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Editorial

Extreme Weather Conditions and Diseases

Mohsin Masud Jan

Editor

Extreme weather conditions like rising temperatures, sudden heat wave and irregular pattern of rains are main factors behind spread of such diseases, they say.

The major socio-communal areas being affected by climate change include human health, civic services, water-related infrastructure and hydropower generation.

These special conditions have created a global inter-dependence, which has imbalanced the nexus among the factors, including water, food and energy supplies to the communities around the globe.

In Pakistan, increasing hot climate, changing patterns of snowmelt, rise in sea level and precipitation are exerting enormous impact on natural resources.

Global warming and climate change issues were causing fast glacial melting in Pakistan's Northern Areas which, he added, could cause a 60 percent shortage in water, affecting energy and agriculture security.

According to the 2018 Global Climate Risk Index report, Pakistan is amongst the top 10 countries affected the most by climate change.

According to the Environmentalist, environmental hazards were seriously affecting Pakistan's deltaic area, which is likely to expose more than 2.5 million people to water scarcity, rising sea level effects and food insecurity.

That communities residing at up the sea level are under the threat of glacial take outburst floods (GLOFs), which also is a major threat being faced by Pakistan currently.

Presently, glacial melting was among major global warming induced risks Pakistan was grappled with. To rise in temperatures, Pak coastal regions mangroves are vanishing rapidly and the saline-water forests are on the verge of extinction.

That glacial streams, which all eventually feed 3,500 kilometer long mighty Indian River, clearly indicate that the country's glaciers were melting rapidly.

Temperatures in most of the mountainous valleys never used to go beyond 30 degree celsius during summers, but those are surpassing 40 degree celsius nowadays.

Climate change had posed serious challenges to Pakistan's social, economic and ecological systems, where vast population still depend on predominantly agriculture-based rural economies.

Rural areas in Pakistan were particularly hard hit by the climate change. Steadily rising temperatures were posing a serious risk to country's efforts for achieving sustainable food security. We should make more investments in the remote and barren areas to increase the forest cover and involve institutions and students more in plantation drives. Climate suitability of crops needs to be considered before planning cultivation to obtain optimum yields.

Farming community was persuaded to use modern methods of cultivation in the areas which were prone to climate change. Increased application of biotechnology innovations can allow farming of carbon absorbing crops and seeds.

In fact, global warming throughout the world is being caused by emission of greenhouse gases, as these are the major constituent, playing a vital role in creation of global warming.

The composition of greenhouse gases, said that almost 72% of carbon dioxide (CO₂), 18% of methane and 9% of nitro-oxide consist of totally omitted greenhouse gases in the air. Global Change Impact Studies Centre (GCISC) sources said the centre was providing recommendations to the government to help launch more tree plantation campaigns and address the climate change and global warming challenges, affecting country's development.

The ministry had directed the provinces to take steps to cope with the impact of climate change, particularly the agriculture and livestock sectors.

Demographic Analysis of Syncope Patients after Head up Tilt Test

Analysis of Syncope
Patients after Head
up Tilt Test

Hammad Raziq¹, Noman Sadiq², Uzma Riaz³ and Abdul Samad⁴

ABSTRACT

Objective: To determine the demographic analysis of diagnosed cases of syncope patients on head up tilt test

Study Design: cross sectional analytical study

Place and Duration of Study: This study was conducted at the Islamic International Medical College and in Armed forces Institute of Cardiology, Department of Electrophysiology, Rawalpindi from April 2017 to March 2018.

Materials and Methods: In this study 70 cases were taken on the basis of their past record of syncope, episodes of syncope and on the basis of their findings of head up tilt test. During the collection of the data of syncope, their age, gender, episodes of syncope, occupation and pattern of syncope was observed. The descriptive analysis of collected data was represented as mean $\pm$ standard deviation on SPSS statistics version 21.

Results: In Analysis of Demographic data we took 70 cases of syncope among these there were 15 females and 55 males. Mean age of the syncope patients were 36.17 ± 11.93 , while the episodes of syncope were mean of 2.90 ± 1.83 . In our Analysis of syncope, we also found that among 70 cases, 41 of the positive cases were soldiers or belongs to army because of prolong standing during duty hours. During this study two patterns of syncope were observed which were vasovagal syncope and Postural tachycardia syndrome.

Conclusion: we conclude that syncope is more prevalent in middle age groups and most of the patients presents with 2 or more episodes of syncope. Syncope is more prevalent in those who are more prone to prolong standing at work.

Key Words: syncope, Head up tilt test, Age, vasovagal syncope, Postural tachycardia syndrome

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INTRODUCTION

Syncope is a transitory and self-resolving loss of consciousness, which occurs due to the decreased perfusion of the cerebral tissues usually due to hypotension leading to hypo-perfusion. Syncope commonly occurs in those who are intolerant to orthostatic stresses. In orthostasis a person is unable to maintain his venous return and blood pressure during standing or due to the effect of gravity¹. Brain is the most sensitive organ to decreased perfusion among all organs and it utilizes 15-20% percent of the cardiac output with little reserves as for metabolic needs, so

decrement in blood supply to brain manifests in the form of syncope or pre-syncope like state. A case of syncope usually comes with complains of blurry vision, sweating, lightheadedness, nausea and vertigo and it have been found that syncope affects 6.2 per 1000 persons per year².

Syncope is commonly occurring complaint of patients visiting in the hospitals, which is 1-2% of emergency visits. Pathophysiology of Progression of the syncope is same irrespective of the cause of syncope so the ultimate mechanism is fall in blood pressure, which either occurs due to fall in blood pressure, hypervolemia or due to fall in peripheral vascular tone³. Syncope has different etiological causes which may be vasovagal (Reflex syncope), Orthostatic, cardiac syncope (structural heart anomaly or Arrhythmias), Neurogenic, Endocrinological and psychiatric. Neurocardiogenic syncope also known as vasovagal syncope is the most prevalent and common syncopal cause, which usually occurs due to abnormal vasodilatation and bradycardia in response orthostasis or vascular stresses due to the effect of gravity⁴. In vasovagal syncope bradycardia and hypotension are the characteristic features found that progresses toward cerebral hypoperfusion due to accumulation of venous blood in lower extremities and dependent parts of the body that advances toward syncope⁵. Another common subset of syncope is postural tachycardia in which there is reflex tachycardia of 30 beats/minute or increased

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heart rate up to 120 beats in ten minutes of standing but occurs in the absence of hypertension⁶. This type of syncope occurs due to autonomic dysfunction to counter intravascular volume depletion. Cases of postural tachycardia encounter palpitations, cardio respiratory discomfort, vertigo and dizziness⁷.

Syncope is difficult to diagnose because of its multiple etiologies. Head up tilt test is used as a gold standard for testing the syncope patients. Head up tilt (HUT) test is widely used tool to uncover the symptoms of the syncope. During this test patient is positioned at the angle of 70° for 45 minutes followed by pharmacological provocation by sublingual nitroglycerin (NTG 0.3mg). During this whole test blood pressure and cardiac rate is monitored, which varies in syncopal patients that progress them towards syncope and on the basis of these parameters, variations in cardiovascular parameters patient can be labeled as positive tilt table test or syncope patients. Head up tilt test gives certain different types of syncope patterns which may be neurocardiogenic, psychogenic syncope, cerebral syncope, postural tachycardia syndrome (POTS) and dysautonomic but vasovagal syncope (Neurocardiogenic syncope) and Postural tachycardia syndrome (POTS) are the most common and prevalent one⁸.

MATERIALS AND METHODS

In this study 70 cases were taken from the Electrophysiology department, who came with the complaint of syncope. Then there head up tilt test was performed, on the basis of their past medical record of syncope, episodes of syncope and on the basis of their findings of head up tilt test patients were chosen. After the selection of Positive patients of syncope after head up tilt test, their age, gender, episodes of syncope, occupation and pattern of syncope was observed and recorded. The descriptive analysis of collected data was represented as mean $\pm$ standard deviation which was analyzed on SPSS statistics version 21.

