as statistically significant.

RESULTS

Table No. 1: Baseline characteristics of all the patients

Variable	No.	%
Age (years)	36.48±13.52	
Gender		
Male	105	79.55
Female	27	20.45
Disease duration (years)	3.95±3.45	
Wall thickness (mm)		
3.5 - 4.5	92	69.7
4.6 - 5.5	29	21.97
>5.5	11	8.33

Table No. 2: Frequency of per-operative complications

Peroperative complications	No.	%
Adhesion	45	34.09
Perforation	13	9.85
Bleeding during dissection	50	37.88

5.5mm wall thickness and 11 (8.33%) had more than 5.5mm wall thickness (Table 1). Forty five (34.09%) patients had per-operative adhesion, perforation occurred in 13 (9.85%) patients and per-operative bleeding during separation in 50 (37.88%) patients (Table 2). Seventeen (12.88%) patients needed conversion to open cholecystectomy due to excessive bleeding during separation of gall bladder from liver bed. Years. Mean duration of disease was 3.95±3.45 years. 3.5mm to 4.5mm, 29 (21.97%) patients had 4.6 to We found 20 (15.15%) patients had developed post-operative wound infection while 112 patients had no post-operative wound infection.

DISCUSSION

Laparoscopic cholecystectomy is no doubt the treatment of choice for gall bladder disease. Many studies have reported that laparoscopic cholecystectomy is much safer and effective treatment modality with very low rate of complication.^{14,15} The conversion rate of laparoscopic cholecystectomy to

open cholecystectomy is very low, but in different studies wall thickness of gall bladder is an important factor influencing the conversion rate and difficulty level of laparoscopic cholecystectomy.¹⁶ Present study was conducted to determine the conversion rate of laparoscopic to open cholecystectomy in patients with thick walled gall bladder. There were 105 (79.55%) female patients and 27 (20.45%) patients were males with mean age 36.48±13.52 years. Many previous studies reported female patients had high rate of gall bladder disease as compared to males and majority of patients were between 25 to 45 years of age.^{17,18}

In present study mean duration of disease was 3.95±3.45 years. 92 (69.70%) patients had gall bladder wall thickness 3.5mm to 4.5mm, 29 (21.97%) patients had 4.6 to 5.5mm wall thickness and 11 (8.33%) had more than 5.5mm wall thickness. A study conducted by Zaman et al¹⁹ reported the median duration of disease was 4.53±4.67 years and average wall thickness was 4.07±0.63mm. In our study 45 (34.09%) patients had per-operative adhesion, perforation found in 13 (9.85%) patients and per-operative bleeding during separation was found in 50 (37.88%) patients. These results showed similarity to previous studies in which patients with thick walled gall bladder disease had high rate of per-operative complication and the most common complication reported was bleeding during separation from Liver bed followed by adhesion and perforation of gall bladder.^{20,21}

In this study 17 (12.88%) patients needed conversion to open cholecystectomy due to excessive bleeding during separation of gall bladder from liver bed. 20 (15.15%) patients developed post-operative wound infection while 112 patients had no post-operative wound infection. We found that patients with wall thickness more than 4.5mm had high rate of conversion to open 58.82%. Several previous studies showed similarity to our findings in which more gall bladder thickness increases the conversion of laparoscopic to open cholecystectomy.^{22,23} Post-operative wound infection rate was high due to conversion to open. Some previous studies showed different results regarding post-operative wound infection in which wound infection rate reported was 3 to 5.5%.^{24,25}

CONCLUSION

We concluded that thick walled gall bladder increases the degree of operative difficulty and is directly associated with conversion of laparoscopic to open cholecystectomy. Preoperative assessment of gall bladder wall thickness can predict the difficulty level and the surgeon will be better prepared and can also counsel the patient for the higher risk of conversion.

Author's Contribution:

Concept & Design of Study:	Amna Shahab
Drafting:	Muhammad Akram Dogar
Data Analysis:	Muhammad Aqil Razzaq Nasreen Hamid

Revisiting Critically: Amna Shahab,
Muhammad Akram
Dogar
Final Approval of version: Amna Shahab

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To Assess the Complications in Relation to Size of Umbilical Port in Patients Undergoing Laparoscopic Cholecystectomy

Muhammad Aqil Razzaq¹, Muhammad Akram Dogar¹ and Amna Shahab²

ABSTRACT

Objective: To determine the complications of modified laparoscopic cholecystectomy and its association with umbilical port diameter.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Surgery, Central Park Teaching Hospital Lahore from 1st July 2018 to 30th June 2019.

Materials and Methods: One hundred and fifteen patients of both genders with ages 20 to 60 years were included in this study. Patient's detailed demographics were recorded after written consent. Patients with history of abdominal surgery were excluded. All the patients underwent modified laparoscopic cholecystectomy for gall bladder diseases. Post-operative pain was analyzed by VAS. Wound infection was recorded at 3rd postoperative day and compared with size of umbilical incision.

Results: There were 26 (22.61%) male patients and 89 (77.39%) patients were females. Most of the patients 45 (39.13%) were in the age group 31 to 40 years followed by 38 (33.04%) patients in the age group 41 to 50 years. 68 (59.13%) patients had umbilical port incision 5mm and 40.87% patients had 10mm. Mean pain score was 4.24 ± 2.1 and 4.58 ± 1.9 in patients with 5mm and 10mm port diameter with no significant difference. Wound infection was found in 6 (8.82%) and 5 (10.64%) in patients with 5mm and 10mm port diameter. At 12 weeks 6 (8.82%) and 15 (31.91%) patients with 5mm and 10mm port size diameter had developed port site hernia.

Conclusion: Modified laparoscopic cholecystectomy is safe and effective treatment procedure with no major complications. No significant difference observed in term of pain score and wound infection according to port size diameter.

Key Words: Complication, Size of incision, Laparoscopic cholecystectomy.

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INTRODUCTION

The standard laparoscopic cholecystectomy using 4 ports is performed as the regular treatment for symptomatic gallbladder stones nowadays. The recent evolution in cholecystectomy is the modified laparoscopic cholecystectomy using smaller umbilical port, which proves to be a minimally invasive technique for management and treatment of benign gallbladder disease by avoiding scarring as entry point is concealed in the umbilicus.¹ Patients undergoing modified laparoscopic cholecystectomy have the benefit of early

post-operative mobilization, decreased pain and early return to daily routine.^{2,3}

Modified laparoscopic cholecystectomy indications have increased substantially to include patients of old age, cirrhosis and those with absolute contraindication to open surgery.⁴ Modified laparoscopic cholecystectomy is becoming more of a standard procedure for most cases of cholecystitis and can be performed easily.^{5,6} Observation at every step along the procedure with proper application of standardized surgical and medical measures along with adequate skills must be undertaken to decrease risk of complications during the procedure.⁷ Sometimes it is difficult to visualize the Calot's triangle because of inflammation and adhesions, thus it is difficult to establish the "critical view of safety" (CVS) and the risk of complications increases.⁸

Risks of performing laparoscopic cholecystectomy must be evaluated against any possible benefits on a subjective basis although there is still chances of bleeding and bile leakage.⁹ In addition the patient may develop continuous biliary drainage necessitating ERCP with stenting.¹⁰ According to Tamura et al, modified laparoscopic cholecystectomy has decreased

¹. Department of Surgery, CPMC, Lahore.

². Department of Surgery, CMH Medical College, Lahore.

Correspondence: Dr. Muhammad Aqil Razzaq, Associate Professor of General Surgery, Central Park Medical College, Lahore.

Contact No: 0331 4102910

Email: dr_aqilrazzaq@hotmail.com

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operating time, while post-operatively least complications have been reported.¹¹

MATERIALS AND METHODS

This study was conducted at Department of Surgery, Central Park Teaching Hospital Lahore from 1st July 2018 to 30th June 2019. A total of 115 patients of both genders with ages 20 to 60 years were included in this study. Patients detailed demographics including age and sex were recorded after written consent. Patients with history of major abdominal surgery, patients with jaundice, patients with acute cholecystitis, patients needing conversion to open and those with no written consent were excluded. All patients underwent modified laparoscopic cholecystectomy for gall bladder diseases. Post-operative pain was analyzed by visual analogue scale (VAS). Wound infection was recorded at 3rd postoperative day and compared with size of umbilical incision. Final follow-up was taken at post-operative 12 weeks to examine the incidence of port-site hernia. Data was analyzed by SPSS 24. Chi-square test was applied to compare the complications with p-value set at <0.05 as statistically significant.

RESULTS

Twenty six (22.61%) were male patients and 89 (77.39%) were female patients. Fifteen (13.04%) patients were ages between 20 to 30 years, 45 (39.13%) were in the age group 31 to 40 years, 38 (33.04%) patients in the age group 41 to 50 years and 17 (14.78%) patients were ages above 50 years. Sixty eight (59.13%) patients had umbilical port incision of 5mm and 40.87% patients had 10mm (Table 1).

Table No.1: Baseline characteristics of all the patients

Variable	No.	%
Sex		
Male	26	22.61
Female	89	77.39
Age (years)		
20 – 30	15	13.04
31 – 40	45	39.13
41 – 50	38	33.04
> 50	17	14.78
Umbilical port site diameter (mm)		
5	68	59.13
10	47	40.87

Mean pain score was 4.24 ± 2.1 and 4.58 ± 1.9 in patients with 5mm and 10mm port diameter respectively with no significant difference. Wound infection was found in 6 (8.82%) and 5 (10.64%) in patients with 5mm and 10mm port diameter (Table 2). We found that 6 (8.82%) and 15 (31.91%) patients with 5mm and 10mm port size diameter had developed port site hernia at 12weeks follow-up (Table 3).

Table No.2: Pain score and wound infection according to umbilical port site diameter

Variables	5mm (n=68)	10mm (n=47)	P-value
Mean Pain score	4.24 ± 2.1	4.58 ± 1.9	>0.05
Wound infection			
Yes	6 (8.82)	5 (10.64)	>0.05
No	62 (91.18)	42 (89.36)	

Table No.3: Postoperative follow-up at 12th week

Port site hernia	5mm (n=68)	10mm (n=47)	P-value
Yes	6 (8.82%)	15 (31.91%)	0.028
No	62 (91.18)	32 (68.09%)	

DISCUSSION

Globally laparoscopic procedures are considered as a procedure of choice in patients requiring surgical treatment for gall bladder disease and many abdominal diseases.^{12,13} Modified laparoscopic cholecystectomy is reported safe and effective treatment modality for gall bladder diseases with fewer rates of complications.¹⁴ Many of studies demonstrated modified laparoscopic cholecystectomy as a procedure of choice for gall bladder diseases.¹⁵ The present study was conducted to examine the complications associated with umbilical port site diameter in patients undergoing modified laparoscopic cholecystectomy. In our study total 115 patients received modified laparoscopic cholecystectomy, in which 77.39% patients were females while 22.61% patients were males. Most of the patients 45 (39.13%) were in the age group 31 to 40 years followed by 38 (33.04%) patients in the age group 41 to 50 years. These results showed similarity to several previous studies in which female patients were high in numbers 70 to 88% as compared to males and majority of patients were in the ages between 35 to 60 years.^{16,17} In present study mean pain score was 4.24 ± 2.1 and 4.58 ± 1.9 in patients with 5mm and 10mm port diameter with no significant difference was found. Wound infection was found in 6 (8.82%) and 5 (10.64%) in patients with 5mm and 10mm port diameter. A study conducted by Usmani et al¹⁸ reported the mean pain score after modified laparoscopic cholecystectomy was 4.7 ± 2.62 . Some other studies showed similarity regarding postoperative wound infection in which wound infection rate varies 5 to 20%.^{19,20}

In this study we found significant difference in term of postoperative port site hernia between patients with 5mm port diameter and 10mm port diameter with values 8.82% and 31.91% (p value 0.028). These results showed similarity to previous studies in which patients with surgical site incision size above 5mm were on high risk in developing port site hernia.^{21,22}

CONCLUSION

Modified laparoscopic cholecystectomy is a commonly performed surgical procedure where feasible due to its effectiveness and safety. We concluded that modifying laparoscopic cholecystectomy in terms of decreasing

the umbilical port size is safe and effective with low complication rate.

Author's Contribution:

Concept & Design of Study: Muhammad Aqil Razzaq
Drafting: Muhammad Akram

Dogar
Data Analysis: Amna Shahab
Nasreen Hamid

Revisiting Critically: Muhammad Aqil Razzaq
Muhammad Akram
Dogar

Final Approval of version: Muhammad Aqil Razzaq

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Subclinical Hypothyroidism in Children on Valproic Acid Monotherapy

Fazeel Shahzad¹, Munir Akmal Lodhi¹, Zulfiqar Haider¹, Sayed Ibrar Hussain¹, Nadeem Ahmed² and Mulazim Husaain³

ABSTRACT

Objective: To determine the frequency of subclinical hypothyroidism in children on Valproic acid monotherapy.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Department of Pediatrics, Fauji Foundation Hospital, Rawalpindi, for duration of twelve months from 1st Jan 2018 to 31st Dec 2018.

Materials and Methods: Male and female children of age 5 to 12 years, having Idiopathic Epilepsy (IE) and using Valproic Acid Monotherapy (VPA monotherapy) for more than one year, were included in this study. Blood samples were collected from these children and sent to hospital laboratory for thyroid function tests. Subclinical hypothyroidism (SCH) was defined as thyroid stimulating hormone (TSH) levels greater than 5U/ml but less than 10U/ml and free thyroxin (FT4) levels within normal range (5-25ng/ml). The data were analyzed on SPSS 16.0 and the frequency of children having subclinical hypothyroidism was calculated.

Results: A total of 122 patients were included in the study. The mean age of the patients was 8.71±1.95 years and the mean duration of treatment with VPA monotherapy was 20.45±5.31 months. The frequency and percentage of male and female patients was 83 (68.0) and 39 (32.0). The frequency and percentage of subclinical hypothyroidism in the study group was found to be 20 (16.4).

Conclusion: The frequency of subclinical hypothyroidism is substantial in children using Valproic acid monotherapy for more than one year.

Key Words: Subclinical Hypothyroidism (SCH), Valproic Acid(VPA) Therapy, Thyroid Stimulating Hormone (TSH)

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INTRODUCTION

Many of the commonly used antiepileptic drugs have been found to cause subclinical hypothyroidism (SCH)¹. Valproic acid (VPA) is an antiepileptic agent commonly used as monotherapy in the treatment of idiopathic epilepsy and has been found to be related to SCH^{1, 2}. The incidence of SCH in patients using VPA monotherapy for a period longer than twelve months varies from 16.7 % to 28 % in different studies¹⁻³. There is research based evidence that a longer duration of monotherapy with VPA has a higher prevalence of SCH^{4, 6}.

¹. Department of Pediatrics, Fauji Foundation Hospital R/pindi.

¹. Department of Pediatrics, Fauji Foundation Hospital Kalar kahar.

². Department of Pediatrics, PIMS Islamabad

Correspondence: Dr. Fazeel Shahzad, Medical officer, Department of Pediatrics, Foundation University Medical College Islamabad & Fauji Foundation Hospital Rawalpindi.
Contact No: 0333 5826945
Email: Fazeel.shahzad86@gmail.com

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The progression of SCH to clinically overt hypothyroidism has also been documented in the international research¹³.

It has been recommended that the patients using VPA should be regularly monitored for thyroid function^{5,6}. SCH is defined as normal free thyroxin (FT4) levels in the range 5-25ng/ml along with thyroid stimulating hormone (TSH) levels greater than 5U/ml but less than 10U/ml⁽¹⁾.

SCH is generally a self-limiting disorder of thyroid function and does not need treatment. The data in pediatric population is limited and conflicting leading to a difference in treatment approach among different authorities⁴. Normally in children replacement therapy with thyroxin is recommended when the TSH concentration is more than 10 mIU/L but in children with SCH on VPA therapy, an individualized therapy is required. Treatment with thyroxin can be initiated along regular monitoring of the thyroid function⁷.

We carried out a study to determine the frequency of subclinical hypothyroidism in children on VPA monotherapy, presenting in outpatient department of our hospital.

MATERIALS AND METHODS

This study was carried out in the Department of Pediatrics, Fauji Foundation Hospital, Rawalpindi, for

duration of twelve months from 1st Jan 2018 to 31st Dec 2018.

Sample Size: Sample size of 105 is calculated by using WHO software based on confidence interval 95%, margin of error 6% and prevalence of Childhood Ischemic Stroke 11%.

Sampling Technique: Blood samples were collected in paed's OPD using consecutive non- probability sampling technique. The samples were sent to the hospital laboratory for thyroid function studies.

Inclusion Criteria: Children of both sexes of age 5 to 12 years, having idiopathic epilepsy and stable on VPA monotherapy for more than 12 months were included in this study.

Exclusion Criteria: Patients with poor compliance, known cases of hypothyroidism and family history of hypothyroidism or endocrine disease were excluded from the study. The results were recorded individual for every patient.

Data Collection Procedure: After taking approval from hospital ethical committee. Informed written consent for the collection of data and its use in research publication was taken from the parents of the patients. The confidentiality of the patient data was ensured.

Children of both sexes of age 5 to 12 years, having idiopathic epilepsy and stable on VPA monotherapy for more than 12 months were included in this study. Blood samples were collected in paed's OPD using consecutive non- probability sampling technique. The samples were sent to the hospital laboratory for thyroid function studies. Patients with poor compliance, known cases of hypothyroidism and family history of hypothyroidism or endocrine disease were excluded from the study. The results were recorded individual for every patient.

Data Analysis: The data was analyzed on SPSS version 16.0. Descriptive statistics were used to measure qualitative and quantitative data. Qualitative data like gender and subclinical hypothyroidism were measured by percentages and frequencies and quantitative data like age, duration of therapy, and thyroid function test was measured as mean $\pm$ standard deviation (SD) if the data were normally distributed, by median and range otherwise. A chi-square test was used for categorical data. Effective modifiers like age, gender and duration of VPA therapy was controlled by stratification. Post stratification Chi square test was applied and p value of less than or equal to 0.05 was considered as significant.

RESULTS

A total of 122 patients were included in the study according to the inclusion criteria. The frequency and percentage of male and female patients was 83 (68.0) and 39 (32.0) respectively. Descriptive statistics of age (years), duration of therapy with VPA and thyroid function tests were calculated in terms of mean and standard deviation. The mean age was 8.71 ± 1.95 years with range from 05 to 12 years, as shown in Table I.