RESULTS

In Demographic analysis of the syncope patients that might be vasovagal syncope or postural tachycardia syndrome, we took 70 cases of syncope among these there were 15 females and 55 males. Mean age of the syncope patients were 36.17 ± 11.93 which shows that it is more prevalent in middle age group as compared to younger or older age group, while the episodes of syncope were mean of 2.90 ± 1.83 , which shows that cases of presents for head up tilt test when they have two or more episodes of syncope or presyncope like state. In our Analysis of syncope as we performed our study in military hospital, we found that among 70 cases, 41 of the positive cases were soldiers or belongs to army. As syncope or presyncope like state can occur due to orthostatic intolerance or incompetent

compensatory mechanism to prevent venous pooling that is due to prolong standing during duty hours leading towards vertigo, fainting and syncope.

Table No.1: Demographic analysis of syncope patients

Number of cases	70	
Age	36.1 ± 11.9	
Episodes of syncope	2.9 ± 1.8	
Gender	Male	Females
	55	15
Occupation	Army	Civilian
	41	29

DISCUSSION

Head up tilt test is a tool used to evaluate the syncope as we did in our study. on head up tilt test different hemodynamic and cardiovascular variations are seen that lead to syncope among which neurocardiogenic (reflex or vasovagal syncope) is most common one followed by (POTS) postural tachycardia syndrome during head up tilt test⁹. In another study by Kenny et al.,(2000) in which he observed the variation of blood pressure and heart rate and label them as cases of vasovagal and postural tachycardia as we experienced similar hemodynamic and syncopal indications and patterns during this study¹⁰.

Central nervous system is highly sensitive organ to ischemia and when there is hypo perfusion to brain tissues, it can leads to syncope or syncope like state. This cerebral hypo perfusion is usually of shorter duration averaging of twelve seconds. In an average life span of 70 years syncope occurs once in 42% of the population. It occurs in 6 % of the new cases per year¹¹. Cases of syncope varies in age ranging from 18 years of age in 15% of population to 23% of elderly population and these values are in accordance with the results of our study thus supporting the results of age variability of our study¹².

In different studies it have been found that episodes of syncope varies with age and the average age of patients who comes for head up tilt test with previous episodes of syncope was 36 ± 16.3 years, which resembles the age of our patients in our study. In another study it have been found episodes of syncope increases with age i.e. 5.7 episodes per year after the age of 60, while 11 episodes per year after the age of 70 years¹³. In those patients who have two or less than two episodes of syncope their recurrence rate is 22% as compared to those who have more than six episodes have recurrence rate of 69%. In this study it also has been found that forty percent of the overall population has encountered syncope at least once in their life and new cases reported in hospitals are found to be 1.3 /1000 persons in a year¹⁴. The epidemiology of syncope varies with different age groups. In young age group it is more commonly neuro cardiogenic (reflex syncope)

mediated, while in older age group it is usually occur due to cardiovascular irregularities.

Among all the cases of the syncope, Reflex syncope found to be the most prevalent one because it is account for 21 percent of all syncope and 56 to 78 percent of the syncope patients in specialized units belongs to this type of syncope¹⁵. The prevalence of reflex syncope (Vasovagal Syncope) and its occurrence in general population on the basis of gender is 3% in male population and 3.5% in female population. It was also observed that females are encountered with syncopal episode greater in frequency as well as longer in duration as well¹⁶.

In cases of postural tachycardia syndrome female are most common as compared to male i.e. male to female ratio is 4:1 and age varies from 15 to 50 years of age¹⁷. Prevalence of more syncope more in females as compared to that of male might be due to female androgenic hormones that could effects sensitivity and metabolism of catecholamine.

In our cases we also have found that out of seventy cases in our study forty one cases were soldiers and belongs to the army, the greater prevalence of syncope in soldiers shows that syncope is associated with prolonged standing that leads to venous pooling, decreased venous return, cerebral hypo perfusion and ultimately syncope occurs. In another study conducted on soldiers predicted the causes of ailment and sudden death and found that most common cause was cardiac diseases which was 54% followed by syncope which account for 23 % of anomalies and deaths due to this, which emphasize the importance of evaluation of young soldiers associated with syncope during exercise and during prolonged standing while duty¹⁸.

In another study by Glifrich et al conducted on US soldiers in which he proposed that syncope is the most common cause of referral after cardiac diseases¹⁹. Different injuries are also found to be associated with syncope and Number of episodes of syncope and symptoms of syncope and pre syncope gives predictive values for positive tilt table result and Number of episodes of syncope and symptoms of syncope along with positive tilt table result gives the clue for recurrence of syncope which are in accordance to our study²⁰.

CONCLUSION

This study concludes that syncope is usually prevalent in the middle age groups and the patients come to hospital with more than 3 episodes. Females also have a large share in the prevalence of the syncope. This disease is also associated with history of prolonged standing and this is the major reason that's why it is common in those who are exposed to prolonged standing in the day like in soldiers. In future it is recommended to perform hormonal analysis like androgens of syncope patients should be done.

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

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Hematological Manifestations of Celiac Disease in Children

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ABSTRACT

Objective: The frequency of different hematological manifestations of celiac disease in children.

Study Design: A case series study.

Place and Duration of Study: This study was conducted at the Pediatrics Department of Shalamar Medical and Dental College, Lahore from January 2015 to December 2018.

Materials and Methods: A total of 120 children, aged 1 to 12 years, diagnosed with CD. Diagnosis of CD was confirmed as small intestine biopsy showing intestinal mucosal changes as per Modified Marsh criteria, where included Frequency and percentages were calculated for qualitative variables like gender, thrombocytosis, leucopenia, anemia, coagulopathy, iron deficiency and vitamin B12 deficiency whereas mean and standard deviations were calculated for quantitative variables like age.

Results: Out of a total of 120 children, there were 68 (56.7%) male and 52 (43.3%) female, representing a male to female ratio of 1.31:1. Mean age was noted to be 9.21 years with a standard deviation of 2.6 years. Anemia was found in 113 (94.2%) children, thrombocytosis 93 (77.5%), leucopenia 12 (10.0%) and coagulopathy in 10 (8.3%). As per modified marsh scoring, 37 (30.8%) were type 3a, 36 (30.0%) type 3b, 28 (23.3%) type 3c, 17 (14.2%) type 2 and 2 (1.7%) type 1.

Conclusion: In children, hematological abnormalities related celiac disease is quite common. Anemia is the commonest hematological finding that is mostly found accompanying thrombocytosis.

Key Words: Celiac disease, anemia, thrombocytosis, coagulopathy.

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INTRODUCTION

Celiac disease (CD) is characterized as immune mediated enteropathy due to eternal sensitivity related to gluten in those individuals who are susceptible genetically.^{1,2} It exhibits once exposure related to dietary gluten in wheat rye or barley. Diarrhea of recurrent nature, weight loss and inability to thrive are some of the most common presentations among children.^{3,4} In some children, hypoalbuminemia causing edema is also found. In the recent years, CD has

become more known regarding its non gastrointestinal (GI) symptoms like anemia, osteoporosis, short stature, coagulopathy or peripheral neuropathy.⁵ Biopsy of the small intestine depicting characteristic mucosal alterations as per Modified Marsh criteria⁶ confirms the diagnosis of CD, whereas a full clinical remission is witnessed following a diet that is gluten free. Further confirmatory findings include detection of anti-endomysial (Anti-EM) and anti-tissue transglutaminase (Anti-tTGA).⁷

The prevalence of CD is thought to be around 1% in general population around the world while Europe shows that to be 1-3%. Amongst children, the prevalence of CD is estimated to be 0.5-1% while it has also been shared that about 90% children with are undiagnosed that goes on to interpret that these undiagnosed children are not getting a timely diagnosis or treatment.⁸⁻¹¹ Actual burden of CD in Pakistan is unknown but, it was noted in a study that 61% of the children were found to be positive for CD who presented having persistent diarrhea and poor growth.¹² Anemia, coagulopathy, thrombocytosis and leucopenia are some of the most common hematological findings in CD.^{13,14} Anemia has been noted to be the commonest, found in about 86% of the CD cases.¹⁴ Malabsorption related to iron, folic acid and vitamin B12 are some of the key factors contributing to anemia while local studies from Pakistan has shown that anemia was found in about 90% of CD cases.

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Coagulopathy is found in around 19% of CD cases and is thought to be related with vitamin K and vitamin D malabsorption.¹⁵ Thrombocytosis is noted to be present in 60% of CD cases while leucopenia is recorded to be affecting about 9% of CD cases.¹⁴

In Pakistan, not much work has been done evaluating hematological spectrum of CD amongst children as very few studies have recorded these entities. The hematological findings in CD are also thought to play an important role for the timely diagnosis and management of CD that can minimize the morbidity and mortality associated with CD. This study was planned to find out the frequency of different haematological manifestations of CD in children.

MATERIALS AND METHODS

This study was conducted from 1st January 2015 to 31st December 2018 at Pediatrics Department of Shalamar Medical and Dental College was the venue for this case series study. A total of 120 children, aged 1 to 12 years, diagnosed with CD. Diagnosis of CD was confirmed as small intestine biopsy showing intestinal mucosal changes as per Modified Marsh criteria that includes partial to total villous atrophy, crypt elongation and / or increased intraepithelial lymphocytes. Children with liver disease (ALT more than 40 IU/L) or intestinal tuberculosis were not included.^{6,16}

Approval from the institution's ethical committee was granted and informed consent was taken from parents or guardians of all the study participants. As per hospital criteria, all essential investigations like complete blood count, platelet count, prothrombin time (PT) and activated partial thromboplastin Time (APTT) to decide coagulopathy were ordered. In children with anemia (hemoglobin < 10 g/dl), serum iron, serum ferritin, serum & red cell folate and serum vitamin B12 were asked. All the investigations were done from institute's central laboratory.

All the data was recorded on a predesigned proforma. SPSS version 21.0 was used for data handling and analysis. Frequency and percentages were calculated for qualitative variables like gender, thrombocytosis, leucopenia, anemia, coagulopathy, iron deficiency and vitamin B12 deficiency whereas mean and standard deviations were calculated for quantitative variables like age.

RESULTS

Out of a total of 120 children, there were 68 (56.7%) male and 52 (43.3%) female, representing a male to female ratio of 1.31:1. Mean age was noted to be 9.21 years with a standard deviation of 2.6 years. There were 52 (43.3%) children between the age of 1 to 4 years, 38 (31.7%) above 4 and up to 8 years of age and 30 (25.0%) above 8 and up to 12 years of age.

In terms of overall hematological manifestations, anemia was found in 113 (94.2%) children,

thrombocytosis 93 (77.5%), leucopenia 12 (10.0%) and coagulopathy in 10 (8.3%).

Anemia only was noted in 23 (19.2%) children, thrombocytosis only 2 (1.7%), leucopenia only 3 (2.5%), coagulopathy only 2 (1.7%), anemia plus thrombocytosis 73 (60.8%), anemia plus leucopenia 9 (7.5%) and anemia plus thrombocytosis plus coagulopathy in 8 (6.7%). When children with anemia (n=113) were further evaluated for etiology, iron deficiency anemia was observed in 83 (73.5%), vitamin B12 and folate deficiency anemia 12 (10.6%) and double deficiency anemia in 18 (15.9%).

When patients were distributed in terms of modified marsh scoring, 37 (30.8%) were type 3a, 36 (30.0%) type 3b, 28 (23.3%) type 3c, 17 (14.2%) type 2 and 2 (1.7%) type 1.

Overall Frequency of Hematological Manifestations

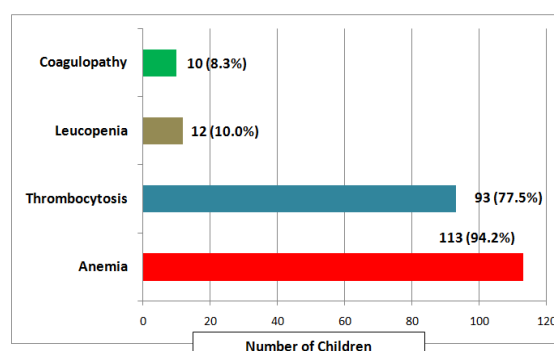


Figure No.1: Overall Frequency of Hematological Manifestations

Table No.1: Hematological Manifestations Amongst Children with CD

Hematological Manifestations	Number (%)
Anemia only	23 (19.2%)
Thrombocytosis only	2 (1.7%)
Leucopenia only	3 (2.5%)
Coagulopathy only	2 (1.7%)
Anemia + thrombocytosis	73 (60.8%)
Anemia + leucopenia	9 (7.5%)
Anemia + thrombocytosis + coagulopathy	8 (6.7%)

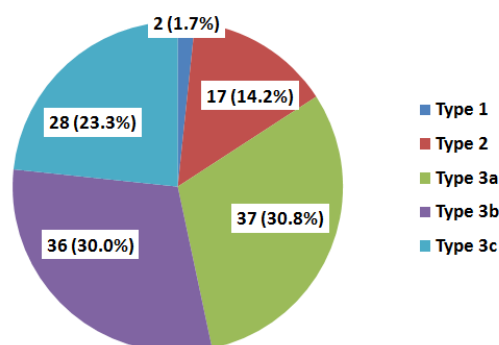


Figure No.2: Distribution of Children According to Modified Marsh Score

DISCUSSION

CD is known to be a systemic disorder that has several hematological manifestations.¹⁴ In Pakistan, not many studies have evaluated the hematological aspects of CD and this study stands one of the very few done in this regard.

Over the years, many hematological features of CD have been described by researchers but anemia due to iron, folic acid and / or vitamin B12 malabsorption has been noted to be the most frequent complication associated with CD and most of the patients have anemia at the time of CD diagnosis.¹⁶ We studied the most frequent hematological findings associated with CD, like anemia, thrombocytosis, leucopenia as well as coagulopathy.

Lots of difference persists in terms of presence of anemia in CD.¹⁴ In the current study, we noted anemia to be present in 94.2% children. Our results are very consistent with another local study conducted by Saqlain N et al¹⁶ where they found anemia to be present in 93% of children with CD. Mansoor A et al¹⁵ noted that 90% of the CD children had anemia at the time of diagnosis. Another local study conducted by Ayesha H and colleagues¹⁷ showed that 95% of the children had iron deficiency anemia. Most of the children with CD in our study, 73 (60.8%) had thrombocytosis along with anemia that could possibly be because of iron deficiency. Another study local study from Lahore¹⁶ recorded that 64% of the children with CD had thrombocytosis that is very close to what we found in the current study. Only 2 (1.7%) children in our study had thrombocytosis only and this pattern has also been found in an earlier study where it was noted that only 2.9% children with CD had thrombocytosis alone while most others had thrombocytosis along with anemia.¹⁶ Iron deficiency along with chronic inflammation can possibly be the reasons of thrombocytosis in children with CD but the precise etiology is still unknown. The previous work done has also noted thrombocytosis to be present in as much as 60% of the CD cases and it has been found more frequent than thrombocytopenia.^{14,17}

Leucopenia has been shown to be a rare disorder¹⁸ in some of the studies evaluating CD cases but in the current study, we got leucopenia to be present in 12 (10.0%) of the cases. Our results are similar to what has been found by Saqlain N et al¹⁶ where they found that 105 of children with CD had leucopenia. Another study done by Halfdanarson TR and coworkers¹⁴ noted 9% of children with CD had leucopenia. Leucopenia has been found to be accompanied with anemia in most of the cases with CD.