The mean duration of treatment with VPA was 20.45 ± 5.31 months (Table 2) and mean levels of TSH and T4 were 2.77 ± 1.31 and 15.64 ± 3.44 respectively, as shown in Table 3. The frequency and percentage of children on VPA monotherapy and having subclinical hypothyroidism were calculated and found to be 20 (16.4) as shown in Table 4.

Table No. 1: Descriptive statistics of Age (years) of patients

	n	Minimum	Maximum	Mean	Std. Deviation
Age (years)	122	5	12	8.71	1.95

Table No. 2: Descriptive statistics of Duration of Therapy with VPA months

	n	Minimum	Maximum	Mean	Std. Deviation
Duration of Therapy (months)	122	12	33.00	20.45	5.31

Table No. 3: Descriptive statistics of Thyroid Function Test (TFT)

	n	Minimum	Maximum	Mean	Std. Deviation
TSH (u/ml)	122	0.90	5.40	2.77	1.31
T4 (ng/ml)	122	9.00	22.00	15.64	3.44

Table No. 4: Distribution of Subclinical Hypothyroidism

	Frequency	Percentage
Yes	20	16.4
No	102	83.6
Total	122	100.0

Table No. 5: Effect modifier Gender stratification with Subclinical Hypothyroidism

			Subclinical Hypothyroidism		P-value
			Yes	No	
Gender	male		12	71	0.400
			60.0%	69.6%	
	female		08	31	
			40.0%	30.4%	
Total			20	120	
			100.0%	100.0%	

Effect modifier like gender stratification was compared with subclinical hypothyroidism in children on VPA monotherapy. There were 12 (60.0) male children vs. 08 (40.08) females, who had subclinical Hypothyroidism. Chi-square test was applied and p-value 0.400 was found and taken as insignificant

(Table 5). When age stratification was compared in these children, 9 (45.0) children with SCH were 5-10 years of age and 11 (55.0) were 11-12 years of age. Chi-square test was used to compare age stratification and p-value 0.002, (Table 6)

Table No. 6: Effect modifier Age stratification with Subclinical Hypothyroidism

		Subclinical Hypothyroidism		P-value
		Prolonged	Not prolonged	
Age Group	05 - 10 years	09	80	0.002
		45.0%	78.4%	
	11 - 12 years	11	22	
		55.0%	21.6%	
Total		20	102	
		100.0%	100.0%	

DISCUSSION

Subclinical hypothyroidism (SCH) is a mild thyroid failure which is diagnosed when thyroid hormone levels are within normal reference range but thyroid-stimulating hormone (TSH) levels are mildly elevated. These patients usually do not present with clinical manifestations of hypo-thyroidism and the diagnosis is possible with thyroid function tests⁷.

The results of our study were similar to some of the international studies. The mean age (years) in our study was 8.71 ± 1.95 , whereas in a study by Kim et al³ the mean age was 9.7 ± 4.7 . The frequency and percentage of male and female patients were 34(55.7) and 27(44.2) in Kim's study and 83 (68.0) and 39 (32.0) in our study. The mean reading of TSH and T4 in our study was 2.77 ± 1.31 and 15.64 ± 3.44 respectively and in Kim's study the mean TSH value was 4.64 ± 2.81 and T4 value was 1.28 ± 0.34 . A recent study from Turkey¹ has reported 28% children with subclinical hypothyroidism after 12 months of therapy with VPA whereas in our study, there were 16.4% of patients with subclinical hypothyroidism in children on VPA therapy for more than one year. Over period of time SCH can progress to clinically overt state^{7, 13}. The clinical implications of SCH besides progression to overt hypothyroidism¹³ include psychiatric and cognitive dysfunction¹⁴, lipid abnormalities^{12, 15}, endothelial dysfunction and insulin resistance^{16, 17}, adverse cardiac end points¹⁸⁻²⁰ and neuromuscular dysfunction²⁴.

In view of the wide range of possible complications of the hypothyroid state, it is important to define normal serum TSH levels, so that the decision of intervention with thyroxine therapy can be made. This avenue has always been open to discussion⁹. Levothyroxine therapy (LT) is generally agreed to be appropriate when the TSH level is greater than 10 mIU / L¹⁰. In the management of SCH patients with a serum TSH level less than 10mIU/L some authorities recommend routine¹¹ whereas others recommend selective use of Levothyroxine Therapy (LT)¹².

Villar HC conducted a meta-analysis of 14 randomized clinical trials enrolling a total of 350 patients and

concluded that LT for SCH does not result in improved survival or decreased cardiovascular morbidity but improves some parameters of lipid profiles and left ventricular function.¹²

Haentjens P and colleagues did an analysis of 7 cohort studies and concluded that the relative risk of all-cause mortality was increased in hypothyroidism compared with euthyroid controls, particularly in patients with co-morbid conditions²⁶. Razvi S, worked on the influence of age on the relationship between SCH and ischemic heart disease. It was a meta-analysis of 15 studies and showed an increased prevalence and incidence of cardiovascular mortality only in a relatively younger population.²²

Biondi B et al in their work on cardiovascular effects of mild hypothyroidism have shown increased left ventricular relaxation time, vascular tone at rest, and left ventricular systolic dysfunction with exercise and impaired endothelial function.²³ Some studies, like Christ-Crain M study have shown improvement of cardiac contractility and systolic time interval with LT. It has been suggested in this study that neuromuscular symptoms and dysfunction, common in patients with SCH, can be reversed by LT.²⁴

The clinical implications of SCH were beyond the scope of our study, but reconfirmation of increased frequency of subclinical hypothyroidism in children using VPA monotherapy, was important and stressed a long term monitoring of thyroid function in these patients. These children could be followed for longer periods and decisions could be taken for early intervention with LT.

CONCLUSION

The study concludes that the frequency of subclinical hypothyroidism in children on Valproic acid monotherapy for longer than twelve months is substantial. The risk of conversion to clinical hypothyroidism and associated complications is documented in international studies. Therefore long term follow up of thyroid function in epilepsy patients on Valproic acid monotherapy is needed.

Author's Contribution:

Concept & Design of Study:	Fazeel Shahzad
Drafting:	Munir Akmal Lodhi, Zulfiqar Haider
Data Analysis:	Sayed Ibrar Hussain Nadeem Ahmed Mulazim Husaain
Revisiting Critically:	Fazeel Shahzad, Munir Akmal Lodhi
Final Approval of version:	Fazeel Shahzad

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

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A Case Series Report of Unusual Presentations of Clinical Plasmodium Vivax Infection in District Bannu and Adjacent Areas

Raza Muhammad Khan and Asmatullah Khan

ABSTRACT

Objective: The objective of this study was a case series report of unusual presentations of clinical Plasmodium Vivax infection in district Bannu and adjacent areas.

Study Design: Descriptive, case series.

Place and Duration of Study: This study was conducted at the Department of Medicine, DHQ Teaching Hospital (DHDTH) Bannu, and Khyber Pakhtunkhwa. Study was carried out for a period of 12 months, from April 2016 to April 2017.

Materials and Methods: Data were collected from 100 patients, who were having clinical vivax malaria but negative thick and thin smear, presented with unusual symptoms, signs and laboratory findings, from April 2016 to April 2017.

Results: Out of 100 patients, 41 patients were males (41%) and 59 (59%) were females. All of these were having negative thick and thin smear for vivax malaria. Out of these, all 100 patients (100%) were having Headache and Splenomegaly (mild <4cm). 45 patients (45%) were having Arthralgia/ Myalgia (nonspecific, where no other obvious cause was found), 28 patients (28%) were having Lower Backache (especially in young patients aged <35yrs, who were non-obese with BMI <23 Kg/M²), 44 patients (44%) having Calf Muscle Pain, 21 patients (21%) having Fever on alternate day (repeated after 48hrs), 17 patients (17%) having Mild jaundice (Bilirubin >1.1mg/dl but <4mg/dl, while G6PD was normal), 50 patients (50%) having Pallor/Anemia (Hb<10mg/dl), 9 patients (9%) having Pain Abdomen (in school going aged <15yrs), 18 patients (18%) having Sense of bitter taste in mouth, 7 patients (7%) having no fever, 32 patients (32%) having Thrombocytopenia (platelets <150,000/microL) and 39 patients (39%) having Herpes labialis.

Conclusion: In our set up, Vivax malaria seems to be chronic and endemic, but undiagnosed on routine smear examination, and it has a diverse unusual clinical presentations. So it demands a high suspicion and vigilance on part of a physician for prompt diagnosis and early treatment, to decrease the disease burden and its complications

Key Words: Vivax Malaria, Unusual Presentations, Bannu.

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INTRODUCTION

Malaria is a potentially life-threatening disease. It is caused by infection with a protozoa plasmodium. It is transmitted by an infective female anopheles mosquito, a vector. Less common routes of plasmodium infection are through blood transfusion and maternal-fetal transmission. It predominantly occurs in tropical areas. It may present with fever and a wide range of symptoms.

Department of Medicine, DHQ Teaching Hospital Medical College Bannu.

Correspondence: Dr. Raza Muhammad Khan Assistant Professor of Medicine, DHQ Teaching Hospital /Medical College Bannu.

Contact No: 0333 9742570

Email: m_revan33@yahoo.com

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The 5 Plasmodium species known to cause Malaria in humans are: P falciparum, P vivax, P ovale, P malaria, and P knowlesi.^{1,2,3}

These Plasmodium species can usually be distinguished by morphology on a blood smear (Thin film). Among patients with malaria, 5-7% is infected with more than a single plasmodium species.² Each Plasmodium species has a specific incubation period. P falciparum infection typically develops within one month of exposure, while P vivax and P ovale may emerge weeks to months after the initial infection. Also P vivax and P ovale have a hypnozoite form, so the parasite can linger in the liver for months before emerging and inducing recurrence after the initial infection. Treating the hypnozoite form with a second agent (i.e. primaquine) is necessary to prevent relapse from this latent liver stage. When P vivax and P ovale are transmitted via blood rather than by mosquito, then no latent hypnozoite phase occurs.

Each Plasmodium species has a defined area of endemicity. Those people are at risk that are living in or traveling to areas of Central America, South America,

Hispaniola, sub-Saharan Africa, the Indian subcontinent, Southeast Asia, the Middle East, and Oceania. Individuals traveling to malarial regions must educate regarding prevention strategies and prophylactic antiprotozoal medications.

Timely identification of the infecting species is extremely important, as *P. falciparum* infection can be fatal and is often resistant to standard chloroquine treatment. *P. falciparum* and *P. vivax* are responsible for most new infections.

Individuals acquire this infection in an endemic area after a mosquito bite. They may develop immunity to malaria, but when they leave the endemic area may lose this protection. When return to an endemic area, they are at increased risk of developing severe malaria, if reinfected. Human immunodeficiency virus (HIV) and malaria co-infection is a significant problem across Asia and sub-Saharan Africa, where both diseases are relatively common. Malaria during the first trimester of pregnancy increases the risk for miscarriage⁴. The plasmodia cause lysis of infected and uninfected RBCs, suppression of hematopoiesis, and increased clearance of RBCs by the spleen, which leads to anemia as well as splenomegaly. Over time, malaria infection may also cause thrombocytopenia. Splenic rupture may be associated with *P. vivax* infection secondary to splenomegaly resulting from RBC sequestration. *P. vivax* infects only immature RBCs, leading to limited parasitemia. The sickle cell trait (hemoglobin S), thalassemia's, hemoglobin C, and glucose-6-phosphate dehydrogenase (G-6-PD) deficiency are protective against death from *P. falciparum* malaria. The sickle cell trait is more protective than the other 3. Individuals with hemoglobin E may be protected against *P. vivax* infection.⁵

Worldwide, an estimated 300-500 million cases occurring annually⁶. In 2010, there were 1691 cases, representing a 14% increase from 2009 and a 30% increase from 2008⁷. Internationally, malaria is responsible for approximately 1-3 million deaths per year, and 80-90% of the deaths each year are in rural sub-Saharan Africa⁶. Malaria is the world's fourth leading cause of death in children younger than age 5 years.

Like in other parts of the world, malaria is a leading cause of morbidity and mortality in Pakistan. It is one of the 6 priority communicable diseases posing threat to the health of millions. With one million estimated and 300,000 confirmed reported cases each year, Pakistan has been grouped with Afghanistan, Somalia, Sudan and Yemen accounting for more than 95% of the total regional malaria burden. Pakistan is among seven countries of the WHO Eastern Mediterranean Region, sharing 98% of the total regional malaria burden⁸. An estimated 98% of Pakistan population (205 million) is at varying risk, while around 60% (123 million) population at high risk for malaria. In this country,

Malaria with *Plasmodium vivax* is more common (88%), while malaria with *Plasmodium falciparum* is seen only during rainy seasons or post rain, accounting for 12% of the malaria burden⁹. According to Pakistan Annual Malaria Report 2019, during 2018, highest number of cases was reported from Sindh, 34.5% (129,085), Khyber Pakhtunkhwa, 31.0% (115,995), followed by Tribal Districts, 17.6% (65,853)¹¹. Highest numbers of the reported cases were *P. Vivax* (PV) 84.0% (314,574).

No local data is available regarding clinical vivax malaria with unusual presentations, in our setup. This is a randomized study at smaller scale which can later be applied at larger scale. Persons living in areas of malaria endemicity may develop partial immunity to infection with time and repeated exposure. This limited immunity reduces the frequency of symptomatic malaria and also reduces the severity of infection. They also have unusual presentations. Malaria is preventable and treatable. However, the lack of prevention and treatment due to poverty, terrorism, military operations, and other economic and social instabilities in these endemic areas results in a large number of undiagnosed cases. So the early diagnosis and prompt treatment of malaria is not satisfactory in Khyber Pakhtunkhwa, in our setup and adjacent FATA areas.

Keeping this in mind, the following study was designed to report the unusual presentations of clinical vivax malaria in our community.

MATERIALS AND METHODS

Descriptive, case series study, Department of Medicine, DHQ Teaching Hospital Bannu KPK, and 12 months from April 2016 to April 2017.

100 patients, all having headache and mild splenomegaly <4cm, but no obvious cause, and smear for MP was negative. Consecutive, Non-probability Sampling. All those patients complaining of Headache, having mild splenomegaly <4cm below left costal margin, with negative MP smear, of Either gender, aged above 12 and under 60 years, also having 2 or more of the following unusual presentations of Vivax Malaria: 1)-Arthralgia/ Myalgia (nonspecific, where no other obvious cause was found), 2)-Lower Backache (esp. in young patients aged <35yrs, who were non-obese with BMI <23 Kg/M²), 3)- Calf Muscle Pain, 4)-Fever on alternate day (repeated after 48hrs), 5)-Mild Jaundice (Bil >1.1mg/dl but <4mg/dl, while G6PD was normal), 6)-Pallor/Anemia (Hb<10mg/dl), 7)-Pain Abdomen (in school going aged <15yrs), 8)-Sense of bitter taste in mouth, 9)-No fever, 10)-Herpes Labialis is, 11)-Thrombocytopenia Platelets (<150,000/microL) Those patients who were not filling the inclusion criteria, have taken standard dose of antimalarial, G6PD deficient, patients terminally ill, and patients who were not willing to be included in study, and patients mentally retarded were not included because, as they were either already treated, would not benefit from future planned treatment or would give recall bias. If

included in the study, these would act as confounders to introduce bias in the study results. The study was conducted after approval from hospitals ethical and research committee/ board. All the patients who were meeting the inclusion criteria, as per operational definitions, presented to the Department of Medicine, DHQ Teaching Hospital Bannu, through emergency or OPD, were included in the study. All patients were first counseled for interview. The purpose and benefits of the study were explained to all patients, and a written informed consent was obtained from all who agreed to participate in the study. A detailed medical history was taken from all the patients, regarding duration and pattern of disease and its various unusual symptoms. Then these patients (study population) were examined for Temperature, Anemia, Jaundice, Herpes labials and splenomegaly, these patients were investigated for Hb%, platelets count, and Bilirubin level (and if $>1.1\text{mg/dl}$ then G6PD estimation) from hospital lab, and their status noted on flow sheet as data collection tool having all variables of interest.

All the patients were categorized in various groups based on cluster of unusual presentations. All the information including name, age, gender, address, disease pattern, various symptoms, signs and lab values were recorded in that pre- designed Performa. Only a complete Performa was subjected to analysis. Strict exclusion criteria were applied to control confounders and bias in the study results. Data obtained was entered

into SPSS version 23 and analyzed in descriptive statistics. Mean $\pm$ SD were calculated for numerical/ quantitative variables like age. Frequencies and percentages (%) were calculated for categorical/ qualitative variables such as gender, disease pattern and various unusual presentations. These were stratified among age and gender to see the effect modifiers. All results were presented in the form of tables, charts.

RESULTS

A total of 100 patients with clinical vivax malaria were included in the study. Out of these 100 patients, 41 patients were males (41%) and 59 (59%) were females, with M/F ratio of 1.0: 1.44.