Coagulopathy was another hematological disorder found in our study and we noted 10 (8.3%) children with CD to have it. None of the children presented to us with any kind of active bleeding. Coagulopathy only was reported in 2 (1.7%) children in our study while all

others had anemia as well thrombocytosis as well. The probable mechanism behind all this could be decreased vitamin K synthesis because of malabsorption as well as chronic diarrhea. Deficiency in the levels of vitamin K could lead in to decrease in vitamin k dependent factors that may go on to prolong PR as well as APTT.¹⁶ Intramuscular hemorrhage has also been noted in one of the findings.⁵

As per Modified Marsh Score, we found that most of the CD children had type 3 disease. These results are aligned with those found earlier in other local studies.^{14,16}

In our setting, CD is not a likely diagnosis when children present having chronic diarrhea along with mild to moderate villi blunting. Traditionally, enteric etiology of tropical sure are thought to be the usual causes in these cases.¹⁶ As the diagnosis of CD is not always in time and with advancement in the disease, hematological manifestations are found to be more pronounced¹⁹ as was found in the present study. CD can also present with hematological abnormalities as has been advocated in the past²⁰ so children presenting with these common hematological abnormalities should always be assessed thoroughly to rule out any possible diagnosis of CD.

CONCLUSION

In children, hematological abnormalities related celiac disease are quite common. Anemia is the commonest hematological finding that is mostly found accompanying thrombocytosis. In children with anemia, iron deficiency anemia is noted to be the most common etiology which should be managed with iron supplementation coupled with gluten free diet.

Author's Contribution:

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Final Approval of version:	Bushra Madni

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

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Gingivitis and Associated Factors among Patients visiting Secondary Care Hospitals of (Gadap Region) Karachi, Pakistan

Malik Muhammad Saqib¹, Atif Mahmood², Atif Jawad³, Ali Maqbool⁴, Faria Khan² and Umer Khayyam⁵

ABSTRACT

Objective: Gingivitis is a commonly occurring preventable disease prevalent among the people of Pakistan. Gingivitis is a disease of the gums which if left untreated can turn into a more extreme disease known as periodontitis. The objectives of the study were to assess the frequency of gingivitis in patients visiting secondary care hospital in Gadap region in Karachi, Pakistan and to study the level of gingivitis and its associated risk factors in these patients.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the patients attending out-patient department of private secondary care dental hospital in Gadap town, Karachi, Pakistan from January till June 2018.

Materials and Methods: Multistage sampling technique was used; initially stratified sampling was done for making strata of male and female which was followed by non-probability purposive sampling for selection of the participants.

Results: A total of 387 patients were examined of which 208 (53.7 %) were males and 179 (46.3%) were females. The age group ranged from 30 to 39 were seems to be the highest among all other ranges with total of 131 patients out of 387 and second highest age group was from 40 to 49 with total of 127 patients respectively. A highly significant association (p value < 0.001) between gingivitis and gender of the patients was found. A significant association (p value < 0.05) was found between the degree of gingivitis and tobacco chewing or tobacco containing products. A highly significant association (p value < 0.001) between gingivitis and the bleeding gums during brushing was observed. Majority of the patients (n=139, 84.2) with bleeding gums during brushing had severe inflammation as well.

Conclusion: It is indicated from the study that the poor oral hygiene and improper eating habit have a negative impact on the periodontal condition and that can leads to severe destructive condition of oral tissue.

Key Words: Gingivitis, Periodontitis, Inflammation, Oral Hygiene, Oral Health.

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INTRODUCTION

Gingivitis is the commonest oral disease in Pakistan¹. Gingivitis is a disease of the gums which if left untreated can turn into a more extreme disease known as periodontitis.

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Gingival diseases are non-destructive infection that includes a diverse family of pathological entities caused by various etiological factors². However, if gingivitis is left unchecked and untreated, gingivitis can bring about the gums to separate from the teeth. This can cause harm to the tissue and bone supporting the teeth. If the contamination worsens, one may lose tooth or need to get it uprooted by a dental practitioner³. Several different factors contribute towards Gingivitis which includes smoking, diabetes, medicines, dental appliances, over hanging filling, HIV and others.⁴ Gingivitis is preventable and reversible disease of periodontal tissue. This requires proper brushing technique, twice daily, regular visits to the dentist, use of mouth washes and proper rinsing of mouth after every meal⁵.

In Pakistan, numerous researchers have demonstrated that periodontal problem never occurs alone; it is associated with other risk factors that cause periodontal disease. The objectives of the study were to assess the frequency of gingivitis in patients visiting secondary

care hospital in Gadap region in Karachi, Pakistan and to study the level of gingivitis and its associated risk factors in these patients.

MATERIALS AND METHODS

A cross sectional study was conducted to assess the level of gingivitis among the patients attending outpatient department of private secondary care dental hospital in Gadap town, Karachi, Pakistan. The duration of the study was six months from January till June 2018. Multistage sampling technique was used; initially stratified sampling was done for making strata of male and female which was followed by non-probability purposive sampling for selection of the participants. Considering Confidence Level of 95% and precision of 5% with an expected proportion of 50%, the sample size according to the Daniel formula for sample size calculation was 384 patients. Therefore, a total of 384 patients were interviewed to assess the status of gingivitis. Patients aged between 20 to 50 years with presence of all teeth excluding the third molar were included. Patients who had any known systemic diseases, were handicapped or were illiterate were excluded from the study.

The closed ended questionnaire was adapted from different articles which consists of two parts, part one included the questions regarding the demographic characteristics of the subjects and second part included the information on risk factors associated with gingivitis and factors effecting gingival tissue. List of articles from where the questionnaire has been extracted.

Question 5-10	Almas K, Al Shwaimi E, H As, N S. The oral hygiene habits among intermediate and secondary schools students in Riyadh, Saudi Arabia. Pak Oral Dent J. 2003;23(1):29-34 ⁵ .
Question 11-15	Nessa J, Choudhury S. Gingivitis: A Common Preventable Oral Health Problem. TAJ: Journal of Teachers Association. 2004;17(1):20-6. ²
Question 16-20	Jamjoum H. Preventive oral health knowledge, practice and behaviour in Jeddah, Saudi Arabia. Tropical Dental Journal 1997;13 – 8 ⁶ .

A pilot study on 10% of the sample size was done and Crohn Bach Alpha was applied to assess the validity and reliability of the questionnaire in our cultural setting. Gingival tissue was examined according to the gingival index proposed by Loe and Silness⁷.

0	Normal gingival	
1	Mild inflammation	Slight color change, slight edema, No bleeding on probing.
2	Moderate inflammation	Redness, edema and glazing. Bleeding on probing

3	Severe inflammation	Marked redness and edema. Ulceration, Tendency of spontaneous bleeding
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IBM SPSS version 17 was used to analyze the data. Frequency tables were generated for easy visualization of the data and frequency distribution and percentage was used for categorical data like sex and groups of age. Chi Square test was used to measure associations between the variables. The significant p-value for the study is < 0.05.

Participation of all the subjects was voluntary. Verbal information was provided to the all participants about the purpose, risk and benefits of the study. Written informed consent was obtained from all the participants. All participants had the right to quit the study at any point of time. All of the information provided by participants' was kept confidential and anonymous.

RESULTS

Table I: Demographic Variables of the studied subjects (N=387)

		Frequency(n)	%age
Gender	Male	208	53.7
	Female	179	46.3
Age Groups			
	20 - 29	110	28.4
	30 - 39	131	33.9
	40 - 49	127	32.8
	50	19	4.9
Educational Status			
	Secondary / Middle	131	33.9
	Matriculation	138	35.7
	Intermediate	82	21.2
	Graduate	35	9.0
	Postgraduate	1	.3
Tobacco Smoking			
	Yes	229	
	No	158	
Gingival Index			
	Mild Inflammation	30	7.8
	Moderate Inflammation	192	49.6
	Severe Inflammation	165	42.6

A total of 387 patients were examined of which 208 (53.7 %) were males and 179 (46.3%) were females. The age group ranged from 30 to 39 were seems to be the highest among all other ranges with total of 131 patients out of 387 and second highest age group was from 40 to 49 with total of 127 patients respectively.