Table No.1: Age distribution of Study population (N=100)

	Total patients (N)	Range	Min. (yrs)	Max.	Mean (years)	Std. Deviation
Age in Yrs	100	46	13	59	32.78	12.695

Table No. 2: Gender Distribution of study Population (N=100)

		Frequency	Percent
Gender	Male	41	41.0
	Female	59	59.0
	Total	100	100.0

Table No. 3 Percentages of Various Unusual Presentations of Vivax Malaria (N=100):

Sign& symptoms	Arthra Liga / Myalgia (%)	Lower Backache (%)	Calf Muscle pain (%)	Fever On Alternate Day (%)	Mild Jaundice (%)	Pallor Anemia (%)	Pain Abdoen (%)	Sense of Bitter Taste in Mouth (%)	No Fever (%)	Thrombo-cytopenia (%)	Herpes labials (%)
Yes	45	28	44	21	17	50	9	18	7	32	39
No	55	72	56	79	83	50	91	82	93	68	61
Total	100	100	100	100	100	100	100	100	100	100	100

Table No. 4: Age (in Years) and Pain Abdomen/Lower Back Ache association (n=100)

		Pain Abdomen		Lower Back Ache	
		Yes	No	Yes	No
Age (in years)	<15	9	3	3	9
	16-34	0	48	22	26
	>35	0	40	3	37
Total		9	91	28	72

Their age ranged between 13 and 59 years, and the mean age was 32.78 ± 12.695 years. All of these were having negative thick and thin smear for vivax malaria. Out of these, all 100 patients (100%) were having Headache and Splenomegaly (mild $<4\text{cm}$). 45 patients (45%) were having Arthralgia/ Myalgia (nonspecific, where no other obvious cause was found), 28 patients (28%) were having Lower Backache (especially in young patients aged $<35\text{yrs}$, who were non-obese with BMI $<23\text{ Kg/M}^2$), 44 patients (44%) having Calf Muscle Pain, 21 patients (21%) having Fever on

alternate day (repeated after 48hrs), 17 patients (17%) having Mild jaundice (Bilirubin $>1.1\text{mg/dl}$ but $<4\text{mg/dl}$, while G6PD was normal), 50 patients (50%) having Pallor/Anemia (Hb $<10\text{mg/dl}$), 9 patients (9%) having Pain Abdomen (in school going aged $<15\text{yrs}$), 18 patients (18%) having Sense of bitter taste in mouth, 7 patients (7%) having no fever, 32 patients (32%) having Thrombocytopenia (Platelets $<150,000/\text{micro L}$) and 39 patients (39%) having Herpes Labials. So all of these patients were having headache, mild splenomegaly and 2 or more of above unusual clinical presentations of vivax malaria, having negative thick and thin smear for vivax malaria, and they all responded to antimalarial drugs. (Tables 1-4).

DISCUSSION

A total of 100 patients with clinical vivax malaria were included in this study. Out of these 100 patients, 41 patients were males (41%) and 59 (59%) were females. All of these were having negative thick (quantitative) and thin (qualitative) smear for vivax malaria on routine examination. Out of these, all 100 patients (100%) were

having Headache, Splenomegaly (mild <4cm), and 2 or more of the unusual clinical presentations of vivax malaria, so they were treated as clinical vivax malaria, and they all responded to antimalarial drugs. The following unusual clinical presentations noted, were present in different percentages and overlap pattern:

1)-Arthralgia/ Myalgia (nonspecific, where no other obvious cause was found), 2)-Lower Backache (especially in young patients aged <35yrs, who were non-obese with BMI <23 Kg/M2), 3)-Calf Muscle Pain, 4)-Fever on alternate day (repeated after 48hrs), 5)-Mild Jaundice (Bil >1.1mg/dl but <4md/dl, where G6PD was normal), 6) - Pallor/Anemia (Hb<10mg/dl), 7)-Pain Abdomen (especially in school going, aged <15yrs), 8)-Sense of bitter taste in mouth, 9)-No fever, 10)-Herpes Labialis,11)-Thrombocytopenia (Platelets <150,000/microL). Their percentages are shown in table No: 3. The Pain Abdomen in 9 patients (9%), was more in school going young patients (all 9 patients), while Lower Backache in 28 patients (28%) ,was noted especially in young patients aged <35yrs, who were non-obese with BMI <23 Kg/M2 (in 25 patients out of 28). This is shown in table no: 5.

It showed that vivax malaria seems more common, chronic and endemic here, but undiagnosed on routine smear examination and having diverse unusual clinical presentations. So they are left untreated and they have chronic and vague symptoms. The possible reasons of this high prevalence in our setup are low quality smear examination in labs, partial and incomplete antimalarial doses, and low level of suspicion on part of a treating physician. All these patients were started on standard doses of antimalarial and they responded well.

This study was a preliminary randomized study in this area and on small scale which can later be applied at larger scale. It presents 100 clinical vivax malaria patients, both out patients and in-door patients, who were aged 13 and 59 years, and the mean age was 32.78±12.695 years. All of them were smear negative, but having headache and mild splenomegaly, plus 2 or more of unusual clinical presentations of vivax malaria, and all of them responded to standard dose of antimalarial. It showed that vivax malaria seems here endemic, chronic but undiagnosed, though it can be easily early diagnosed and promptly treated to decrease disease burden and prevent complications. This was because of lack of awareness/ education on part of the patients, lack of good quality smear examination in labs, partial and incomplete antimalarial doses and low level of suspicion on part of a treating physician.

CONCLUSION

This study has demonstrated that patients with clinical vivax malaria were undiagnosed on smear, but having other unusual presentations in our set up, where it seems endemic and chronic. It was because of low quality smear examination in labs, partial and incomplete antimalarial doses and low level of suspicion on part of a treating physician.

Therefore, all health care providers should counsel and educate the patients, regarding preventive measures against malaria infections, screen these patients for malaria, and if suspected to be infected with *Plasmodium vivax*, then promptly treat them with standard antimalarial with proper doses, to prevent its complications and decrease disease burden. It is essential for physicians caring these patients to be aware and alert for unusual presentations of vivax malaria for early diagnosis and prompt treatment.

Author's Contribution:

Concept & Design of Study:	Raza Muhammad Khan
Drafting:	Asmatullah Khan
Data Analysis:	Raza Muhammad Khan
Revisiting Critically:	Raza Muhammad Khan Asmatullah Khan
Final Approval of version:	Raza Muhammad Khan

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

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Need of Oxygen Administration in Post Anesthesia Care Unit (PACU) with Respect to Type of Anaesthesia and Surgery

Gul Bano Tariq¹, Umair Arshad¹, Neelam Noreen Halimi¹, Rizwan Ahmad¹, Zaid Jawaid¹ and Sher Bahadur²

ABSTRACT

Objective: To determine the frequency of patients needing oxygen administration in PACU with respect to type of anaesthesia and surgery.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Post Anesthesia Care Unit (PACU) of a public sector Tertiary Care Hospital Peshawar during July to September 2019.

Materials and Methods: Using consecutive sampling techniques, every patient on arrival at PACU was examined for need of oxygen supplementation and data were noted on structured Performa. A total of 385 sampled patients were included in the study. Data were entered and analyzed by SPSS version 20. Chi Square Test was used to compare need of oxygen with respect to gender, age, site of surgery and types of anesthesia, where p-value <0.05 was considered as significant.

Results: A total of 385 surgical patients having mean age of 37.2± 22.2 were observed for oxygen need, out of whom 159(41.3%) were male and 226(58.7%) female. the need of oxygen supplementation was observed only in 62(16.1%) out of whom male accounted for 42(10.9%). Most 28(7.3%) of patients who needed oxygen supplement were belonging to > 60 years while 22(5.7%) were from patient with age of < 5 years old (p <0.001). Similarly majority 46 (11.9%) of them had midline surgery while very few of patient who have surgeries of peripheral site neck region needed oxygen supplementation. Furthermore, 52 (13.5%) of patient who had general anaesthesia with Endotracheal tube and 2 (0.5%) who had GA with Ketamine and Dormicum required oxygen supplementation.

Conclusion: An enough amount of oxygen could be saved if oxygen administration to patients is practiced according to the need of patients observed through pulse oximetry. The common factors for hypoxemia among patients in PACU are extreme low and old age, midline surgery and GA with ETT.

Key Words: Hypoxemia, Oxygen Supplementary, Post Anaesthesia Care Unit, surgery, anaesthesia

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INTRODUCTION

Oxygen administration to post-operative patients has been in routine practice in most of the hospitals. It is considered as safe and effective method to ensure proper oxygen supplementation to postoperative patients.¹ Every patient regardless of the clinical condition and nature of operation is getting the post-operative oxygen in recovery room.

¹. Department of Anaesthesia, Khyber Teaching Hospital Peshawar.

². Department of Research, Khyber Institute of Child Health Peshawar.

Correspondence: Dr. Gul Bano Tariq, Department of Anesthesia, Khyber Teaching Hospital Peshawar.
Contact No: 0314 9093324
Email: gulbanotariq3565@gmail.com

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An irrational use of oxygen could be prevented if need for oxygen supply of a patient is evaluated.²

though hypoxia is considered to be common complication however, it is recommended that oxygen should be administered in post-operative care unit (PACU) when it is clinically indicated.³ This will lead to a rationale and cost effective use of oxygen in the hospital.⁴ There are multiple studies who have reported the irrational use of oxygen in recovery room (post anesthesia care unit). Though, the incidence of hypoxia in postoperative patients are about 12-30% in one study, however, it has been recommended that every patients needs oxygen supplementation. The need is obvious when oxygen saturation on pulse-oximeter is 92% or below.^{5, 6} Based on this recommendation 63% of patients in post anesthesia care unit do not need oxygen administration.⁴ It is recommended that each patient's oxygen saturation should be checked through pulse-oximeter⁷ at the time of admission to PACU and only those patients should be given oxygen supply who really need it.^{8, 9} The routine administration has declined after introduction of use of pulse-oximeter in such

Situation. It is also important that in some surgery oxygen supplementation is vital and needs to be given. The need of oxygen supplementation may increase or decrease over period of time in PACU. We want to conduct a study to determine the need of oxygen supplementation to patients and compare by type of surgery and mode of anesthesia.

MATERIALS AND METHODS

This was a cross sectional study conducted in Recovery Room (Post Anesthesia Care Unit) of a Public Sector Teaching Hospital during July to September 2019. Assuming Confidence interval 95%, anticipated population 0.50 and 0.05 of study power total of 385 patients undergoing to surgery during the data collection period were observed for study variables. Using consecutive sampling approach all patients undergone through different type anesthesia for surgical procedures were included in the study while patients with known comorbidities which can alter normal breath of patients and lead to low oxygen saturation were excluded. Data were collected on structured Performa after approval of proposal from Ethical Review Committee of the Teaching Hospital.

Every patient as per inclusion criteria and operational definition received at recovery room were assessed for oxygen saturation using the pulse-oximeter. The patients were assessed for the need of supplemental oxygen on the basis of their oxygen saturation on pulse oximeter. Need of oxygen supplementation were determined by cut off 92% oxygen saturation on pulse oximeter. Data were analyzed using SPSS version 20. Results were subjected for appropriate statistical analysis. For continuous data, mean and standard deviation were calculated, while categorical variables were presented in term of frequency and percentages. The variable like need of oxygen was compared in respect to age, type of anesthesia and surgery using the Chi Square Test where p-value <0.05 was considered as significant.

RESULTS

A total of 385 surgical patients with mean age of 37.2±22.2 (ranged 1 month to 88 years), out of them 159(41.3%) were male and 226(58.7%) were female. Need of oxygen supplementation on the basis of pulse oximeter reading was observed among 62 (16.1%) patients. Among total 159(41.3%) were male, out of whom 42(10.2%) needed oxygen administration while 11(30.4%) had not needed oxygen. Similarly among female only 20 (5.2%) needed oxygen supplementation which indicates that the number of male patients who required oxygen supplementation was higher as compare to female patients and the difference was statistically significant (p <0.001). The comparative analysis of Oxygen requirement with respect to age of patient indicate that there was 51(13.2%) of patients

were from age of <5 years out of whom 22(5.7%) needed oxygen supplementation.

Table No.1: Need of Oxygen supplementation with respect to gender and age

Variables	Need of Oxygen		Total	P-Value
	Yes	No		
	Freq (%)	Freq (%)		
Gender wise comparison of oxygen supplementation need				
Male	42(10.9%)	117(30.4%)	159(41.3%)	< 0.001
Female	20(5.2%)	206(53.5%)	226(58.7%)	
Need of Oxygen supplementation with respect to age				
< 5	22(5.7%)	29 (7.5%)	51 (13.2%)	< 0.001
5-17	4 (1.0%)	14 (3.6%)	18 (4.7%)	
18-20	0(0.0%)	20 (5.2%)	20 (5.2%)	
21-29	6 (1.6%)	67 (17.4%)	73 (19.0%)	
30-39	0 (0.0%)	44 (11.4%)	44 (11.4%)	
40-49	0 (0.0%)	52 (13.5%)	52 (13.5%)	
50-59	2 (0.5%)	61 (15.8%)	63 (16.4%)	
60 and above	28 (7.3%)	36(9.4%)	64(16.6%)	

Table No. 2 Need of oxygen with respect to type of anaesthesia and region of surgery

Variables	Need of Oxygen		Total	p-Value
	Yes	No		
	Freq(%)	Freq (%)		
Need of oxygen with respect to region of surgery				
Abdominal	46(11.9%)	200(51.9%)	246(63.9%)	0.07
Thoracic	8 (2.1%)	29 (7.5%)	37 (9.6%)	
Neck	0 (0.0%)	10 (2.6%)	10 (2.6%)	
Limbs	4 (1.0%)	58 (15.1%)	62 (16.1%)	
Others	4 (1.0%)	26 (6.8%)	30 (7.8%)	
Need of oxygen with respect to types of anaesthesia				
Regional Blocks	0 (0.0%)	52(13.5%)	52(13.5%)	0.002
Local	0 (0.0%)	03 (0.8%)	03 (0.8%)	
GA with ETT	52 (13.5%)	203 (52.7%)	255 (66.2%)	
GA without ETT	2 (0.5%)	33 (8.6%)	35 (9.1%)	
GA with Ketamin Dormicum	8 (2.1%)	32 (8.3%)	40 (10.4%)	

Similarly patients with age 5-17 years accounted from 18(4.7%), among them only 4(1.0%) required oxygen administration. There was 20 (5.2%) of patients belonging to age group of 18 to 20 years out of whom, non shown need for oxygen supplementation. However, among 73 (19.0%) of patients age ranged from 21 to 29 year only 6(1.6%) required oxygen. The patients with age of 30 to 39 year accounted for 44(11.4%) of total and none of them required oxygen. Similarly, the proportion of patient with age 40 to 49 years was 63 (16.4%) where only 2 (0.5%) required oxygen supplementation. Patients with age 60 and above were 64(16.6%) where 28 (7.3%) of them required oxygen administration as shown in table 1. Comparison of oxygen need with respect to region of surgery revealed that there were 246(639%) who had midline surgical

procedures, 37(9.6%) had surgery of thoracic region, 10(2.6%) had surgery of neck region. Similarly, 62 (16.1%) of patients undergone through surgery of limbs (upper and lower Limbs) while 30(7.8%) had surgery of other region. Most of 46 (11.9%) patients with surgery of abdominal region followed by 8(2.1%) of patients with surgery of thoracic region. A few 4(1.0%) patients with surgery of either upper or lower limbs required oxygen supplementation. The difference among these proportion was statistically not significant ($p=0.07$).

Comparison of oxygen need with respect to type of anaesthesia indicates that 255 (66.2%) of patient had general anaesthesia (GA) with ETT followed by 52 (13.5%) Regional Blocks, 40 (10.4%) GA with Ketamin Dormicum, 35 (9.1%) GA without ETT ((mask and Intravenous Propanol) and 03 (0.8%) had local anaesthesia respectively. Among patients with Regional Blocks and local anaesthesia none of them had required oxygen. While patients who GA with ETT, 52(13.5%) of them required oxygen supplementation. Among patients who had GA with Ketamin and Dormicum only 8(2.1%) shown oxygen requirements similarly among patients undergone through GA without ETT, only 2(0.5%) required oxygen administration. These difference were statistically significant ($P=0.002$).

DISCUSSION

The ultimate goal of post-operative care in recovery room or post-operative anaesthesia unit (PACU) is to ensure normal respiratory function of patients undergone through surgery. Therefore, mostly the administration of oxygen to the patients in PACU is practiced in most of the hospitals and is considered as safe strategies. However, question is being raised by most of the researchers, whether every patient needed oxygen. This study also aims to determine the need of oxygen supplementation among patients with respect to the anaesthesia types and region of surgery. Owing a hospital based cross sectional study a total of 385 patients regardless of surgical procedure and type's anaesthesia were observed for need of oxygen administration in PACU. The patients were divided in to two groups based on oxygen saturation measured through pulse oximeter. The patients who have oxygen saturation 92% and below were considered as having need of oxygen supplementation. A previous study indicates that 12.2% of patients in PACU had mean oxygen saturation less than 92%.¹⁰ The results of present study indicate that only 62(16.1%) patients were requiring the need of oxygen supplementation where observed using the pulse oximeter. This indicates that pulse oximetry allows a selective administration of oxygen in PACU resulting into a cost effective therapy. Such findings are reported by most of the studies.^{11 12} among those who had need of oxygen 42(10.9%) were male and 20(5.2%) were female revealed a significant

different ($p=0.002$). In previous studies the male gender was associated to higher probability of hypoxemia after surgical procedure.^{11 13}

Results of present study further indicates that oxygen requirement in PACU was common among patients with 60 years and above followed by patient with < 5 years age respectively meaning that oxygen requirement increases in either early age or late age. The findings of present study in this regard are in consistence with other literatures. It has been further reported by other studies that effect of advanced age especially after 60 years become notable for oxygen need in post-operative cases because at this age patients usually have other comorbidities like COPD and other risk factors. The situation become more notable at this age when a patient have history of smoking.^{13 14 15}

Apart from gender and age the oxygen requirement in PACU varied with respect to types of anaesthesia and region of surgery. The results reveal that out of 62(16.1%) who needed oxygen supplementation, majority 46(11.9%) were undergone through midline region surgeries (abdomen, Reproductive and Urinary system) followed by 8(2.1%) of patients with surgery of thoracic region and 4(1.0%) of patients undergone through surgery of ether upper limbs or lower limbs. This indicates that surgical site plays an important role in health care as the risk of complications especially the respiratory complications varies according to the site of surgery.¹⁶ The surgical procedures performed at midline of the body especially near to diaphragm lead to postoperative respiratory complication.^{13 14} in present study patients with surgical procedure on thoracic region also needed oxygen supplementation. These results also showed consistency with findings of other studies.¹⁷ the oxygen need also affected by diagnose nature and time duration of surgical procedure⁷ which is not compared in the present study.

Comparison of oxygen need with respect to type of anaesthesia in the present study indicates that among patients who were needing oxygen supplementation, majority of them have given general anaesthesia along with endotracheal intubation, followed by those with general anaesthesia with Ketamine Dormicum. A minor proportion of patients with other types of anaesthesia were required oxygen administration in PACU. The previous studies also reported that need of oxygen grossly vary with respect to anaesthesia technique, drug concentration, types and duration of anaesthesia.^{18 19} on other hand the status of room air in PACU also play important role.⁴

CONCLUSION

A small proportion of patients received at Post-Operative Care Unit in tertiary care hospital really needed oxygen supplementation. Among them majority of patients belonged to extreme small and old age. Regarding site of surgery, patients undergone through

midline surgery or the one who had general anaesthesia with ETT needed oxygen supplementation.

Author's Contribution:

Concept & Design of Study: Gul Bano Tariq
 Drafting: Umair Arshad, Neelam Noreen Halimi
 Data Analysis: Rizwan Ahmad, Zaid Jawaid, Sher Bahadur
 Revisiting Critically: Gul Bano Tariq, Umair Arshad
 Final Approval of version: Gul Bano Tariq

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Role of Diagnostic Laparoscopic for Conversion to Therapeutic Laparotomy in Blunt Abdominal Trauma

Syed Haider Abbas¹, Muhammad Akram Dogar², Muhammad Kareem Ullah¹, Saeed Mahmood¹, Adnan Sadiq Butt¹, and Ehtisham Ahmed Khan¹

ABSTRACT

Objective: To determine the frequency of conversion to therapeutic laparotomy after diagnostic laparoscopic in blunt abdominal trauma

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Surgery, Lahore General Hospital, Lahore from 1st January 2019 to 30th June 2019.

Materials and Methods: Ninety five patients were included. Then patients will undergo laparoscopic surgery under general anaesthesia. During laparoscopy, patients were evaluated if there was abdominal unstable wound or internal organ bleeding and cannot be managed through laparoscopy, and then conversion to therapeutic laparotomy was labelled.

Results: The mean age of patients was 36.33±13.93 years. There were 79 (83.2%) males and 16 (16.8%) females in our study. The major cause of trauma was road traffic accident (30.5%) followed by fall from height (24.2%), strike something hard (23.2%) and fight (22.1%). Eighteen (18.95%) patients needed for conversion to open laparotomy after laparoscopic procedure.

Conclusion: The frequency of need of conversion to open surgery was found to be low in our study. Now, we have got the local evidence and now we recommend the laparoscopy to be performed in all BAT cases, keeping in mind the low rate of conversion to open surgery.

Key Words: Blunt abdominal trauma, Laparoscopy, Laparotomy, Conversion

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INTRODUCTION

Blunt abdominal trauma (BAT), most commonly resulting from motor vehicle accidents and falls, is a mechanism of injury frequently encountered by both emergency physicians and trauma surgeons. Unlike penetrating abdominal injuries, unclear signs of traumatic injuries after BAT often leaves many treatment decisions to the acumen of the clinician.^{1,2} abdominal traumas is the leading causes of mortality and common presentation in an emergency setting. Mortality rate related to this trauma is enormous. So rapid diagnosis has very much importance for making appropriate therapeutic decisions, which could

reduce the incidence of trauma-related mortality rate and can save lives³. Major abdominal trauma has significant threat to the health of patient. World Health Organization has an estimation that abdominal trauma-related mortality rate is about 9% all over the world.⁴ In England and Wales, around 12,500 individuals die every year as a consequence of trauma, which makes this a leading cause of mortality in young adults as well as in children.⁵

In the last 30 years, penetrating abdominal injuries have been managed by operative exploration irrespective of the hemodynamic condition of the patient. The majority of clinicians would choose the surgical option for the management of patients with hemodynamic instability.⁶⁻⁸

MATERIALS AND METHODS

This cross sectional study was carried out at Department of Surgery, Lahore General Hospital Lahore from 1st January 2019 to 30th June 2019 and comprised 95 cases. Patients of age 16-60 years of either gender, presenting with blunt abdominal trauma were included. Patients who have diabetes mellitus, renal disease, bleeding disorders, open abdominal wound, intestinal perforation, free gas under the

¹. Department of Surgery, General Hospital Lahore.

². Department of Surgery, Central Park Medical College Lahore.

Correspondence: Dr. Syed Haider Abbas. Registrar
Department of Surgery, Lahore General Hospital Lahore.
Contact No: 0333 3625052
Email: sshhah2000@yahoo.com

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diaphragm, penetrating abdominal wounds, non-traumatic abdominal emergencies and iatrogenic injuries were excluded. Patients were undergone laparoscopic surgery under general anesthesia. All surgeries were done by a consultant surgeon with assistance of researcher. Initially, all patients were resuscitated with intravenous fluids, analgesics, intravenous antibiotics and blood transfusion, if required. During laparoscopy, patients were evaluated if there was abdominal unstable wound or internal organ bleeding and cannot be managed through laparoscopy and then conversion to therapeutic laparotomy was labeled. Data was analyzed by using SPSS-21.

RESULTS

The mean age of patients was 36.33 ± 13.93 years. There were 79 (83.2%) males and 16 (16.8%) females in our study. There were 41 (43.2%) patients who had ASA I before undergoing laparoscopy while 54 (56.8%) had ASA III. The major cause of trauma was road traffic accident (30.5%) followed by fall from height (24.2%), strike something hard (23.2%) and fight (22.1%) (Table 1).

Table No.1: Demographic information of the patients (n-95)

patients (n=55)		
Variable	No.	%
Age (years)	36.33±13.93	
Gender		
Male	79	83.2
Female	16	16.8
Cause of trauma		
Fight	21	22.1
Road traffic accident	29	30.5
Strike something hard	22	23.2
Fall from height	23	24.2
Duration of BAT (hours)	3.54±1.77	

Table No.2: Vitals at presentation

Body temperature (°F)	99.73 ± 0.73
Blood Pressure (mmHg)	134.37 ± 15.83
Respiratory Rate (bpm)	16.51 ± 3.16
Pulse (bpm)	78.80 ± 11.81

Table No.3: Need to conversion to therapeutic laparotomy

Conversion to therapeutic laparotomy	No.	%
Yes	18	18.95
No	77	81.05

At time of presentation, the mean body temperature was $99.73 \pm 0.73^\circ\text{F}$, mean blood pressure was $134.37 \pm 15.83\text{mmHg}$, mean respiratory rate was $16.51 \pm 3.16\text{bpm}$ and mean pulse rate was $78.80 \pm 11.81\text{bpm}$ (Table2).

Eighteen (18.95%) needed for conversion to open laparotomy after laparoscopic procedure and 77 (81.05%) not need for conversion to open laparotomy after laparoscopic procedure (Table 3)

DISCUSSION

The management of BAT has been improved intensely. Though laparotomy is a standard-of-care in patients who are hemodynamic ally unstable, while patients who are hemodynamic ally stable are generally managed through non-operative way, adding adjuncts like interventional radiology. Nevertheless, while non-operative way has proved good results in some injuries involving solid organs. But few other lesions, including diaphragm, hollow viscous and mesentery, are not eligible for such approach and necessitates a surgical intervention.⁹ Sometimes, the choice between surgical and conservative management is difficult. This is consistent with cases with injury to the diaphragm or intestines, which cannot be detected by imaging techniques. Thus, this gives rise to a need for other modalities to aid the diagnosis and even management of such cases.^{8,10}

Laparoscopy is applied for better diagnosis and therapeutic purpose in hemodynamic ally stable patients presented with abdominal trauma.¹¹ The characteristic of laparoscopy in the diagnosis and also in therapeutic interventions has been improved significantly in last decades. In abdominal trauma, laparoscopy has been considered as a feasible substitute for diagnosis of intra-abdominal injuries following penetrating & blunt abdominal trauma. The number of negative or non-therapeutic laparotomies executed earlier, has been reduced after the initiation of laparoscopy use for the diagnosis and treatment.¹² The surgical outcome of laparoscopy has greatly improvement in several parts of abdominal surgery. But there are several apprehensions of laparoscopy which limit its application in such cases.^{13,14}

Laparoscopy is a safe and precise in abdominal injuries. The use of laparoscopy has several benefits including reduced hospital stay, less post-operative wound infections or ileus complications, and also no missed injuries.^{15,16} In a meta-analysis, composed of 11 reports with around 355 patients of blunt abdominal trauma, the sensitivity and specificity of laparoscopy were 94% & 98%, respectively with accuracy rate of 97% in estimating the ultimate requisite for therapeutic laparotomy. Though fairly safe and accurate (morbidity rate ~ 1.2%), the interventional nature, cost of procedure and time consumption nature of laparoscopy limit its use in routine in abdominal trauma cases.^{6,17,18}

Laparoscopy can considerably reduce the further surgical interventions. It is very useful in accurate diagnoses and has better therapeutic potential. If findings of laparoscopy found negative, it may also lessen the quantity of unnecessary laparotomies.

Though few trials showed favorable results on laparoscopy use in cases of blunt abdominal trauma, randomized controlled trials are missing. Laparoscopy necessitates appropriate training and practice and also adequate staffing and equipment.⁹ One study found that laparoscopy has 100% therapeutic role in cases of BAT and no case require conversion to open/therapeutic laparotomy.¹⁹ While another study found that laparoscopy has 93.75% therapeutic role in cases of BAT and 6.25% cases required conversion to open/therapeutic laparotomy.²⁰ One more study showed three times conversion to laparotomy after laparoscopy in BAT cases i.e. 18%.²¹

In another study, 35 cases of blunt abdominal trauma were recruited and planned to undergo laparoscopy. Approximately 27 (77%) cases were managed by using laparoscopy. This included 43% cases who underwent for both; diagnostic and therapeutic purpose while 34% cases only had diagnostic purpose. Eight (23%) cases needed to be converted to open surgery. This was because of active bleeding and complex abdominal injuries.²² Lin et al²³ observed 8.5% rate of need to be converted to open surgery after laparoscopy in cases of blunt abdominal trauma. With the advancement in radiological imaging and treatment, like trans-arterial embolization,^{24,25} non-surgical management way has become a treatment of choice for several hemodynamically stable cases of blunt abdominal trauma.^{23,26} Alternatively, laparotomy done in emergency setting can be life saving for unstable cases like patients in shock and not responding to the fluid resuscitation. However, laparoscopy could be beneficial in such situations, for example for cases of isolated intra-abdominal fluid accumulation of undefined origin detected on computed tomography scans.²⁶

CONCLUSION

The frequency of need of conversion to open surgery was found to be low in our study. Now, we have got the local evidence and now we recommend the laparoscopy to be performed in all BAT cases, keeping in mind the low rate of conversion to open surgery.

Author's Contribution:

Concept & Design of Study:	Syed Haider Abbas
Drafting:	Muhammad Akram Dogar, Muhammad Kareem Ullah
Data Analysis:	Saeed Mahmood, Adnan Sadiq Butt, Ehtisham Ahmed Khan
Revisiting Critically:	Syed Haider Abbas, Muhammad Akram Dogar
Final Approval of version:	Syed Haider Abbas

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Trends and Patterns of Suicide in Quetta City

Samina Rehman¹, Rakshanda Naheed², and Mujeeb-ur-Rehman Baloch³

ABSTRACT

Objective: To determine the patterns and trends of suicide attempts in the people of Quetta also examine the causes of suicide in this area.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Forensic Medicine & Toxicology, Sandeman Provincial Hospital Quetta from 1st January 2016 to 31st December 2018.

Materials and Methods: Fifty two suicide victims of ages ranging from 10 to 50 years was taken from District Quetta and surrounding areas of Quetta, Data was collected from hospital administration and primary data was collected and interview of victim's family.

Results: Thirty four (65.38%) victims were males while 18 (34.62%) were females. There was a high rate of suicides in individuals whom were ages 18 to 30 years. The main causes of suicide attempts were noted as family issues, financial problem, lack of confidence, mental health and others as 21 (40.38%), 14 (26.92%), 8 (15.38%), 5 (9.62%) and 4 (7.69%) respectively. Gunshot was the common method of suicide in 23 (44.23%) followed by Drowning and poison.

Conclusion: Family disputes and marital issues was the main causes of suicide deaths in District Quetta and its surrounding areas and the most common method to attempt suicide was gunshot.

Key Words: Suicide, Trends of suicide, Patterns, Causes.

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INTRODUCTION

Worldwide, suicide is one of the major public health issues with high rate of deaths. The annual rate of suicide has increased by 60% from last 45 years. It is the second leading cause of death in China and in some European countries. In these countries suicidal deaths are most common in people ages between 10 to 40 years. Globally, it is also the 10th leading cause of death.¹ In developing and low income countries the rate of deaths due to suicide is 85% according to the WHO.² In Pakistan, there is no any official data is available about the incidence rate of suicides. In Peshawar the incidence rate according to the some researches was 0.43 out of 0.1 million people and in Rawalpindi it was 2.86/100000.^{3,4}

¹. Department of Forensic Medicine and Toxicology Bolan University of Medical and Health Sciences Quetta.

². Department of Physiology, Medical College Loralai.

³. Department of Community Dentistry, Bolan University of Medical & Health Sciences Quetta.

Correspondence: Dr. Samina Rehman, Associate professor Forensic Medicine and Toxicology Bolan University of Medical and Health Sciences Quetta.

Contact No: 0333 7822117

Email: saminaqaisrani69@gmail.com

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The rate of suicide is higher in males as compared to females in Sindh province of Pakistan.⁵ Moreover; males in age of 20 to 40 years are at high risk of attempting suicide (7.06/100,000) than females.⁶

Pakistan is a developing Islamic state and many of factors contributed in suicides in which religious, social and political sensitivities are the reasons for suicides attempts. As an Islamic state, suicide considered a criminal offense. There are strong religious sanctions against suicide attempts.⁷ the incidence of suicide attempts is quite high in young male female population. There are many methods of attempting suicide but the most common methods in Pakistan are; firearms, hanging and use of insecticides. Interpersonal relationships and domestic issues are the most common causes of suicide attempts. In Pakistan lack of resources is the major problem due to which young population brought to hopeless and this situation tend to move to suicide attempt.⁸

There is no proper statistics available on suicide rate in Pakistan. Individuals avoid going in public sector hospital in Pakistan due to fear of harassment by police and social stigma. Ultimately, turning them towards private sector health system and leading towards underreporting of suicide statistics. Approximately, 34% of population is suffering from mental health issues in Pakistan while depression is projected to be leading cause of suicide among 90% of cases.⁹ A limited data is available in Pakistan on patterns of suicides and different methods of suicides in Pakistan. The study will contribute knowledge during policy making regarding mental health in Pakistan. The study

was to determine the suicide patterns and methods most frequently used for suicide attempt.

MATERIALS AND METHODS

This cross-sectional study was conducted Department of Forensic Medicine & Toxicology, Sandeman Provincial Hospital Quetta from 1st January 2016 to 31st December 2018. A total of 52 individuals were found to be suicide deaths. All the confirmed suicidal deaths cases files signed by responsible authorities were included for data analysis. Primary data was collected from a pre-designed questionnaire and interview of victim's family. Suicide victims of ages ranging from 10 to 50 years were taken from District Quetta and surrounding areas of Quetta. Individuals' complete history including sex, age, residency, financial status, education was recorded. Causes of suicidal deaths and methods to attempt suicide were examined. All the statistical data was analyzed by computer software SPSS 17.

RESULTS

There were 34 (65.38%) males while 18 (34.62%) were females. Four (7.69%) victim were ages <18 years, 37 (71.15%) victims had ages 18 to 30 years.

Table No.1: Demographical information of all the suicide victims

Variable	No.	%
Gender		
Male	34	65.38
Female	18	34.62
Age (years)		
>18	4	7.69
18-30	37	71.15
31-42	9	17.31
>42	2	3.85
Residency		
Urban	25	48.08
Rural	27	51.92
Socioeconomic status		
Low Status	31	59.61
Middle Status	21	41.39
Education		
Below Matric	38	73.08
Matric or above	14	26.92

Table No.2: Causes of suicidal deaths

Characteristics	No.	%
Family disputes	21	40.38
Financial issues	14	26.92
Lack of confidence	8	15.38
Mental Health Issue	5	9.62
Family Ignorance and lack of Support	4	7.69

9 (17.31%) were ages between 31 to 42 years and 2 (3.85%) victims had ages >42 years. Twenty five (48.08%) individuals had urban residency while 27 (51.92%) had rural residency. Thirty one (59.61%) victims had low socio-economic status while 21

(40.39%) had middle socio-economic status. Thirty eight (73.08%) individuals were illiterate and only 14 (26.92%) were literate above matric (Table 1).

Table No.3: Methods of suicidal deaths

Characteristics	No.	%
Gunshot	23	44.23
Chemical Poison	11	21.15
Drowning	8	15.38
Hanging	6	11.52
Fall from Height	2	3.85
Burning	2	3.85

The cause behind suicidal deaths was recorded as family disputes in 21 (40.38%), financial issue in 14 (26.92%), lack of confidence in 8 (15.38%), mental health problem in 5 (9.62%) and 4 (7.69%) deaths was due to lack of family support and ignorance (Table 2). Gunshot was the most common method to attempt suicide in 23 (44.23%) victims, Chemical poison found in 11 (21.15%), 8 (15.38%) with drowning, 6 (11.52%) with hanging, 2 fall from height and 2 victims burn himself (Table 3)

DISCUSSION

Suicide is a leading cause of death in different countries and Pakistan is not an exception. Determination of death cause is an important phase of clinical investigation that leads towards suicidal or murdered results. The suicide reported confirmation is based on different interviews with deceased's family members, relatives, friends and psychologists opinions.¹⁰

In the present study, male's suicide victims' rate was high as compared to females it was 65.38% and 34.62%. A study conducted by Liaqat et al¹¹ in 2017 regarding suicide patterns and methods in Pakistan reported that males population was high as compared to females as 70% and 30%. Another study conducted by Hanna et al⁶ reported that male to female ratio was 1:1.75. A study conducted by Zafar et al¹² regarding suicidal deaths in Chitral district demonstrated that female ratio was high as compared to males.