Most of the subjects had done matriculation (35.7%) followed by secondary school (33.9%). According to the results it has been shown that the different patient showed different type of gingivitis. Total of 387 patients were examine of which 30 (7.8 %) patients were having mild inflammation. Majority of the patients were having moderate sign of gingivitis (n=192, 49.6%) and 165 patients (42.6%) had severe inflammation.

Table No.2: Risk factors associated with gingivitis and factors effecting gingival tissue

		Freq- uency (n)	%age
Do you have any systemic problem?	Yes	149	38.5
	No	238	61.5
Do you take any form of tobacco or tobacco containing products?	Yes	232	59.9
	No	155	40.1
How many times a day you clean (brush/maswak) your teeth?	Once	312	80.6
	Twice	71	18.3
	Thrice	4	1.1
What instrument you use for cleaning teeth?	Neem	14	3.6
	Datum	5	1.3
	Maswak	38	9.8
	Toothpaste	330	85.3
Brushing Technique	Circular	46	11.9
	Horizontal	312	80.6
	Scrubbing	18	4.6
	Vertical	11	2.9
Do you use inter-dental cleaning devices?	Yes	83	21.4
	No	304	78.6
Does your gum bleed while brushing?	Yes	288	74.4
	No	99	25.6
Have you ever visited a dentist?	Yes	110	28.4
	No	277	71.6
Do you have pain in your gums?	Yes	240	62.0
	No	147	38.0
Do you have chewing problems while eating due to pain in the gums?	Yes	261	67.4
	No	126	32.6
Do you have a problem of bad breath?	Yes	244	63.1
	No	143	36.9

Table 2 shows that majority of the patients (n=238, 61.5%) did not have any systemic problem along with their gingivitis. Majority of the patients (n=232, 59.9%) used tobacco or tobacco containing products. Majority of patients (n=312, 80.6%) patients brushed only once a day as compared to 18.3% who brushed twice a day every day. Most of the patients (n=330, 85.3%) used tooth paste for brushing as compared to 38 (9.8%) who used maswak as the cleaning substance of their teeth. The majority of the patients (n=312, 80.6%) used horizontal brushing technique and most of them (n=304, 78.6%) did not use any kind of interdental cleaning devices. Majority of the patients (n=288, 74.4%) reported that their gums bleed while brushing yet majority of them (n=277, 71.6%) never visited any dentist for their dental complains. Most of the patients (n=240, 62.0%) had pain in their gums and therefore most of them (n=261, 67.4%) also had chewing problems while eating due to this pain. Pain in gums during gingivitis is an important sign, which divide the gingivitis into its different type, by its nature. If patient is suffering from gingivitis and having plaque and calculus deposition then patient might suffer from chewing problems while eating. Majority of the patients (n=244, 63.1%) has a problem of bad breath as well which shows the poor status of their oral hygiene and lack of awareness among the patient on maintenance of oral health.

A highly significant association (p value < 0.001) between gingivitis and gender of the patients was found. Majority of the males (n=121, 73.3%) had more severe inflammation whereas majority of the females (n=121, 63.0%) showed a moderate from of inflammation.

A significant association (p value < 0.05) was found between the degree of gingivitis and tobacco chewing or tobacco containing products. It has been found that the patients taking tobacco in any form are highly affected by the gingivitis as compared to the patients not using tobacco in any form which also highlights that use of tobacco can cause many diseases like OSF (oral sub mucosal fibrosis) and oral cancer.

A highly significant association (p value < 0.001) between gingivitis and the bleeding gums during brushing was observed. Majority of the patients (n=139, 84.2) with bleeding gums during brushing had severe inflammation as well.

A significant association (p value < 0.001) between gingivitis and pain in gums was found. Majority of the cases (n=144, 87.3%) who had pain in their gums had severe inflammation of the gums as well.

Table No.3: Association between Gingival Index and other variables

		Gingival Index						p value
		Mild Inflammation		Moderate Inflammation		Severe Inflammation		
		n	%	n	%	n	%	
Gender	Male	16	53.3	71	37.0	121	73.3	0.000
	Female	14	46.7	121	63.0	44	26.7	
	Total	30	100	192	100	165	100	
Use of Tobacco or containing products	Yes	13	48.1	103	53.6	113	67.3	0.008
	No	14	51.9	89	46.4	55	32.7	
	Total	27	100	192	100	168	100	
Bleeding Gums	Yes	27	100	122	62.6	139	84.2	0.000
	No	0	0	73	37.4	26	15.8	
	Total	27	100	195	100	165	100	
Pain in Gums	Yes	27	90.0	66	34.4	144	87.3	0.000
	No	3	10.0	126	65.6	21	12.7	
	Total	30	100	192	100	165	100	

P value <0.05 = significant, <0.01 = very significant, <0.001 = highly significant

DISCUSSION

Gingivitis is a preventable commonly occurring disease in Pakistan that can be caused by several different risk factors like smoking, diabetes, medicines, dental appliances, over hanging filling, HIV, improper brushing and others⁸. Among the different associated risk factors that causes the gingivitis, tobacco smoking or chewing tobacco was the most frequent one reported. The tobacco chewing was reportedly equally common in both the genders.⁶

It has been shown that certain pathological changes do take place during the fixed orthodontic treatment with the application of the orthodontic appliances in the mouth of the patient. These changes are observed during the first few months of the start of the treatment. These orthodontic appliances provide an area around the tooth where the bacterial plaque can accumulate on the tooth surface that can lead to the gingival inflammation^{9,10}. In the present study, few patients especially females reported with orthodontic appliances in their mouth and they were found to have poor oral hygiene with plaque accumulation and bad breath from their mouth. Thus, the orthodontic appliances during the treatment can be considered as a risk factor for periodontal inflammation and can cause gingivitis¹¹.

Gingivitis causes difficulty in chewing; recession, irritation of the gums and bad breath that does not go away even after brushing the teeth. However, gingivitis itself can be prevented and is reversible by using the proper brushing technique; twice daily with regular visits to the dentist, use of mouth washes and proper rinsing of mouth after every meal⁵. The present study shows that majority of patients were brushing only once

every day and their technique was also questionable hence the high rate of gingivitis among the patients.

There have been studies showing the effectiveness of Azadirachita indica (Neem) leaf extract and twig extract in comparison with Chlorhexidine Gluconate to function as an anti-microbial agent and reduces the count of microorganisms in oral cavity and thus prevents the bacterial growth inside the oral cavity. These agents are available in different products like mouth washes, tooth paste and others.¹²⁻¹⁵ The present study endorses this finding that the patients using mouth washes, tooth pastes had better oral hygiene as compared to others because these products reduced the count of bacterial oral flora and thus prevented from gingival inflammation.

Another study showed the results on the use of herbal products and identified herbal dentifrices as a risk factor of the gingival inflammation that can cause gingivitis instead of preventing it. The study further elaborates that the use of herbal products is good but it doesn't remove all the food debris that accumulates around the tooth, especially inter-dental areas¹⁶. This accumulation of food debris can cause caries in inter-dental areas because of the increase bacterial growth in that area. The present study supports the idea as inter-dental cleaning was not observed in majority of the patients included in the study and these patients also had some form of gingivitis.

CONCLUSION

It is indicated from the study that the poor oral hygiene and improper eating habit have a negative impact on the periodontal condition that can lead to severe destructive condition of oral tissue.