We found mostly individuals of suicidal deaths was ages 18 to 30 years 71.15%. These results show similarity to the study conducted by Spicer et al¹³ in which peak age of suicidal deaths was 20 to 29 years. In our study the rate of suicide deaths was high in females of ages below 20 years. It was due to family limitations, pressure to arrange marriages, early marriages and due to financial condition. Similar results was found in other study in which mostly females performed suicide due to early marriages and family pressure and lack of confidence.¹⁴

This study showed that family disputes were most common cause of suicide deaths and that was 40.38%. We examine through interview of family members that most of the disputes were happens due to rude behavior among family members, likeness dislikeness, marriages issues and joint family system. These results were similar to a study conducted regarding suicidal deaths,

in which most common reason for suicide was family disputes and rated 40%.^{15,16} We found 26.92% suicide deaths was because of financial issues and that brings victims to high depression. A study conducted by Al-Madniet al¹⁷ in which depression is the main reason of suicidal deaths. Some of previous studies reported depression and anxiety was the most common cause of suicidal deaths.^{18,19}

In our study, lack of confidence in 8 (15.38%), Mental health problem in 5 (9.62%) and 4 (7.69%) deaths was due to lack of family support and ignorance. These all causes was similar to other studies in which lack of confidence and family ignorance were the main causes of suicide.^{20,21} In present study, we found that gunshot method was the most common method to attempt suicide and mostly victims were males, and as per our examination Quetta and surrounding areas has tribal families and weapons are commonly found in every families. Due to this factor gunshot method was most common. A study conducted by Zafar et al¹² in which gunshot was the third most common method to attempt suicide death.

CONCLUSION

In Pakistan suicide rate is increasing during the last 15 years and this was because of illiteracy and lack of confidence, in our study, we concluded that male's victim's rate was high as compared to females and most common cause of suicidal deaths was Family disputes. We found that gunshot was the most common method to attempt suicide in this region.

Author's Contribution:

Concept & Design of Study:	Samina Rehman
Drafting:	Rakshanda Naheed
Data Analysis:	Mujeeb-ur-Rehman Baloch
Revisiting Critically:	Samina Rehman Rakshanda Naheed
Final Approval of version:	Samina Rehman

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Evaluation of Serum Lipid Profile in Hypertensive Patients in one of Tertiary Care Hospital

Syeda Ijlal Zehra Zaidi¹, Sumera Saghir² and Adnan Bashir³

ABSTRACT

Objective: The objective of this study to evaluate serum lipid profile in hypertensive patients in one of tertiary care hospital

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Biochemistry and Physiology, Avicenna Medical College Lahore from March 2017 to January 2019.

Materials and Methods: We selected 100 participants in which 70 hypertensive patients and 30 control normal subjects. We measured total cholesterol level (TG), Low density Lipoprotein (LDL), High density Lipoprotein (HDL) and Triglycerides in hypertensive patients and normal patients (Control). We also measured blood pressure (Systolic and Diastolic Pressure) for both groups. For measuring lipid profile (TG, HDL, LDL, and Total Cholesterol), we used Mirolab 300 and we used Merk kits of analysis the samples of both groups (Hypertensive Patients and Control Normal patients).

Results: The mean of the blood pressure (systolic BP - 24 hours (mmHg) of test subject was 148.9 ± 10.2 mmHg and for Control was 135.4 ± 8.3 mmHg. And Diastolic blood pressure of the test patient was 97.6 ± 6.3 mmHg. The total Cholesterol level was higher in test subject (hypertensive patients) as compare to control the total cholesterol in Test subject (hypertensive patients) was 240.8 ± 14.8 mg/dl and in control was 194.6 ± 32.5 mg/dl. Result showed that triglyceride level was higher in hypertensive patient as compare to control. The total level of triglyceride in hypertensive patients was 170.3 ± 37.5 mg/dl and in control was 146.2 ± 34.2 mg/dl. High density lipoprotein level in hypertensive patient was 59.6 ± 10.5 mg/dl and in control was 45.5 ± 11.2 mg/dl. The result showed that HDL level is high in hypertensive patient. The low density lipoprotein in LDL was higher in hypertensive patient as compare to control. The mean value of LDL in hypertensive patient was 127.9 ± 23.5 mg/dl and in control was 118.5 ± 20.5 mg/dl.

Conclusion: High lipid profile is risk of cardiovascular disease and stroke so it should be treated as soon as possible and it means that abnormal lipid profile caused cardiovascular disease.

Key Words: Hypertension, Lipid profile, cardiovascular disease

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INTRODUCTION

Major risk factor of hypertension and CVD are morbidity and mortality and also abnormal lipid metabolism and lipoprotein.

¹. Department of Physiology, Avicenna Medical College Lahore.

². Department of Biochemistry, Avicenna Medical College Lahore.

³. Department of Pharmacology, Fatima Memorial College of Medicine and Dentistry Lahore.

Correspondence: Dr. Syeda Ijlal Zehra Zaidi Associate Professor, Department of Physiology, Avicenna Medical College Lahore.

Contact No: 0300 4279586

Email: drsyedaijlalzehra@gmail.com

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The blood pressure guide line of WHO is 130/85 mmHg and old guide line was for blood pressure was 140/90 mmHg.¹⁻⁶

Hypertension also caused renal disorders and diseases.⁷ Micro albuminuria and micro albuminuria patients are associated with hypertension.^{8,9} Dyslipidemia is major cause of cardiovascular disease and risk factor¹⁰ and it is also called dyslipidemia hypertension and for essential hypertension it is independent risk factor.^{12,13} When lipid level is increased which ultimately increased blood pressure so it untreated hypertensive than normotensive it is more common dyslipidemia.^{14, 15}

World facing more health issues in which hypertension is major health issue and it is also economic issue of the world.^{16, 17} Balance metabolism is essential for normal body function any abnormality occurred in body ultimately caused metabolic disorders and this abnormal metabolism also related with associated factor which link with other diseases specifically when any alteration occurred in lipid metabolism and lipoprotein caused hypertension.¹⁸ Lipid abnormality and other

metabolic abnormality synergistically caused atherosclerosis and also produced CVD. It means that hypertension is produced from abnormality of lipid metabolism and other metabolic disorder and combination of metabolic disorders caused hypertension.¹⁹

MATERIALS AND METHODS

This study was conducted at the Department of Biochemistry and Physiology, Avicenna Medical College Lahore from March 2017 to January 2019. We selected 100 participants in which 70 hypertensive patients and 30 control normal subjects. We measured total cholesterol level (TG), Low density Lipoprotein (LDL), High density Lipoprotein (HDL) and Triglycerides in hypertensive patients and normal patients (Control). We also measured blood pressure (Systolic and Diastolic Pressure) for both groups. For measuring lipid profile (TG, HDL, LDL, and Total Cholesterol), we used Mirolab 300 and we used Merk kits of analysis the samples of both groups (Hypertensive Patients and Control Normal patients).

RESULTS

The mean of the blood pressure (systolic BP - 24 hours (mmHg) of test subject was 148.9 ± 10.2 mmHg and for Control was 135.4 ± 8.3 mmHg. And Diastolic blood pressure of the test patient was 97.6 ± 6.3 mmHg. The total Cholesterol level was higher in test subject (hypertensive patients) as compare to control the total cholesterol in Test subject (hypertensive patients) was 240.8 ± 14.8 mg/dl and in control was 194.6 ± 32.5 mg/dl.

Table No.1: Participant characteristics

	Test subject (n=70) Hypertensive patients	Control (n=30)
Age (years)	51.2 ± 7.2	51.5 ± 8.6
Male / Female (%)	42.2 / 57.8	36.5 / 63.5
Body weight (Kg)	71.2 ± 11.5	72.4 ± 11.4
BMI (kg/m ²)	27.3 ± 2.7	27.4 ± 2.6
SBP sitting (mmHg)	148.9 ± 10.2	135.4 ± 8.3
DBP sitting (mmHg)	97.6 ± 6.3	85.9 ± 6.5

Result showed that triglyceride level was higher in hypertensive patient as compare to control. The total level of triglyceride in hypertensive patients was 170.3 ± 37.5 mg/dl and in control was 146.2 ± 34.2 mg/dl. High density lipoprotein level in hypertensive patient was 59.6 ± 10.5 mg/dl and in control was 45.5 ± 11.2 mg/dl. The result showed that HDL level is high in hypertensive patient. The low density lipoprotein in LDL was higher in hypertensive patient as compare to control. The mean value of LDL in hypertensive patient

was 127.9 ± 23.5 mg/dl and in control was 118.5 ± 20.5 mg/dl.

Table No2: Ambulatory blood pressure monitoring. Mean values of blood pressure

Test subject (n=70) Hypertensive patients	Control (n=30)
Systolic BP - 24 hours (mmHg)	
148.9 ± 10.2	135.4 ± 8.3
Diastolic BP - 24 hours (mmHg)	
97.6 ± 6.3	85.9 ± 6.5

TableNo.3: Lipid profile of Test subject and Control and Glucose level

Test Subject (n=70) Hypertensive patients	Control (n=30)
Fasting Blood Glucose(mg/dl)	
98.8 ± 10.2	98.4 ± 9.4
Total Cholesterol (mg/dl)	
240.8 ± 14.8	194.6 ± 32.5
LDL (mg/dl)	
127.9 ± 23.5	118.5 ± 20.5
HDL (mg/dl)	
59.6 ± 10.5	45.5 ± 11.2
Triglycerides (mg/dl)	
170.3 ± 37.5	146.2 ± 34.2

DISCUSSION

We evaluate in this study the serum lipid profile in hypertension patient. We selected 100 participants in which 70 hypertensive patients and 30 control normal subjects. We measured total cholesterol level (TG) Low density Lipoprotein (LDL), High density Lipoprotein (HDL) and Triglycerides in hypertensive patients and normal patients (Control). We also measured blood pressure (Systolic and Diastolic Pressure) for both groups. For measuring lipid profile (TG, HDL, LDL, and Total Cholesterol), we used Mirolab 300 and we used Merk kits of analysis the samples of both groups (Hypertensive Patients and Control Normal patients). We observed high lipid profile in hypertension patients specially TC (Total cholesterol), TG (Tri glyceride) and LDL (Low density Lipoprotein). The concentration is significantly higher in hypertension patients. This type result is also in other country studies such as Nigeria. Akintunde is also found this type of result that lipid profile is higher in hypertension patients. The observation showed that obesity and dyslipidemia are the risk factors of hypertension.²⁰ The mean of the blood pressure (systolic BP - 24 hours (mmHg) of test subject was 148.9 ± 10.2 mmHg and for Control was 135.4 ± 8.3 mmHg. And Diastolic blood pressure of the test patient was 97.6 ± 6.3 mmHg. The total Cholesterol level was

higher in test subject (hypertensive patients) as compare to control the total cholesterol in Test subject (hypertensive patients) was 240.8 ± 14.8 mg/dl and in control was 194.6 ± 32.5 mg/dl. Result showed that triglyceride level was higher in hypertensive patient as compare to control. The total level of triglyceride in hypertensive patients was 170.3 ± 37.5 mg/dl and in control was 146.2 ± 34.2 mg/dl. High density lipoprotein level in hypertensive patient was 59.6 ± 10.5 mg/dl and in control was 45.5 ± 11.2 mg/dl. The result showed that HDL level is high in hypertensive patient. The low density lipoprotein in LDL was higher in hypertensive patient as compare to control. The mean value of LDL in hypertensive patient was 127.9 ± 23.5 mg/dl and in control was 118.5 ± 20.5 mg/dl. When Serum cholesterol level is high, it is caused coronary heart disease (CHD) and stroke. It means that high cholesterol level role in developing the coronary heart diseases and stroke.²¹Atherogenic process is inhibited by HDL (High Density lipoprotein) this biomolecule act as inflammatory and antioxidant. Low level HDL increases the risk of cardiovascular diseases.²² It is essential that we evaluated the lipid profile in hypertension patient we treated early as possible if the concentration of the lipid profile is high.

CONCLUSION

High lipid profile is risk of cardiovascular disease and stroke so it should be treated as soon as possible and it means that abnormal lipid profile caused cardiovascular disease.

Author's Contribution:

Concept & Design of Study: Syeda Ijlal Zehra Zaidi
 Drafting: Sumera Saghir
 Data Analysis: Adnan Bashir
 Revisiting Critically: Syeda Ijlal Zehra Zaidi
 Sumera Saghir
 Final Approval of version: Syeda Ijlal Zehra Zaidi

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Assessment of Lipid Profile Levels in Type – II Diabetes and Non Diabetic Subjects: Attended at Specialized Diabetic Hospital in Karachi

Muhammad Ali Shakir¹, Faisal Ahmed², Imran Sandeelo^{2,3}, Nargis Anjum³ and Raana Mahmood⁴

ABSTRACT

Objective: The aim of our study was to assess prevalence and pattern of dyslipidemia in Diabetes and to compare Lipid profile levels between Diabetics and Non-diabetic subjects.

Study Design: Prospective study.

Place and Duration of Study: This study was conducted at the National Institute of Diabetology and Endocrinology (NIDE), Dow University of Health Sciences (DUHS), Karachi, Pakistan from Feb. 2019 to June 2019.

Materials and Methods: The study included a total of Eighty (80) Type II Diabetes and 80 Non-diabetic subjects with 40 pts. were males and 40 patients were females in both groups. Blood samples were drawn from cases of Diabetes Mellitus (DM) and Non-diabetic controls. All Biophysical parameters and Biochemical tests were done using standard procedures. Values were tabulated for cases and control separately for statistical evaluation.

Results: The total cholesterol (TC), Triglycerides (TG), Very Low Density Lipoprotein (VLDL) and Low Density Lipoprotein cholesterol (LDL) were significantly raised in Diabetics as compared to Non-diabetic subjects; whereas the level of High Density Lipoprotein (HDL) was significantly lower in Diabetic subjects as compared to Non-diabetics.

Conclusion: It was concluded that diabetic patients have high level of Cholesterol, Triglyceride and LDL-C as compared to non-diabetic subjects, whereas the level of HDL-C was significantly low in diabetic patients compared to non-diabetic subjects, thus indicating that diabetic patients were more prone for dyslipidemia, which could cause cardiovascular disorders (CVD) and its complications.

Key Words: Lipid profile, Diabetes, Dyslipidemia, Cholesterol, Coronary Heart Disease (CHD).

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INTRODUCTION

Diabetes Mellitus (DM) is considered a syndrome because of many symptoms the individuals present,

¹. Department of Biochemistry, Karachi Medical and Dental College & Abbasi Shaheed Hospital. K.M.C Karachi

². Department of Cardiology, Liaquat National Hospital & Medical College Karachi.

³. Department of Physiology, Karachi Medical and Dental College & Abbasi Shaheed Hospital KMC. Karachi.

⁴. Department of Pharmacology, Karachi Medical and Dental College & Abbasi Shaheed Hospital KMC. Karachi.

Correspondence: Dr. Muhammad Ali Shakir Associate Professor, Department of Biochemistry, Karachi Medical and Dental College & Abbasi Shaheed Hospital. KMC Karachi
Contact No: 0301 2345428
Email: drmarshakir@gmail.com

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resulting from interaction of numerous genetic and environmental factors¹. A predisposition to the disease is probably inherited as an autosomal recessive trait. Lack of insulin or relatively low insulin levels affects the metabolism of Carbohydrates, Protein, Lipids, Water & Electrolytes balance resulting in Diabetes^{2,3,16}. Peripheral Insulin Resistance (IR) and impaired insulin secretion is the main cause of Type-2 DM accounting for approximately 90% of all affected individuals. Abnormal lipid metabolism is one of the important finding of Type-2 DM which leads to increase serum Free Fatty Acid (FFA)⁴. Enzymes of lipid metabolism are greatly affected due to hormonal abnormality leading to excess circulation of Free Fatty Acid, which is the main cause of Insulin resistance⁵. Decrease clearance of Triglycerides, VLDL and Chylomicrons due to decrease activity of Lipoprotein Lipase greatly contribute to hypertriglyceridemia in Type-2 DM^{6,7}. As compared to Non-diabetic subjects, people with Type-II DM have a higher cardiovascular morbidity and mortality^{7,17}. Diabetic vascular disease is responsible

For 2-4 fold rise in the occurrence of Coronary Artery Disease (CAD) and stroke. The aim or target of this study was to compare Lipid levels between Diabetics and Non-diabetic subjects.

MATERIALS AND METHODS

This study was conducted at the National Institute of Diabetology and Endocrinology (NIDE), Dow University of Health Sciences (DUHS), Karachi, Pakistan from Feb. 2019 to June 2019. We randomly selected eighty (80) Diabetics and eighty (80) Non-diabetics as control with 40 patients were males and 40 were females in both groups. Subjects were age and sex matched and was between 35-60 years. The nature of the study was thoroughly explained and the informed consent was obtained. The diagnosis of Diabetes is based on Diagnostic Criteria for DM of American Diabetic Association (ADA) 2011.

Inclusion criteria included patients with Type-2 Diabetes of more than 35 years of age with duration of Diabetes more than 5 years. The control group consists of Non-diabetics, who are normotensive and do not have concomitant diseases. Exclusion criteria included patients with concomitant diseases or condition affecting the lipid level and age <40 years.

RESULTS

A case control study consisting of 80 subjects Type-2 DM patients and 80 Non-diabetics as control was under taken to compare the lipid profile and blood glucose level concentrations in Diabetics and Non-diabetics subjects. To perform this, a comparison analysis was done to see if there is any difference between controls and patients the mean age was 54±11.52 years. When compared to control significant increase in body weight and body mass index (BMI) ($p<0.001$) were found in diabetes. There was also significant in waist circumference (WC) ($p<0.012$) in Type-2 diabetes as shown in Table-1.

The mean value of Triglyceride (TG) in Diabetic patients was significantly higher than the mean value of Non-diabetic subjects ($p<0.001$). The total Cholesterol (TC) mean value in Diabetic patients was significantly higher than the mean value of Non-diabetic subjects ($p<0.001$). All diabetic patients have significantly higher level of VLDL-C and LDL-C ($p=V0.001$) and significantly lower HDL-C as compared to Non-diabetic subjects as shown in Table-2 and Figure 1. The mean Fasting Blood Glucose (FBS) and Post prandial Blood Glucose (PPBG) level of Diabetic patients were significantly ($p=0.001$) higher than that of Non-diabetic subjects as shown in Table-2. In Type-2 DM patients, both the sexes have shown higher value, both in Female diabetics the Cholesterol (TC), Triglyceride (TG), LDL-C and VLDL-C and HDL-C were higher as compared to male diabetic as shown in Table-3.

Table No.1: Demographic Characteristics of Non-Diabetic Subjects and Diabetic Patients

Characteristics	Non-Diabetic Subject N = 80	Diabetic Patients N = 80	P-Value
Age	47±7.1	54±11.52	P<0.05
Body Weight (KG)	52 ±7.2	58±9.8	P<0.01
Height (M)	0.99±2.3	1.12±3.0	P<0.02
BMI (KG/M2)	21±2.0	28±2.5	P<0.01
WC (CM)	69.4±2.3	75.4±3.4	P<0.05

Kg = kilogram; m = metre; BMI = Body Mass Index; Kg/m²= kilogram/ metre² WC= waist circumference; Cm = centimetre

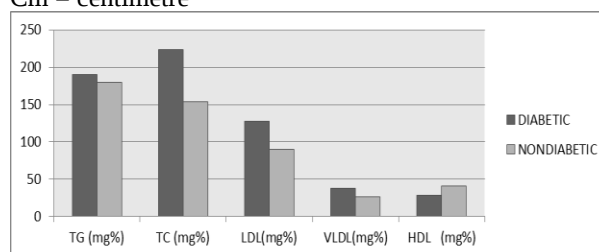


Figure No.1 Comparison of Lipid Parameters in Non-Diabetic and Diabetic Patients Studied

Table No.2: Comparison of Various Parameters between Non-Diabetic and Diabetic Groups

Parameters	Non-Diabetic n = 80 (Mean ± Se)	Diabetic n = 80 (Mean ± Se)	P-Value
TG (mg %)	180.72 ± 36	189.82 ± 58	<0.001
TC (mg %)	154.74 ± 71	224.61 ± 10	<0.001
LDL-C (mg %)	89.8 ± 24	128.24 ± 09	<0.001
VLDL-C (mg %)	26.32 ± 72	38 ± 7.21	<0.01
HDL-C (mg %)	41.10 ± 6.23	29.2 ± 25	<0.001
FBS (mg %)	98 ± 13	185 ± 37	<0.001
PPBS (mg %)	134 ± 20	325 ± 40	<0.001

Table No.3: Gender Wise Lipid Parameters among the Type-II Diabetic, Males and Females

Gender	TC	TG	LDL	VLDL	HDL
	(Mean±Sd) (Mg %)				
Diabetic Male	252 ± 12.2	188 ± 12.5	148 ± 15.2	42.2 ± 4.2	36.88 ± 7.7
Diabetic Female	271 ± 14.4	190 ± 13.4	172 ± 12.3	69 ± 6.7	39.03 ± 6.3
p-Value	<0.05	<0.05	<0.05	<0.05	<0.05

DISCUSSION

Lipid abnormalities are common in Diabetes which is associated with a marked increased risk of Cardiovascular Disease (CVD). Individuals with diabetes have an absolute risk of major coronary events⁸. Furthermore, diabetic subjects develop congestive cardiac failure (CCF) more frequently than

non-diabetic individuals.⁹ LDL-C was found to be significantly higher in Type-II DM than non-diabetics in our study, similar results were reported by other researchers in their studies, indicating that LDL-C was the strongest independent predictor of Coronary heart disease (CHD) followed by HDL Cholesterol.^{10,15} The atherogenesis begins as an endothelial cell dysfunction due to complex combination of traditional and non-traditional risk factors that induces the evolution of atherosclerosis leading to increase incidence of CVD in Type-2 Diabetes^{16,17}.

We also found in our study that total cholesterol (TC), Triglyceride (TG), VLDL-C were comparatively higher in Type-II DM and HDL-C was lower than in non-diabetic subjects. Several workers have reported the same in their studies^{9,11}. We also observed in higher age groups a high level of TC and TG, whereas in adolescent group LDL-C level was found to be higher whereas HDL-C level was found to be low^{10,18}.

Women with diabetes are more susceptible to increased cardiac vascular mortality. Our finding correlates similar to other study^{12,18}. We observed the lipid profile, especially TC, TG and LDL of females to be considerably higher than that of males, which is in accordance with previous reports⁵.

This study also shows that significant increasing level of TC, TG, LDL-C and VLDL-C and significant decrease in level of HDL-C has strong association with increase severity of Diabetes which is in accordance with similar results observed by other workers^{4,13}. Low HDL concentrations are often accompanied by elevated TG levels as seen in this study and others¹¹, and this combination has been strongly associated with increased risk of Coronary Heart Disease (CHD)^{14,15}.

CONCLUSION

From our study we have come to the conclusion that lipid metabolism is adversely affected in Diabetes mellitus. This was proven by the fact that all the lipid factors were elevated in Diabetes when compare to Non-diabetic subjects. The most common abnormality diabetic patients tend to have is Hypertriglyceridemia as diabetes are more prone to Hyperlipidemia. High levels of Total Cholesterol (TC), Triglyceride (TG), Very Low Density Lipoprotein (VLDL) and Low Density Lipoprotein (LDL) and low level of High Density Lipoprotein (HDL) are the important characteristics of Type-2 DM as observed in our study. Similar findings were reported by other workers as well giving strength to ideas that due to prevailing Hyperlipidemia, Diabetes are highly susceptible to develop premature atherosclerosis and macro vascular complications as compared to Non-diabetics.

Author's Contribution:

Concept & Design of Study: Muhammad Ali Shakir
Drafting: Faisal Ahmed, Imran

Data Analysis: Sandeelo
Revisiting Critically: Nargis Anjum, Raana Mahmood
Final Approval of version: Muhammad Ali Shakir Faisal Ahmed

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

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Prevention of hypotension in Patients Undergoing Elective Caesarean Section under Spinal Anesthesia: Effect of Preloading with Crystalloid versus Colloid Infusion

Zaid Jawaid¹, Gul Bano Tariq¹, Rizwan Ahmad¹, Imran ul Haq¹, Saba Saeed² and Sher Bahadur³

ABSTRACT

Objective: To compare effect of crystalloid and colloid in prevention of hypotension among patients undergoing elective C-section under spinal anesthesia.

Study Design: Comparative interventional study

Place and Duration of Study: This study was conducted at the Operation Theater of a tertiary care hospital, Peshawar during Aug to September 2019.

Materials and Methods: After taking the informed consents from patients (n=96) they were divided into two groups using consecutive sampling technique. Before the spinal anesthesia group "A" (n=48) comprised of patients who received 1000ml crystalloid (Ringer Lactate) infusion, while group "B" (n=48) received 500 ml of colloid (haemaccel) infusion as pre-load. The outcomes were measured in terms of mean arterial pressure (MAP) determined by formula $MAP = \frac{Systolic\ BP + 2(Diastolic\ BP)}{3}$, where $MAP \geq 65$ were considered normal. Both of the groups received 1000ml RL as routine during the operation. The data were recorded on structured Proforma and analyzed using SPSS 20. Data were subjected to mean, SD, frequencies and percentages. For comparison of MAP student's t-test and chi square test were used where p-value <0.05 was considered as significant.

Results: A total of 96 patients were included in the study out of them 48 had Crystalloid infusion and 48 Colloid solutions respectively. All these patients had normal mean arterial pressure before giving them spinal. Post spinal the incidence of hypotension was among 37(38.5%) of patients within 15 minutes. This decline in MAP was statistically significant ($p=0.001$) when it is compared between two groups; group 'A' with crystalloid and group 'B' with colloids. The incidence was 26 (55.2%) among patients with crystalloid infusion as compared to 11 (22.9%) among patients preloaded with colloid infusion.

Conclusion: Incidence of hypotension is common among patients with C-Section through spinal anesthesia. Colloid preloading could prevent hypotension efficiently as compared to crystalloid infusion. However the need of Phenylephrine was observed in both groups, where MAP was less than 65. It is recommended to give preference to colloid over crystalloid for preloading among patients undergoing through C-section under spinal anesthesia.

Key Words: Mean Arterial Pressure, Blood Pressure, C-Section, Crystalloid and Colloid solution

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INTRODUCTION

Cesarean section is one of the safe methods of delivery in patients with probable pregnancy related complications.

¹. Department of Anesthesia, KTH, Peshawar.

². Department of Anesthesia Rehman Medical Institute

³. Department of Research, KICH, Peshawar.

Correspondence: Dr. Gul Bano Tariq, Department of Anesthesia Khyber Teaching Hospital Peshawar.

Contact No: 0314 9093324

Email: gulbanotariq3565@gmail.com

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Both General anesthesia and spinal anesthesia are practiced for C-section. In current Era spinal anesthesia is considered to be more acceptable where there is less chance of complications.¹ Due to deep motor and sensory nerve blockage it takes lesser time for action. Studies indicate that pregnant women prefer spinal anesthesia over general anesthesia because they feel better when they see the fetus delivered. There are less chances of DVT. Despite of these benefits spinal anesthesia still has side effects especially hypotension and its associated complications. The hypotension occurs due to blockage of sympathetic nerves and the condition becomes worse when the patient is not well hydrated before operation which leads to adverse maternal and neonatal outcomes.² The proportion of hypotension after spinal anesthesia is ranged from 25-

75% in general population whereas; the incident reported patients under C-section under spinal anesthesia are higher.³ Studies have reported that intravenous infusion of crystalloid reduces the incidence and severity of hypotension among patients undergone through spinal anesthesia.^{4,5} However some other studies shown that increasing amount of crystalloid does not provide guarantee for elimination or prevention of hypotension in spinal anesthesia, but it requires addition of ephedrine.^{6,7} The efficacy of crystalloid is questioned because it redistributes in extra-vascular space very easily which in-turn result into offsetting the increase in intracellular volume of the fluid.³ on other hand colloid infusion found more effective pre-loading fluid for the prevention of post spinal anesthesia hypotension. However, it is also reported that a single technique not always sufficient to control hypotension and it is therefore recommended the co-administration of vasopressors. The outcome in this regard could be best determined by mean arterial pressure (MAP) which is the average pressure created by one cardiac cycle (systole and diastole). It is the best indicator assessing the tissue perfusion.⁸ Blood supply to the vital organs needs the MAP above 65 mmHg. The MAP below this level may lead to hypoxia of the end organs thus needs prompt action.⁹ At this point most physicians administer Phenylephrine as it increase the MAP in dose-dependent manner.¹⁰

As the aim of fluid preload during spinal anesthesia is to maintain the intra-vascular volume so that hypovolemia due to this method of anesthesia could be neutralized, however result of the studies conducted showed a wide controversies. Therefore it necessitates comparing the effect of crystalloid VS Colloid for prevention of hypotension among women undergoing elective C-section under spinal anesthesia.

MATERIALS AND METHODS

This was comparative interventional study where mean arterial pressure was compared at different interval after pre-load of crystalloid and colloid infusion in elective C-section patients under spinal anesthesia. This study was conducted in Operation Theater of tertiary care Hospital Peshawar during Aug to September 2019. The

calculated sample size was 96 by assuming Confidence interval 95%, anticipated population 0.50 and study power 0.1. Consecutive sampling technique was used for recruitment of the patients. All patients (ASA I & II) undergone through elective C-section were included while those with known hormonal disease or with known cardiac diseases were excluded. Data collection was started after approval of Ethical Review Committee of the corresponding Teaching Hospital. After informed consent, patients were divided into two groups and each group was comprised of 48 individuals. Before spinal anesthesia the patients received the following treatment protocol.

Group A: Received 1000 ml of Ringer Lactate (crystalloid) infusion

Group B: Receive 500 ml of colloid solution (haemaccel) infusion

Afterward both groups were given 1000 ml Ringer Lactate as routine care during operation.

The data were analyzed using SPSS 20. Data were subjected to mean, SD, frequencies and percentages. For comparison of mean systolic and diastolic blood pressure was compared using student's t-test while chi square test was used for comparing the frequency of hypotension among two groups. P-value <0.05 was considered as significant.

RESULTS

A total of 96 patients with mean age 27.80 ± 4.750 (ranged 18 to 39 years). Out of them 48(50%) had received Ringer Lactate and 48(50%) received Haemaccel. An overall picture of the whole data indicates that MAP decreased in both groups with passage of time. As mean MAP at base line was 90.01 ± 6.3 mmHg which was declined to 81.67 ± 5.4 mmHg at 5 minutes of spinal anesthesia. This decrease of MAP was statistically significant ($p=0.003$). Similarly, the MAP further declined to 73.96 ± 6.3 at 10 minutes of spinal anesthesia followed by 67.85 ± 7.3 at 15 minutes of spinal anesthesia revealing significant difference ($p=0.001$).

Results of present study further indicated that all patients had normal MAP (>65 mmHg) at baseline and after 5 minutes of spinal anesthesia.

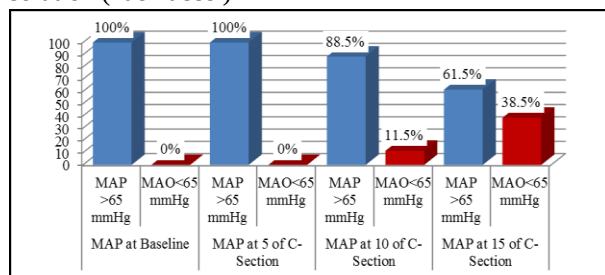
Table No.1: Comparison of Mean Arterial Pressure at different interval among patients undergoing to C-section

Status of MAP at different interval		Mean $\pm$ SD	Std. Error	95% Confidence Interval		P-value
				Lower	Upper	
Pair 1	MAP before pre-load	90.0 ± 6.3	0.63	88.60	91.09	0.003
	MAP at 5 minutes of spinal anesthesia	81.6 ± 5.4	0.55	80.61	82.78	
Pair 2	MAP at 10 minutes of spinal anesthesia	73.9 ± 6.3	0.64	72.75	75.20	0.001
	MAP at 15 of spinal anesthesia	67.8 ± 7.3	0.74	66.44	69.31	

Table No.2: Comparison of hypotension among patients who received Crystalloid VS Colloid infusion as preload

Variables		Groups of Patients		P-value
		Group A	Group B	
MAP at baseline (Before spinal anesthesia)				--
	MAP ≥65 mmHg	48 (100%)	48 (100%)	
	MAP ≤65 mmHg	--	--	
MAP at 5 minutes of Spinal Anesthesia				
	MAP ≥65 mmHg	48 (100%)	48 (100%)	--
	MAP ≤65 mmHg	--	--	
MAP at 10 minutes of Spinal Anesthesia				
	MAP ≥65 mmHg	42 (87.5%)	43(89.6%)	0.74
	MAP ≤65 mmHg	6 (12.5%)	5 (10.4%)	
MAP after 15 Minutes of Spinal Anesthesia				
	MAP ≥65 mmHg	22 (45.8%)	37 (77.1%)	0.002
	MAP ≤65 mmHg	26 (55.2%)	11 (22.9%)	

Group A: patients who received 1000 ml of Ringer Lactate (Crystalloid), Group B: Received 500 ml of colloid solution (haemaccel)

**Figure No.1: Status of Mean Arterial Pressure at difference intervals**

The decline (≤ 65 mmHg) in MAP started after 10 minutes among 11(11.5%) of patients. The proportion of patients with low MAP (≤ 65 mmHg) were further reported by 37(38.5%) of the patients at 15 minutes ($p < 0.05$). Drop in MAP was observed in both of the groups, However among group 'A' 6 (12.5%) of patient had MAP ≤ 65 mmHg as compared to 5 (10.4%) of group 'B' at 10 minute revealing ($p=0.74$). However the incidence of low MAP at 15 minutes of Post spinal anesthesia was observed in 26 (55.2%) patients from group 'A' as compared to 11 (22.9%) of patients from group 'B' ($p=0.002$). This indicate that need of Phenylephrine is more common in patients with crystalloid as compared to those who received colloid solution as pre-load.

DISCUSSION

It is evident that C-section is the most common surgical procedure practiced in the world, where nearly 80 to 90% is performed under spinal anesthesia.¹¹ However, this type of anesthesia could lead to maternal hypotension among majority of patients (60-70%) and its associated complications. There have been different preventive measures considered for maternal hypotension. Among these pre-load of fluid is widely in practice. The present study therefore aims to determine

the role of crystalloid VS colloid in prevention of maternal hypotension among patients undergone through C-section under spinal anesthesia. Result of present study indicates that there was decrease of Mean Arterial Pressure among patients. Over all incidence of hypotension were 37(38.5%). The result of present study indicates that the incidence of hypotension was low as compared to other studies. The incidence of hypotension in patients of C-section reported by other studies ranged from 60-70%.^{11 12}

The MAP at base line was 90.01 ± 6.3 mmHg. The severity of hypotension increases with time as MAP decreased to 67.85 ± 7.3 at 15 minutes of spinal anesthesia revealing significant difference ($p=0.001$). The same trends are also reported by other studies where the authors also found a sequential decrease of MAP which was then treated by different methods.^{13 14}

The comparative aspects in the present study indicate few patients 11 (22.9%) from group 'B' (patients with colloid infusion) has declined MAP below the threshold (MAP ≤ 65 mmHg) as compare to 26 (55.2%) of patients with crystalloid infusion ($p=0.002$).

It is believed that crystalloid infusion before spinal anesthesia is superior then no fluid regime, however, when it comes to comparison with the effect of colloid preloading then the outcome of colloid preloading was found more effective. The results of presents study are also supported by multiple studies. It has been reported that women with elective C-section having pre-loading of colloid infusion experienced less hypotension as compared to those who has crystalloid infusion (RR 0.68).¹⁵ A study from India indicate there was no difference in the severity of hypotension between colloid preload and crystalloid (15.5% vs. 9.8%; $P=0.31$).¹⁶ It is further revealed that crystalloid was in practice as preloading fluid till 1993. Afterward it was found that crystalloid can reduce the incidence of hypotension among few of the individuals. In contrast

to this, colloids preloading has shown significant decreases in the incidence and severity of hypotension.¹⁷ The present study also indicates that few of patients with colloid preloading dropped the threshold of MAP and required Phenylephrine as advance therapy for hypotension.

CONCLUSION

It is concluded that spinal anesthesia because hypotension among patients undergoing C-Section, however preloading with colloid can reduce post spinal anesthesia hypotension. It is recommended that there should be preference for colloid infusion over crystalloid when it comes to pre-loading of infusion in patient undergoing elective C-Section under spinal anesthesia.