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

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Urinary Tract Infection Amongst Neonates Having Asymptomatic Jaundice

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ABSTRACT

Objective: The frequency of Urinary tract infections (UTI) amongst neonates having asymptomatic jaundice.

Study Design: cross sectional study.

Place and Duration of Study: This study was conducted at the Paediatrics Department of Services Hospital, Lahore from August 2018 to March 2019.

Materials and Methods: We enrolled 160 neonates with asymptomatic jaundice having no history of fever from last 2 weeks. Frequency of UTI was noted among all the study participants. All the information regarding this study was noted on a predesigned proforma. SPSS version 21 was used for data entry and analysis for this study. Chi square test was used to see any difference of study variables among the study participants with or without UTI and p value ≤ 0.05 was taken as significant.

Results: Amongst a total of 160 neonates, there were 89 (55.6%) male and 71 (44.4%) female. Overall, mean age was found to be 20 days with a standard deviation of 3.8 days. Most of the children, 93 (58.1%) were between the age of 21 to 28 days while remaining 67 (41.9%) 14 to 21 days. UTI was present in 15 (9.4%). The most common pathogen involved in UTI was E. Coli in 6 (40.0%), klebsiella in 4 (26.7%), staph epidermidis in 2 (13.3%), enterobacter in 2 (13.3%) and pseudomonas in 1 (6.7%).

Conclusion: UTI is common in neonates having afebrile asymptomatic jaundice. Commonest pathogens involved are E.coli and klebsiella. Asymptomatic neonates presenting with jaundice should be given special attention to rule out UTI for the early diagnosis and management.

Key Words: Urinary tract infection, asymptomatic, afebrile, jaundice.

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INTRODUCTION

Urinary tract infection (UTI) is commonly found amongst pediatric population. Renal Delayed diagnosis may have consequences of a life-long nature.^{1,2} Infancy period is known to be the most common age group for UTIs. UTI is usually exhibited in the form of pyelonephritis, asymptomatic bacteriurea or cystitis.³ In newborns, presentation is commonly in the form of hypothermia, cry that is usually high pitched, inability to thrive or changes in skin color.

Abdominal distension, diarrhea or vomiting is commonly seen in neonates. Jaundice or skin rashes are also some of the other manifestations.^{2,4} Fever, hypothermia or clinical jaundice are the most frequent presentations among neonates or infants whereas children of subsequent ages have micturition problems or dysuria, usually reported with irritable cry. Inability to gain weight or loss of appetite are the most important findings for UTI in infants. Urine culture is advised when children have jaundice.⁵⁻⁷

Evidence show that relying only on history and clinical examination is not enough for the early diagnosis of UTI so further investigations like urine culture should be ordered whenever indicated.⁸ A local study from Lahore⁹ noted that 73% of children with UTI were having fever while inability to gain weight was recorded in 47%. Another local study from Hazara reported that 65% of children were having dysuria.¹⁰ Neonatal jaundice is commonly seen in about 60% babies.^{11,12} Underlying diseases to neonatal jaundice are rare but jaundice can be 1st sign of UTI among neonates. Susceptibility to UTI among neonates is increased because of low uro-epithelial bactericidal activity, decreased levels of immunoglobulin A, low capacity of urinary acidification and high peri-urethral colonization among neonates. Most of the symptoms of UTIs among neonates, like fever, inability to thrive,

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irritability, lethargy vomiting, jaundice, are non specific so early diagnosis is challenging.¹¹ Amongst newborns, jaundice can be taken as the initial symptom linked to UTIs.⁷ In a study conducted by Ghaemi S et al¹³ noted 5.8% infants with UTI to have late onset jaundice whereas a Local study from Lahore⁴ reported the frequency of UTI as 7.3% in neonates who had asymptomatic jaundice. UTI has also been named as a factor responsible for prolonged jaundice among neonates.¹⁴

Not much work is found seeking frequency of UTI among neonates presented with jaundice so we aimed this study to find out the frequency of Urinary tract infections (UTI) amongst neonates having asymptomatic jaundice. The findings of our study will be helpful in identifying the patterns of UTI in these neonates. Our study will not only be a valuable to addition to little literature on this topic but also lay the basis for future trials evaluating any possible relation between UTI and jaundice among neonates.

MATERIALS AND METHODS

Paediatrics Department of Services Hospital, Lahore was the center for this cross sectional study that was done from 1st August 2018 to 31st March 2019.

A minimum sample of 150 neonates was calculated considering 95% confidence interval while anticipated frequency of UTI was taken as 8.2% among neonates¹⁰ with jaundice. We enrolled, 160 neonates with jaundice (discoloration of sclera, skin or mucous membrane) having no history of fever from last 2 weeks, from outdoor and emergency department, using non-probability purposive sampling. Neonates having fever (more than 38°C), diarrhea, nausea or vomiting, irritability, lethargy, tachypnea, abnormal LFTs or having any liver or cardiac diseases were not included. Approval from institute's ethical and research committee was sought for this study. Informed consent was taken from parents / guardians of all the study participants. Frequency of UTI was noted among all the study participants. UTI was labeled as "growth of $\geq 10^5$ CFU/ml of a single urinary tract pathogen in catheterized sample".⁴

Patient's name along with age and sex were recorded. Catheterized urine was sent to institute's laboratory for presence or absence of urinary tract infection. All the information regarding this study was noted on a predesigned proforma.

SPSS version 21 was used for data entry and analysis for this study. Mean and standard deviations were calculated for quantitative variables like age whereas frequency and percentages were tabulated for gender and presence or absence of urinary tract infection. Chi square test was used to see any difference of study variables among the study participants with or without UTI and p value ≤ 0.05 was taken as significant.

RESULTS

Amongst a total of 160 neonates, there were 89 (55.6%) male and 71 (44.4%) female. Overall, mean age was found to be 20 days with a standard deviation of 3.8 days. Most of the children, 93 (58.1%) were between the age of 21 to 28 days while remaining 67 (41.9%) 14 to 21 days. We noted that 121 (75.6%) neonates were registered from emergency department while 39 (24.4%) from outdoor. There were 120 (75.0%) neonates who had weight below or equal to 3 kg while 40 (25.0%) had weight above 3 kg.

Out of a total of 160 neonates, UTI was present in 15 (9.4%). The most common pathogen involved in UTI was noted to be E. Coli, found in 6 (40.0%), klebsiella in 4 (26.7%), staph epidermidis in 2 (13.3%), enterobacter in 2 (13.3%) and pseudomonas in 1 (6.7%). Out of 112 (70.0%) neonates having indirect hyperbilirubinemia, 7 (46.7%) had UTI while out of a total of 48 (30.0%) neonates having direct hyperbilirubinemia, 8 (53.3%) had UTI.

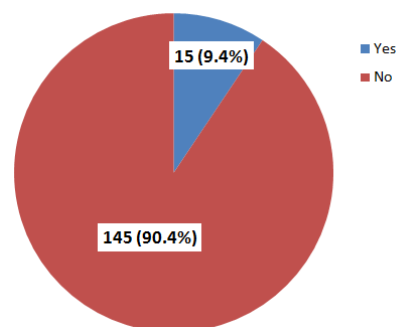


Figure No.1: Frequency of UTI amongst Neonates With Asymptomatic Jaundice (n=160)

Table No.1: Presence or Absence of UTI in comparison to Study Variables

Study Variables		Presence of UTI (n=15)	Absence of UTI (n=145)	P value
Gender	Male	9 (60.0%)	80 (55.2%)	0.79
	Female	6 (40.0%)	64 (44.8%)	
Age (days)	14-21	7 (46.7%)	60 (41.4%)	0.78
	22-28	8 (53.3%)	85 (58.6%)	
Weight (kg)	≤ 3	10 (66.7%)	110 (75.9%)	0.53
	> 3	5 (33.3%)	35 (24.1%)	
Direct hyperbilirubinemia		8 (53.3%)	40 (27.6%)	0.07
Indirect hyperbilirubinemia		7 (46.7%)	105 (72.4%)	

Table No.2: Causative Organisms of UTI amongst neonates having asymptomatic jaundice (n=15)

Causative Organism	Number (%)
E.Coli	6 (40.0%)
Klebsiella	4 (26.7%)
Staph Epidermidis	2 (13.3%)
Enterobacter	2 (13.3%)
Pseudomonas	1 (6.7%)

When neonates having UTI were compared with those without UTI, there was no significant difference in terms of gender, age, weight or types of hyperbilirubinemia (p value > 0.05).