Author's Contribution:

Concept & Design of Study: Zaid Jawaid
 Drafting: Gul Bano Tariq, Rizwan Ahmad
 Data Analysis: Imran Ul Haq, Saba Saeed, Sher Bahadur
 Revisiting Critically: Zaid Jawaid, Gul Bano Tariq
 Final Approval of version: Zahid Jawaid

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

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Management Outcome after Head Injuries among Assault Patients

Abdul Razaque Mari¹, Asiya Parveen Shaikh², Pardeep Kumar³, Muzamil Dilbar¹,
Shams Raza Brohi¹ and Hari Ram³

ABSTRACT

Objective: To determine the management outcome after head injuries among assault patients.

Study Design: Cross-section study

Place and Duration of Study: This study was conducted at the Neurosurgery department of Peoples University of Medical and Health Science. One year from February 2015 to January 2016.

Materials and Methods: All the assault patients presented with head injuries either of gender were included in the study. Complete medical history, clinical examination and routine laboratory investigation including CT brain were done. Patients were followed during Hospital stay till the discharge. All the data regarding demographic information, CT diagnosis, type of treatment and outcome were recorded in the self-made proforma.

Results: Total 56 patients were studied; their mean age was 31.82 ± 13.58 years. Male ration was markedly higher 91.9%. Mostly patients were farmer and laborer. Headache, vomiting and nausea were the most common clinical presentations. 66.0% underwent surgical treatment and remaining underwent conservative treatment. 92.9% were normally recovered, 05.4% were shifted to the ICU and one patient was died.

Conclusion: It was concluded that young males were assaulted and mostly recovered. Quick and proper treatment may reduce the morbidity and mortality.

Key Words: Assault, head injury, treatment

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INTRODUCTION

Head injury is regarded as a key health issue, which is a common cause of mortality or disability and puts tremendous pressures on healthcare services.¹ Accident rates are raising in developing nations in particular and brain injury due to trauma specifically as traffic is increasing in regardless of other factors such as industrialization, ballistic trauma and falling. Head injuries constitute 1/4th or 1/3rd of all deaths due to accident, and 2/3rd of mortalities in hospital due to trauma.¹ Traumatic brain injuries (TBIs) have been termed as 'silent epidemics' of current times, as well as is a leading factor of morbidity and mortality among young adults and children in both underdeveloped and developed nations globally.²

Majority of TBI victims survive with major disabilities, likely to result in a significant financial burden for both subjects and their relatives. TBI's financial burden is overwhelming.² Closed-head injury occurs due to a number of causes, like automobile and motorcycle collisions, assaults, height falls, and pedestrians colliding motor vehicle.¹ Due to assault, the international rate of serious head injuries is higher than the sum of non-fatal incidents.³ The significant factors, which determine the consequence of these head injuries subjected to survival involve the weapon used, skull fracture site and type, brain injury, and intracranial haemorrhage.³ At local level it was exposed that 66.4% deaths occurred due to head injuries.⁴ In another local study stated that most intentional traumatic brain injuries were assaults. In behavioral domain, they mainly suffer from disturbances related to aggression and impulsivity which not only affects patients but also the family and friends. Patients who suffered TBI may have irritability, aggressive behavior, and agitation.⁵ Aggression can range from irritability to outbursts that would result in the destruction of property or assaults on others.⁵ Irritability or bad temper is very common in patients after the acute phase of TBI. Injuries and wounds are of various types, they mostly result from assaults, by interpretation one can grasp the concept of assault that involves posing a threat and applying force to another's body in aggressive and

¹. Department of Neurosurgery PUMHS Nawabshah.

². Department of Forensic Medicine, BMC, LUMHS/Jamshoro

³. Department of Forensic Medicine & Toxicology PUMHS for Women SBA.

Correspondence: Dr. Abdul Razaque Mari Associate professor, Department of neurosurgery PUMHS Nawabshah
Contact No:

Email: razakmari@yahoo.com

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violent situations, whereas when assaults are complete, the it is termed battery, which implies that somebody has truly applied force to another's body.⁶ TBIs, explained as the disruption of brain function due to the sudden, unforeseen, unbearable use of mechanical force, are rather frequent and often involve specialized emergency treatment.⁷ Domestic violence (DV) in domestic violence victims is a frequent cause of brain injury. Face and head are frequent targets in family violence assaults and survivors also suffer an injury to the head, face and neck. Interpersonal violence has a particularly significant emotional context, which can aggravate TBI's burden. Previous studies have found that assault related TBI patients recover from worse effects, are more severely affected, less active, have a greater burden on families, have less resettlement in the family, and benefit very little from inpatient therapies.^{8,9} Nevertheless, the evidence is combined with some studies that find no significant impact on practical or behavioral effects of the trauma mechanism^{8,10,11}.

MATERIALS AND METHODS

This cross study was conducted was conducted at Neurosurgery department of Peoples University of Medical and Health Science. All the assault patients presented with head injuries either of gender were included in the study. All the patients those were not willing to participate in the study, referred to other Hospitals and died at emergency before shifting in the ward were excluded for study. Complete medical history, clinical examination and routine laboratory investigation including CT brain were done. All the patients underwent conservative and surgical management according to patient's situation and neurosurgeon/physician decisions. Patients were followed during Hospital stay till the discharge. All the data regarding demographic information, CT diagnosis, type of treatment and outcome were recorded in the self-made proforma. Data was analyzed by using SPSS version 20.

RESULTS

Total 56 patients were studied; their mean age was 31.82 ± 13.58 years. Male ration was markedly higher 91.9% and female were only 8.9%. Most of the patients were farmer 55.4%, laborer were 21.4%, 14.3% were students and 8.9% were house wives. According to clinical presentation, 33.9% patients had headache and vomiting, 23.2% had headache and nausea, 12.5% patients had headache and nasal bleeding, 5.4% were drowsy and having headache, 12.5% had open head injury and headache and 8.9% patients had headache and ear bleeding and fracture. Table: No. 1

Most of the patients 66.0% underwent surgical treatment and 34.0% underwent conservative treatment. Fig. no. 1 Most of the patients 92.9% were normally

recovered, 05.4% were shifted to the ICU and one patient was died. Table: No. 2

Table No.1: Demographic information of the patients n=56

Demographic variables		Frequency	Percent
Gender	Male	51	91.1%
	Female	05	08.9%
Occupation	Farmer	31	55.4%
	House wife	05	08.9%
	Student	08	14.3%
	Lab our	12	21.4%
Clinical presentation	1+2	07	12.5%
	1+2+5+8	02	03.6%
	2+3+9	19	33.9%
	2+7	13	23.2%
	2+4	07	12.5%
	2+5+9	03	05.4%
	2+6	05	08.9%
	Total	56	100.0%

1= open head injury, 2= headache, 3=vomiting, 7=nausea
4=Nasal bleeding, 5 =drowsy, 6= ear bleeding, 8=EDH, 9= Fracture

Table No.2: Outcome of the patients n=56

Outcome	Frequency	Percent
Recovered	52	92.9%
Shift to ICU	03	05.4%
Death	01	01.8%
Total	56	100.0%

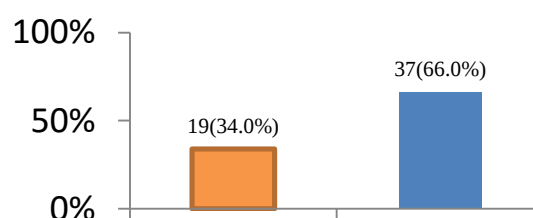


Figure No.1: Type of the treatment n=56.

DISCUSSION

Head injuries are normally associated to trauma to the head (scalp, skull and brain). It is main cause of morbidity and mortality around the world and most of the patients below the age of 44 years.^{12,13} In this study mostly young patients were seen as their mean age was 31.82 ± 13.58 years. Whereas others have reported that 69% cases were in age group of 15-35 years.¹⁴ Korley FK et al¹⁵ reported that TBI were found predominantly

among 20 years or older adults. Young male are commonly affected population in brain injuries.^{16,17} similarly in this study male ration was markedly higher 91.9% and female were only 8.9%. In the comparison of this study Bhatti JA et al⁷ stated that most of the patients 79% were males and having age <25 years. Hemalatha N et al¹⁸ also found similar findings regarding age and gender. Hassan N et al¹⁹ stated that mean age of patients was 40 ±9.65 years and males were most common. In this study according to clinical presentation headache, vomiting and nausea were commonest. On other hand it is stated that after head injuries, different headache symptoms occurred without exact location, frequency, duration and severity with associated symptoms like vomiting nausea phonophobia, photophobia or aura presentation.²⁰ Murtaza M et al²¹ demonstrated comparable findings. We found few patients had fracture and EDH, these findings were similar to the study of Junaid M et al²² and Bhole AM et al.²³

In this study most of the patients 66.0% underwent surgical treatment and 34.0% underwent conservative treatment. On other hand Junaid M et al²³ reported that most of the patients 63.9% underwent conservative treatment and remaining were treated surgically. In this study 92.9% were normally recovered, 05.4% were shifted to the ICU, while one patient was died. Alshaimaa MT et al²⁴ reported that out of all patients mostly 71.6% were treated conservatively and 28.3% were treated surgically. While in other studies mortality rate was higher among patients with brain injuries. Zaidi SS et al²⁵ reported that mortality rate was 31.1% due to head injury. Mendelow AD et al²⁶ stated that 15% mortality was among conservative treatment patients and 33% mortality was among surgically treated patients. Emejulu JK et al²⁷ reported that mortality rate was 19.8% and this higher rate of mortality due to lack of CT scanning facilities. Above mentioned studies showed higher mortality rates as compared to our study, this may because small sample size of our study and in this study only assault patients were studied and most of patients were with less severity and almost all were young males, and patients were also treated immediately with well experienced neurosurgeons.

CONCLUSION

It was concluded that young males were assaulted and mostly were recovered. Quick and proper diagnosis and treatment may reduce the morbidity and mortality.

Author's Contribution:

Concept & Design of Study: Abdul Razaque Mari
 Drafting: Asiya Parveen Shaikh
 Pardeep Kumar
 Data Analysis: Muzamil Dilbar, Shams
 Raza Brohi, Hari Ram

Revisiting Critically: Abdul Razaque Mari
 Asiya Parveen Shaikh
 Final Approval of version: Abdul Razaque Mari

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Lower Extremity Post Traumatic Reconstruction, Etiology and Outcome

Abdul Khaliq, Zarish Daniel, Naima Javed and Hameed ud-Din

ABSTRACT

Objective: To evaluate the management outcome of lower extremity trauma to preserve best possible function and appearance of affected limb. In an effort to avoid amputation of limb partial or complete, and also to avoid long term follow with open wound.

Study Design: Descriptive prospective study

Place and Duration of Study: This study was conducted at the Plastic Surgery Department of PIMS Hospital, Islamabad from January 2018 to December 2018.

Materials and Methods: This descriptive prospective study was conducted at PIMS Hospital plastic surgery department. Patients underwent multiple methods of reconstruction after complete assessment, stability; precise wound assessment, any neurovascular injury, wound infection, and fracture fixation were included. Evaluation of the reconstructive techniques in the term of co-morbidities, complications, with radiographic findings was done. Data was entered in self-made proforma.

Results: Total 30 patients were studied, their age range was from 8-45 years, 15 cases were with simple wound and 15 were with complex wound. Most frequent wounds were of distal 3rd. Most common trauma was of MVA 46.6%. Treatment employed skin grafting (15 patients) local fasciocutaneous flap (5 patients) Muscle flap (5 patients) reverse sural flaps (2 patients) delayed flaps (3 patients). According to the outcome 26.6% patients were extremely satisfied, 23.3% were very satisfied, 16.6% were moderately satisfied, 20% were slightly satisfied and 13.3% were not satisfied.

Conclusion: Different flap techniques show favorable result in preserving the function and appearance of the affected limbs. Skin grafting was the most common technique for simple injuries and in complex wounds.

Key Words: Lower extremity trauma Reconstruction Skin grafts Flap outcome.

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INTRODUCTION

Pakistan is developing country, uncontrolled traffic system, driver's negligence, using vehicle at the very young age had led traumatic injury into a serious problem. The leading cause of the preventable deaths is the road traffic accidents. Spectre of Injuries is insidiously taking a greater toll on human life and property worldwide. According to a survey every year 5 million people's dies because of injuries in which 25% are due to road accidents. The major causes of disability and deaths in the young adults are the motor cycle's injuries and also including 80% of the male fatalities.⁵ RTIs also exert a considerable economic burden on the developing countries.

Department of Plastic and Cosmetic Surgery, PIMS, Islamabad.

Correspondence: Dr. Abdul Khaliq, Assistant Professor, Department of Plastic Surgery PIMS
Contact No: 0334 5167976
Email: drakmallek@gmail.com

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Pakistan is undergoing an epidemiological transition; it is facing the double burden of diseases. In the duration of 1960 to 1994 the increase in the injuries and other risk related factors are significantly increases, lifestyles of the peoples are also changes, development of the cities and also development in the rural areas, significant growth in the ratio of the motor vehicles.¹ The theme of our study is amputation, in which due to road traffic injuries is 55.9%, which is a major reason of disablement.² Injuries of lower limb reached a variety of range, and is usually caused by body of any physical damage to the body caused by violence or accident or fracture, with extensive loss of the skin and impaired tissue viability, associated with amputations of limbs or fingers, lacerations, crushing and exposures of noble tissues.³ The objective of the reconstruction of the lower extremity is to cover the defect and also it healed the wounds of the patients and to let them to restart their life again, ambulate, and go back to work while preventing amputation any exposed bone that is not covered by vascularized soft tissue is at risk for osteomyelitis, bone necrosis, and sepsis. Osteomyelitis is a major cause of amputation in patients after leg trauma or patients with systemic diseases, most commonly diabetes, and open wounds cause chronic pain, inability to ambulate, significant medical

expenses, and unemployment. Uncovered ligaments become dry and necrotic and uncovered veins are in danger for a break.⁴ In the course of the past 30 years, propels in reconstructive surgery, for example, the acknowledgment and utilization of pediculate fasciocutaneous/strong folds and the presentation of microsurgery have expanded the therapeutically arsenal of the plastic surgeon in the treatment of traumatic wounds.³ This study has been conducted to evaluate the management of lower extremity trauma to preserve best possible function and appearance of affected limb. In an effort to avoid amputation of limb partial or complete, and also to avoid long term follow with open wound.

MATERIALS AND METHODS

This was a descriptive prospective study and was carried out at plastic surgery department of PIMS Hospital from January 2018 to December 2018. All the patients those were admitted due to lower limb trauma, patients underwent orthopedics and then reconstructive treatment in plastic surgery department were included in the study. All the patients having uncontrolled diabetes, not agree to participation in the study and not comes in follow-up were excluded. 1st primary survey was done in ER, further management was done by orthopedics, immobilization, pop cast, internal or external fixation. Patients then referred to plastic surgery department for reconstructive surgery, where these underwent multiple methods of reconstruction after complete assessment of the patients, stability, precise wound assessment, any neurovascular injury, wound infection, and fracture fixation. Management of the lower limb injuries was done according to simple and complex wounds. The simple wounds were those wounds having no vital structure exposed, only skin and soft tissue involved. Partial and full thickness grafts were used. In complex wounds having tendon and bone exposed fasciocutaneous, muscle, delayed flap, reverse sural flap done. In Postoperative period patients were immobilized with cast, dressing open from 2-5 days. Stitches opened at 15 days. Outcome was assessed according to postoperative complications and patients satisfactions. All the data was recorded in the proforma. Data was analyzed by using SPSS version 20.

RESULTS

During the study period there were 30 patients with lower limb trauma, some having simple wound, and some with complex wound.

Mean age of the patients was 25.7 years with age range of 8 to 45 years. Males were found in majority 73.3% and females were 26.6%. Main cause of trauma was MVA 46.6%. The 2nd cause was at work place mostly the labors working on sites. Distal third, skin involved, Bone fracture and middle structures were mostly involved out of all patients. According to the

comorbidities, anemia was among 13.3% of the patients, diabetic patients were 10.0%, hypertensive was 6.6% and PAD was 3.3%. Tissue culture was positive among 53.3% of the patients. Table. 1

Table No.1: Descriptive Data of the Patients Having Lower Limb Trauma n=30

Parameters	Frequency	Percentage
Age groups		
8- 25 years	21	70.0%
26-45 years	09	30.0%
Gender		
Male	22	73.3%
Female	08	26.6%
Cause of injury		
MVA	14	46.6%
Work	06	20.0%
Run-over	04	13.3%
FAI	03	10.0%
Fall	03	10.0%
Structures Involved		
Proximal third	05	16.6%
Middle third	11	36.6%
Distal third	15	50.0%
Skin involved	15	50.0%
Soft tissue involved	08	26.6%
Tendon involved	07	23.3%
Bone fracture	14	46.6%
Bone exposed	10	33.3%
Comorbidities		
Diabetes	3	10%
Hypertension	2	6.6%
Anemia	4	13.3%
PAD	1	3.3%
Tissue culture		
Positive	16	53.3%
Negative	14	46.6%



Figure No.1: Partial thickness graft on 18-year-old patient

Table No2: Surgical Treatment According to Level of Injury and Structures Involved

Level of injury	Grafts	Fasciocutaneous flap	Muscle flap	Reverse sural flap	Delayed flap
Proximal third	4 (13.3%)	0	3(10%)	0	0
Middle third	3 (10%)	4 (13.3%)	2(6.6%)	0	0
Lower third	8(26.6%)	1 (3.3%)	0	2(6.6%)	3 (10%)

**Figure No.2: Gastrocnemius flap covering exposed tibi****Figure No.3: Reverse sural artery flap for heel coverage****Table No.3: Postoperative Complications and outcome n=30**

Complications	Frequency (%)
Hematoma	1(3.3%)
Skin necrosis	2(6.6%)
Graft rejection	2(6.6%)
Flap vascular compromise	3(10.0%)
Infection	5(16.6%)
Outcome	
Extremely satisfied	26.6%
Very satisfied	23.3%
Moderately satisfied	16.6%
Slightly satisfied	20%
Not satisfied	13.3%

Grafts and muscle flaps were used among 13.3% proximal third, 10% middle third and 26.6% lower third patients. Fasciocutaneous flaps were used in 13.3% patients of middle third and in one patients of lower third. Muscle flap was applied in 10% proximal third patients and two patients of middle third. Reverse sural flap was applied only in 2 patients of lower third and Delayed flap was used among three patients of lower third. Table.2

Flap vascular compromise and infection were the most common complications among 3(10.0%) and 5(16.6%) patients, followed by Skin necrosis 2(6.6%), Graft rejection 2(6.6%) and hematoma only one patient. Table.3

Functional outcome after operation was based on the movement with or without limitations. Many patients were having pain while walking but there was no limitation of movements. Some patients were having ever pain in reconstruction area causing limitations of moments. According to treatment and questions asked after during follow up 26.6% patients were extremely satisfied, 23.3% were very satisfied, 16.6% moderately satisfied, 20% were slightly satisfied and 13.3% were not satisfied. Table 3.

DISCUSSION

Lower limb trauma is the common preventable cause of death. A Pakistan is the developing country trauma is a serious threat in the young generation. In this study Mean age of 25.7 % victims of lower limb trauma were verified. Most common cause of trauma was MVA 46.6% and the 2nd cause at work place 20%. Lower appendage injury, with open high vitality delicate tissue wounds, is as often as possible experienced at injury focuses and frequently requires plastic surgery engagement. Open injuries have high rates of malunion and contamination, particularly when they include the tibia, and require emanant water system and debridement in the working space to expel devitalize delicate tissue and bone.^{4,5} Wounds are as often as possible left open and require recurrent debridement's.⁴ The basic purpose behind the reconstruction of the lower extremity injuries is to heal the wounds. When planning the reconstruction of the lower limb of the patients, the patients' satisfactory status of the patients should be paramount.⁵ Many studies showed earl coverage of the lower limb defects caused by trauma to

prevent amputation, infection (osteomyelitis), long stay at hospital, burden on the family member's unemployment due to open wound.

In this study patients of lower limb trauma of mean age 25.7 years and 73.3% male were affected. These findings were similar to the study of Debbarma S et al,¹² MACEDO JLS et al.³ Bhatti MA et al¹ also found 75% males and mean age 27.9 years for males and 29.7 years for females.

The study showed that 50% of the cases involving lower limb were middle third, with 46.6% tibia/fibula fracture and 33.3% exposed bone. Management was done according to the complexity of the wound. Preoperative assessment was done for comorbidities. As disused by reddy v ET al.⁵ in the development of a successful treatment plan a perfect surgery assessment of the patients with the lower extremity wound is important. Patient comorbidities, including diabetes, vascular disease, obesity, and nicotine use, diminish the likelihood of achieving a healed wound. In this study 13.3% of the patients had having anemia, 10% were having diabetes only one patient was having peripheral arterial disease 3.3%. Tissue culture was done to rule out the infection element and 53.3% of the patients were having tissue culture positive. 56.6% of the wound required debridement. Vac dressing was also applied in the process of wound preparation. Graft was applied in simple wounds having no vital structure exposed. 50% of the lower limb trauma was managed by partial or full thickness graft. Flap coverage was done in complex wounds having bone exposed. Basic principles of the "reconstructive ladder" are valid for lower extremity reconstruction, and every attempt should be made to match tissues with similar properties, consistencies, and functional capabilities. Treatment plans are devised based on specific tissue requirements, the surgeon's skill and preference, and available resources.⁶

We used the guideline already established in literature. Muscle flaps applied on the proximal and middle third of lower limb, gastrocnemius flap in proximal third 10% of the cases, and soleus flap in middle third of lower limb 6.6% of the cases, in Middle third lower limb trauma 13.3% of the cases fasciocutaneous flaps were done. In the distal third there was a challenge to cover the exposed bone. Before the advent of local fasciocutaneous flaps for distal-third leg injuries, free flaps were the main reconstructive tool. Recognition that the vascular plexus accompanying cutaneous sensory nerves can supply areas of overlying skin and soft tissue has allowed the development of many useful, axial-pattern fasciocutaneous flap.⁵ In our study we use 6.6% of reverse sural flap, 10% delayed flaps and 3.3% fasciocutaneous flaps in distal third. Because of late presentation and limitation of resources free flaps were not done. Attinger et al wrote a comprehensive review of the local flap options for ankle and foot reconstruction. Use of a delay procedure is suggested

before transferring some of the leg muscle flaps. Most are useful for only small defects, but a judicious selection avoids the need for free flap coverage in certain cases of foot and ankle defects.⁸ Other studies also stated that sural artery flap remains better alternative to free flaps in the lower third.⁹⁻¹¹

CONCLUSION

It was concluded that lower limb trauma caused by motor vehicle accidents commonly involved males. Different flap techniques show favorable result in preserving the function and appearance of the affected limbs. Skin grafting was the most common technique for simple injuries and in complex wounds. Almost patients were satisfied after treatment.

Author's Contribution:

Concept & Design of Study:	Abdul Khaliq
Drafting:	Zarish Daniel
Data Analysis:	Naima Javed, Hameed Ud-Din
Revisiting Critically:	Abdul Khaliq, Zarish Daniel
Final Approval of version:	Abdul Khaliq

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Clinical Effects of Miswak and Tooth Brushing On Gingivitis

Effects of
Miswaak and
Tooth Brushing
On Gingivitis

Shafqat Hussain Khawaja¹, Seema Naz Soomro², Kashif Ali Channar³, Abdul Bari Memon⁴, Irfan Ahmed Shaikh⁵ and Pukhraj Panhwar⁶

ABSTRACT

Objective: The objective of this study was to determine the clinical effects of miswak and tooth brushing on gingivitis at Isra University Hospital Hyderabad

Study Design: observational study

Place and Duration of Study: This study was conducted at the patients visiting Periodontology Department Isra University Dental College and Hospital from July 2018 to January 2019.

Materials and Methods: This observational study was conducted in patients visiting Periodontology Department Isra University Dental College and Hospital from July 2018 to January 2019. The selection of the patients was assigned to group A (n=30) who used tooth brush and group B (n=30) who used Miswak. Medical history, intraoral examination followed by full mouth scaling was done. Gingival index (GI) and Plaque Index (PI) was recorded at baseline; visit I after 02 weeks and visit II after 06 weeks and then evaluation was made. Data was analyzed by SPSS version-21.

Results: Overall 60 subjects were studied; 50% of them were tooth brush users and 50% were miswak users. The mean age of the both tooth brush and miswak user groups were 24.4±5.5 and 28.4±4.8 years, respectively. Of 30 users of the tooth brush; males were 20 and females were 10; whereas out of 30 miswak users, males were 25 and females were only 5. During follow-up visits, miswak and toothbrush user groups revealed showed no significant variances when compared according to GI and PI index. Findings revealed that in the removal of plaque, the use of both the miswak and the toothbrush is similarly effective whereas the toothbrush is even better than miswak in enhancing the gingivitis.

Conclusion: Miswak and the toothbrush were equally effective. The use of miswak is somewhat more effective in removing dental plaque and tooth brush in improving gingivitis.

Key Words: Gingival index, Plaque index, Tooth brush, Miswak

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INTRODUCTION

Periodontal conditions and dental caries are among the most prevalent dental conditions among humans.

¹. Department of Periodontology, Isra dental collage university Hyderabad.

². Department of oral Biology, Liaquat University of Medical and Health Sciences Jamshoro.

³. Department of Oral & Maxillofacial Surgery; Liaquat University of medical and Health Sciences Jamshoro.

⁴. Department of Community Dentistry, Bibi Aseefa Dental College.

⁵. Department of Prosthodontics, Liaquat University of Medical and Health Sciences Jamshoro.

⁶. Department of Radiology, Civil Hospital Karachi.

Correspondence: Dr. Abdul Bari Memon Department of Community Dentistry, Bibi Aseefa Dental College.

Contact No: 0300 2426578

Email: drabmemon@yahoo.com

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Bacterial plaque remains to be an instigator of periodontal condition. The elimination of bacterial plaque is therefore essential in order to preserve oral health, which are achievable either chemical or mechanical methods or both. Mostly, for cleaning the teeth toothbrushes and dentifrices are widely used^{1,2}.

About 3500 BC, if we see Babylonians they were utilized chewing sticks but in modern technology tooth brushing is advanced method used for cleaning teeth purpose. The use of wood sticks to clean teeth and oral cavity is quoted in the previous literature of ancient Egypt, Muslims following Greeks and Roman's literature^{3,4}. In South America and its related countries like Africa, Middle East and Asia miswak is emphasized for teeth cleaning purpose. The choice of Plant origin Miswak depends largely on traditional / religious preference rather than clinical effectiveness¹. In pre-Islamic times miswak was customized because the miswak practice at that time has great influences in islam^{2,5}. According to folk cultures, oral hygiene care different from country to country. Various societies have prevalence of different traditional practice as

mandatory. Different types of (miswak), tooth brushes and gel dentifrice are extensively used by people⁶. For maintaining the oral hygiene >50% of the rural population practiced sticks from trees as miswak that is reported in National Health Survey of Pakistan (1990-94). On the contrary, the majority of urban people use modern toothbrushes, toothpaste and other dentifrices⁷. Numerous well-known oral healthcare companies worldwide are marketed nowadays different Mouthwashes and toothpastes containing miswak extracts⁸. According to WHO (1987) recommendation and in 2000, an international agreement report on oral health concluded that in the developing countries miswak usage should be encouraged as it is economical, readily available and rooted in the tradition; and to document the effectiveness of miswak for oral health more research work is needed^{9,10}. Because absolute method and amalgamated within cultural taboos and religious faith it is an easy way of adopting miswak in primary health care approach (PHCA). In developing countries these inexpensive method are practiced to declining the weight of oral diseases^{11,12}. To assess and evaluate the clinical effectiveness of miswak and toothbrush practice, as it can be considered as a general public and professional interest, that's why this topic is selected for research work, to compare the research result with existing method, hence this study aim was to compare the finding and differentiating clinical effects of two oral hygiene aids on gingivitis induced by plaque namely the miswak and tooth brushes. Miswak as method of oral hygiene is broadly practiced but little or no research work are done on this topic in this country and that demands the-depth study of miswak effectiveness in oral health maintenance, so that the oral health care providers can make sure of its efficacy and be able to advise about the effectiveness, method to the people and patients who use it. This study was tried to test the null hypothesis that "for maintenance of oral hygiene use of miswak is not equally effective as tooth brush.

MATERIALS AND METHODS

This observational study was carried out in patients with clinical diagnosis of plaque induced gingivitis (PIG) attending the Periodontology Department OPD of Isra University Dental College and Hospital, Hyderabad from July 2018 to January 2019. All the patients with 18 to 35 years of age, with clinical diagnosis of mild to moderate PIG, subjects with pocket depth below 3 mm and subjects with minimum 14 teeth and either of gender were included. Patients using anti-inflammatory and antimicrobial drugs, systemic disease patients, dental calculus patients and subjects with Gingival Index (GI) at 3 were excluded. Ethical clearance was received from the institute's Ethical Review Committee prior to data collection process. The subjects were fully discussed regarding study protocols

and rules to abide by for miswak or tooth brushing. Medical history, intraoral examination, GI and Plaque Index (PI) were obtained at baseline. *Salvadora persica* (Miswaak) or standard toothpaste (Colgate) and tooth brushes (Solo brand soft bristle) were given to the subjects to use. Subjects were advised to use miswak and/or toothbrush two times a day. Outcome was on subsequent visits of the patients was done according to Gingival Index: (Silness J. Loe H¹³) 0-Normal gingiva. 1-Mild inflammation: slightly changed color and light edema but no bleeding at probing. 2-Moderate inflammatory response: edema, redness, glazing and bleeding upon probing. 3-Severe inflammatory response: edema and marked redness, with prone to impulsive bleeding and ulceration. Plaque Index (Turesky modified Quigley-Hein index) was assessed as 0=No plaque. 1- At the cervical margin separate plaque flecks are present. 2- At the cervical margin a continuous thin band of plaque (up to 1.0 mm) is found. 3- Covering less than one-third of crown of a band of plaque wider than 1.0 mm is observed. 4- Covering of plaque at least one-third but less than two-thirds of the crown of the tooth is found. 5- Covering of plaque two-thirds or more of the crown of the tooth is found¹⁴. Research data was recorded on pre-designed proforma. Data analysis was done by using SPSS 21.0.

RESULTS

Mean age of tooth brush and miswak groups was noted as 24.36±5.53 and 28.36±4.83 years respectively without significant difference p-value 0.098 (Table-I)

Table No1: Age distribution of study population (n=60)

Age (years)	Mean±SD	p-value
Tooth Brush	24.36±5.53 years	0.098
Miswaak	28.36±4.83 years	

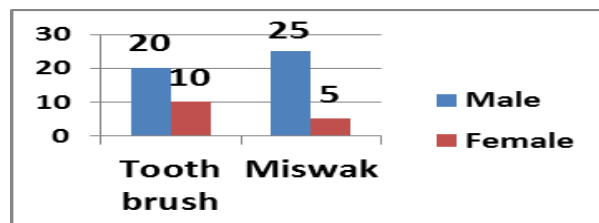


Figure No.1: Gender distribution of the Toothbrush and Miswak users n=60

Out of 30 tooth brush users; 20 were male and 10 were female, while of miswak users; 25 were male and 5 were female (Fig. I).

Gingival index (GI) showed the mean score in tooth brush users and miswak users 2.10±0.48 and 2.16±0.46 respectively at first visit, it was 1.53±0.81 and 1.60±0.72 respectively at 2nd visit, while 0.93±0.63 and 1.06±0.75 respectively was at 3rd visit findings were statistically insignificant according to both groups. (Table-2). Plaque index (PI) showed the mean score in

tooth brush users and miswak users 2.66 ± 0.75 and 2.83 ± 0.59 respectively at visit 1, 0.46 ± 0.62 and 0.66 ± 0.66 respectively at visit 2, 0.67 ± 0.54 and 0.70 ± 0.53 respectively at visit 3 p-values were quite insignificant, mean PI score was also insignificant among both groups. (Table-2)

Table No.2: Mean comparison of Gingival index and Plaque index among Both Toothbrush and Miswak users (n=60)

Gingival index and Plaque index	Groups	Mean+SD	P-value
GI Visit 1	Tooth Brush	2.10 ± 0.48	0.60
	Miswak	2.16 ± 0.46	
GI Visit 2	Tooth Brush	1.53 ± 0.81	0.72
	Miswak	1.60 ± 0.72	
GI Visit 3	Tooth Brush	0.93 ± 0.69	0.38
	Miswak	1.06 ± 0.63	
PI Visit 1	Tooth Brush	2.66 ± 0.75	0.36
	Miswak	2.83 ± 0.59	
PI Visit 2	Tooth Brush	0.46 ± 0.62	0.16
	Miswak	0.66 ± 0.66	
PI Visit 3	Tooth Brush	0.67 ± 0.54	0.80
	Miswak	0.70 ± 0.53	

DISCUSSION

The two oral diseases namely, Dental caries and periodontal diseases are main excruciation to human being. Initiation and development of periodontal diseases is purely depends on Bacterial plaque. Mechanical and chemical are predominantly obtainable methods for oral health maintenance. For the purpose of cleaning teeth, toothbrushes and dentifrices are broadly practiced. The use of miswak or traditional toothbrush has greater influence in Islam.^{2,3}

The present study in which 60 patients were examined, the clinical effects of miswak and tooth brush on the gingivitis as assessed by the Gingival and Plaque indices are compared. By practicing the chewing sticks and manual tooth brush from first to last visit there was almost equally declining of mean plaque score and gingival score. Similarly there is no significant differences in mean scores according to study conducted by Ghazi et al¹⁵ which are in agreement with present study. There are numbers of studies which show the reduction in plaque and gingivitis in people practicing the miswak effectively. There was a greater effect of miswak on the removal of plaque as compared to tooth brushing according to foregoing studies described by Ethiopia¹⁶, that was conducted on school children, and Saudi Arabian dental students.^{17,18} There is no any consensus to the present study result with

overhead studies. Effectives of miswak in cleaning teeth have been explained by few researchers. From transverse studies incompatible results were obtained. Higher accumulation of plaque and bleeding from gingiva in miswak users in relation with tooth brushing users in between adults has been evident in a study¹⁹. There is no any incompatibility among these analysis result and present study and this might be because of absence of any angulation of miswak bristles as compare with tooth brushes which make it difficult to clean the distal surfaces of posterior teeth more comfortably²⁰. According to Shetty ET al²¹ and sonali saha ET al²² in India Miswak is highly efficient in removal of plaque with declining of gingivitis as compared with tooth brushes, but present researches are not in consensus with above studies. Norton and Addy²³ analysis results and present studies are compatible as both concluded that higher plaque accumulation and gingivitis in miswak users as compare with tooth brushes users, and this might be the results of substandard cleaning methods leads to bad oral hygiene. Ardakani FE et al²⁴ investigation and conclusion are not agreed with these result as they believed that removal of plaque and reduction in gingivitis are better obtained by miswak if properly use when compared with tooth brushes. Numerous researches declared that to obtain greater advantages from miswak it should be used with correct methods to keep away from any un pleasing effect like oral injuries^{18,19}. In underdeveloped nations those methods for cleaning the teeth should be emphasized which are economical, readily available and that one admit and supported by WHO^{21,20,25}. To reduce plaque accumulation and its consequences, as a small numbers of means for oral health care are present there. Oral health is fundamental to overall health, wellbeing and quality of life^{26,27}. The World Health Organization (WHO) stimulates the development of more investigations to give value to efficacy of miswak and its role in oral health care. The people who practiced miswak and toothbrushes have no any notable dissimilarity in gingival indices or bleeding analyzed by same investigators in an earlier study²⁸. The increasing findings manifested that there is no disagreement in between the use of miswak and tooth brushing and this is consensus with present study.

CONCLUSION

It was concluded that the Miswak and the toothbrush equally effective. Miswak use is as effective as tooth brush in removing dental plaque and tooth brush is somewhat more effective in improving gingivitis. Miswak can be a good alternative to the tooth brush because it is inexpensive, replaces both the tooth brush and tooth paste and is readily available.

Author's Contribution:

Concept & Design of Study: Shafqat Hussain
 Khawaja
 Drafting: Seema Naz Soomro

Data Analysis: Kashif Ali Channar
Abdul Bari Memon
Irfan Ahmed Shaikh
Pukhraj Panhwar
Revisiting Critically: Shafqat Hussain
Khawaja, Seema Naz
Soomro
Final Approval of version: Shafqat Hussain
Khawaja

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

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