DISCUSSION

The possible linkage between neonatal jaundice and UTI is becoming a topic of interest. It has been documented in the past that UTI can be found in neonates having jaundice even without any symptoms. Chavalitdhamrong et al in 1975¹⁵ concluded, in his study analyzing 69 neonates who were asymptomatic along with having unexplained jaundice, infection was noted to be a common cause of unexplained prolonged jaundice in newborns.

We noted the frequency of UTI as 9.4% (n=15) in asymptomatic jaundiced neonates. Frequency of UTI in asymptomatic, afebrile and infants having jaundice was noted to be 6% in a study examining 217 cases,¹⁶ 5.8% in another study evaluating 400 neonates,¹³ 6% in a study having 100 neonates aged between 14 to 28 days,¹⁴ 7.8% in neonates who were younger than 2 weeks,¹⁷ 12.5% in another study evaluating neonate¹⁸ whereas 18% in another study amongst neonates aged 4 to 14 days.¹⁹ A study examining 462 neonates having jaundice⁹ noted a 6.5% frequency of UTI while they noted 68% neonates as asymptomatic. Most of these findings in terms of above mentioned studies are aligned with our results in terms of frequency of UTI amongst afebrile jaundiced neonates. Omar C and coworkers²⁰ retrospectively analyzed asymptomatic, jaundiced neonates for UTI and noted that 32 (21.1%) out of a total of 152 neonates were having UTI.

Rooney J et al,²¹ evaluating 22 jaundiced babies found a much higher proportion of UTI as 40% but possible difference to our findings could be that the mentioned study had cases with bacterial infection having sign and symptoms of sepsis. Pashpour N et al¹⁴ found a frequency of UTI as 6% amongst neonates having unexplained jaundice while mean age at the time of admission was noted to be 23.0 ± 5.9 days which is quite similar to what we found in our study.

In the current study, the most common pathogen involved in UTI was noted to be E. Coli, found in 6 (40.0%) neonates, klebsiella in 4 (26.7%), staph epidermidis in 2 (13.3%), enterobacter in 2 (13.3%) and pseudomonas in 1 (6.7%). Our study was very similar to another study conducted in Lahore⁴ where E.coli

followed by klebsiella were found to be the commonest pathogen involved in UTI in neonates with asymptomatic jaundice. It has been proposed in the past that pathogenesis of jaundice in relation to UTI may be hemolysis due to E.coli or some other gram negative pathogens that could result in unconjugated hyperbilirubinemia.^{22,23} Cholestasis can be the reason of direct hyperbilirubinemia while some previous researches demonstrated that UTI may exhibit in newborns with indirect hyperbilirubinemia early one but with conjugated hyperbilirubinemia following 6 weeks to 22 weeks.²⁴ The exact mechanism of UTI causing conjugated hyperbilirubinemia is not known but some hypothesis including toxic effects from bacterial products, micro-circulatory alteration related to liver and from endotoxins induced mediators could be the possible reasons why UTI is reported more in conjugated hyperbilirubinemia.²⁵ Falcao MC et al²⁶ also noted E.coli to be the most common organism in newborns having UTI that is pretty similar to our findings.

CONCLUSION

UTI is common in neonates having afebrile asymptomatic jaundice. Male babies are affected more while commonest pathogens involved are E.coli and klebsiella. Asymptomatic neonates presenting with jaundice should be given special attention to rule out UTI for the early diagnosis and management.

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

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Frequency of Childhood Ischemic Stroke in Children Presenting with Sickle Cell Anemia

Sami ul Haq¹, Tosif Ahmad², Israr Liaqat³, Sadaqat Ali¹ and Zahoor ul Haq²

ABSTRACT

Objective: Frequency of Childhood Ischemic Stroke in children presenting with Sickle Cell Anemia

Study Design: Descriptive / cross-sectional study.

Place and Duration of Study: This study was conducted at the Pediatric Department, DHQ Teaching Hospital, Gomal Medical College, Dera Ismail Khan from November 2015 to May 2016.

Materials and Methods: All children under 18 years with Sickle Cell Anemia were enrolled. Children with stroke were investigated by performing Peripheral Smear and Hb Electrophoresis. Informed written consent was taken from parents. Confounding factors were identified and controlled by exclusion criteria.

Sample size of 105 was calculated by using WHO software based on confidence interval 95%, margin of error 6% and prevalence of Childhood Ischemic Stroke 11%.

Sampling technique was Non-probability consecutive sampling.

Results: A total of 105 patients presenting with sickle cell anemia presenting with highly suspicion of stroke were included in the study. There were 54 (51.43%) males and 51 (48.57%) females. Average age of the patients was 5.90 + 3.96, with range 6 months - 18 years. The Childhood Ischemic Stroke was found in 16(15.2%) patients.

Conclusion: Our findings provide novel information about ischemic stroke among children of sickle-cell disease. Sickle Cell Anemia is the most common genetic and hematologic risk factor for ischemic stroke in children. Implementation of an effective strategy is required for children with sickle cell disease to prevent Ischemic Stroke & prompt action to be taken for its management.

Key Words: Frequency, childhood ischemic stroke, sickle cell anemia

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INTRODUCTION

Hemoglobin S (HbS) is the result of a single base-pair change, thymine for adenine, at the sixth codon of the β globin gene. This change encodes valine instead of glutamine in the sixth position in the β globin molecule. Sickle Cell Anemia, homozygous Hb S, occurs when the both β globin genes have the Sickle cell mutation. In sickle cell anemia, Hb S is commonly as high as 90% of the total hemoglobin. In 2006, the World Health Organization (WHO) recognized Sickle Cell Anemia as

a global public health problem¹. In 2010, the 63rd World Health Assembly adopted a resolution on the prevention and management of birth defects, including sickle cell disease and the thalassemia. Finally, haemoglobinopathies have been included in the most recent Global Burden of Diseases, Injuries, and Risk Factors Study (the GBD 2010 study), which aims at providing a comprehensive and systematic evidence-based assessment of the burden of major diseases and injuries².

Neurological complications associated with Sickle Cell Anemia are varied and complex. Approximately 11% and 20% of children with Sickle cell anemia will have overt or silent strokes, respectively, before their 18th birth day³. The most common hematologic risk factor for stroke is Sickle Cell Anemia⁴

We present here the most recent practical directions on how to diagnose and manage arterial stroke in children, according to different international guidelines on the subject.⁵

The World Health Organization (WHO) defines stroke as “a clinical syndrome of rapidly developing focal or global disturbance of brain function lasting >24 hours or leading to death with no obvious nonvascular cause”⁶. A modern definition could be “a clinical syndrome characterized by (1) a neurological deficit related to the

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perfusion territory of a cerebral artery and (2) neuroradiological evidence of an ischemic lesion”^{7,8}. In childhood, on the contrary, even in the presence of transient symptoms, imaging often shows a cerebral infarction⁹.

Strokes are classically divided in primarily ischemic or hemorrhagic. While adult strokes are prevalently ischemic (80%) and due to atherosclerosis, in childhood up to 45% of strokes are hemorrhagic and are associated with a wide spectrum of risk factors¹⁰.

The estimated incidence of ischemic stroke in children older than 28 days of life is variable^{11,12} but, according to a large prospective, population study, it averages 13/100 for all strokes, 7.9/100 for ischemic strokes, and 5.1/100 for hemorrhagic strokes¹². Approximately 20% of children die after an ischemic stroke while more than 50% of those surviving present neurological sequelae, most commonly hemiparesis¹³. The cumulative stroke recurrence rate has been reported to be 15% at 1 year, and 19% at 5 years¹⁴ and up to 41% at 5 years¹⁵. In preparing this work we followed the most recent guidelines on arterial stroke in childhood.

MATERIALS AND METHODS

This Cross-sectional descriptive study was carried out in Pediatric Department, DHQ Teaching Hospital, Gomal Medical college, Dera Ismail Khan in 6 months duration from November 26, 2015 to May 25, 2016.

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: Consecutive non-probability sampling.

Inclusion Criteria: All children of both gender from the age of 6 months - 18 years.

- Children with sickle cell anemia having high suspicion of stroke.

Exclusion Criteria: Children having steroid therapy on medical records.

- Children with intake of anticoagulants at least in the last one month.

- Children having central nervous system infection such as meningitis or encephalitis.

- Children with history of head trauma.

Data Collection Procedure: Permission from hospital ethical committee was taken before starting study. Primary data was collected by using questionnaire. All children under 18 years with Sickle Cell Anemia were enrolled in study. Children admitted with stroke were investigated for evidence of Sickle Cell Anemia by performing Peripheral Smear and Hb Electrophoresis. Informed written consent had taken from parents. Physical examination including GCS and diagnostic investigations like CT scan brain had done. Confounding factors had identified and controlled by exclusion criteria.

Data Analysis: Data had analyzed by using SPSS version 10. Quantitative variables like age and GCS level were described in terms of means $\pm$ standard deviation. Categorical data like CT scan finding of infarction, gender and childhood ischemic stroke were described in terms of frequency and percentages. Childhood Ischemic stroke were stratified among age, gender and GCS level to see effect modifiers. Post stratification chi-square test had applied keeping P-value ≤ 0.05 as significant. All the results had presented as tables.

RESULTS

A total of 105 patients with sickle cell anemia & highly suspicion of stroke were included in the study. Average age of the patients was 5.90 ± 3.96 with range 6 months - 18 years. Patient's age was divided in four categories, out of which most common age group with sickle cell anemia presenting with highly suspicion of stroke was 6 - 10 years. There were 32(35.9%) patients of the age 6 to 10 years, 27(25.7%) were < 5 years, 25(23.8%) were in the range of 11 - 15 years, 21(20.0%) patients were > 15 years of age. (Table 1).

The Childhood Ischemic Stroke was found in 16(15.2%) patients. (Table 2)

In total 105 patients mean GCS was 8.50 ± 3.2 . Most of the patients i.e 53(50.5%) presented with GCS score of 6 - 10, followed by 36 (34.2%) with GCS of 11 - 15, followed by 16(15.2%) with GCS < 5 scores. (Table 3). While stratifying Childhood Ischemic Stroke with regards to age wise distribution, in the age group < 5 years; Childhood Ischemic Stroke was present in 16 patients.

Table No. 1: Age wise distribution of the patients with sickle cell anemia.

	Frequency	Percent	Cumulative Percent
< 5 years	27	25.7	25.7
6 – 10	32	30.5	56.2
11 – 15	25	23.8	80.0
15+	21	20.0	100.0
Total	105	100.0	

Table No. 2: Distribution of childhood ischemic stroke

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	16	15.2	15.2	15.2
	No	89	84.8	84.8	100.0
	Total	105	100.0	100.0	

In other age groups i.e. 6-10, 11-15 & > 15 years no Childhood Ischemic Stroke was found. (Table 4). While stratifying Childhood Ischemic Stroke

with regards to gender, 16 male patients had Childhood Ischemic Stroke and there was no Childhood Ischemic Stroke among female gender (Table 5).

While stratifying Childhood Ischemic Stroke with regards to GCS there were 16 patients with GCS less than 5. (Table 6).

Table No. 3. Distribution of GCS among patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 5	16	15.2	15.2	15.2
	5 -10	53	50.5	50.5	65.7
	11-15	36	34.3	34.3	100.0
	Total	105	100.0	100.0	

Table No.4: Stratification of ischemic stroke with age

		Age				Total
		<5 Years	6-10	11-15	15>	
Stroke	Yes	16	0	0	0	16
	No	11	32	25	21	89
Total		27	32	25	21	105

Table No.5: Stratification of ischemic stroke with gender

		Gender		
		Male	Female	
Stroke	Yes	16	0	16
	No	38	51	89
Total		54	51	105

Table No. 6: Stratification of ischemic stroke with GCS

		GCS			Total
		< 5	5 -10	11-15	
Stroke	Yes	16	0	0	16
	No	0	53	36	89
Total		16	53	36	105

DISCUSSION

Sickle cell disease is an autosomal recessive inherited disorder with cerebrovascular accident (CVA) as one of its major complications¹⁶.

Nearly 800,000 people suffer strokes each year in the United States; 82-92% of these strokes are ischemic.¹⁷ Stroke occurs by the age of 20 in about 11 percent of patients with sickle cell anemia.¹⁸⁻²⁰

The remarkable improvement in mental state and motor function in our patient gives credence to the efficacy of exchange blood transfusion. In preventing stroke recurrence in SCD patients, chronic blood transfusion program (CBT) is more widely employed. Our patient was offered CBT but mother declined. CBT is practically difficult in most developing countries for infrastructural and socio-economic reasons including

sourcing donor blood and preventing or tackling hemosiderosis if and when it occurs.²¹

A study with 3647 patients with SCD it was found a predominance of ischemic cerebral events in individuals under 20 and above 29 years old and of hemorrhagic events in the group between 20 and 29 years of age, which determined a larger number of deaths (26%) in the latter.²²

Despite the low number of individuals evaluated, findings are in accordance with data of references, evidencing patients with SCD and stroke in early age, all with ischemic event. There was bilateral hemisphere involvement by stroke in six patients, with recurrence in two and a single event in four patients.²³

Neuropsychomotor development in SCD children was considered normal until three years of age with progressive performance decay in neuropsychological and motor function tests due to ischemic cerebral insults and/or silent infarct²⁴. Similar findings was observed in this present study.

Most of our patients presented vascular event after four years of age and had apparently adequate neuropsychomotor development until the stroke. The present neurological exam evidenced important neurological sequelae: motor deficit in eight patients; mental deficiency in four; aphasia and visual deficit in two patients. Throughout the assessment, we observed lack of initiative, difficulty to understand the clinical neurologic assessment and slowness in motor and speech responses.

CONCLUSION

Our findings provide novel information about ischemic stroke among children of sickle-cell disease Sickle Cell Anemia is the most common genetic disease and the most common hematologic risk factor for ischemic stroke in children. Implementation of an effective ischemic stroke prevention strategy for children with sickle cell disease Prompt action to be taken for its management.

Author's Contribution:

Concept & Design of Study:	Sami ul Haq
Drafting:	Tosif Ahmad
Data Analysis:	Israr Liaquat, Sadaqat Ali, Zahoor ul Haq
Revisiting Critically:	Sami ul Haq, Tosif Ahmad
Final Approval of version:	Sami ul Haq

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

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Glycemic Control of Patients with Type II Diabetes at a Tertiary Care Hospital, Karachi

Fatima Zahra¹, Muhammad Athar Khan² and Rashid Naseem Khan¹

ABSTRACT

Objective: Glycemic control of patients with type II diabetes at a tertiary care hospital, Karachi

Study Design: Cross Sectional Survey

Place and Duration of Study: This study was conducted at the Diabetic Clinics for T2DM patients at Darul Sehat Hospital, Karachi from June 2018 to December 2018.

Materials and Methods: A total of 217 T2DM patients aged ≥ 18 years were included in the study. Patients' demographic characteristics, self-care attitude, and compliance to medication were recorded. All available last readings for HbA1c were obtained from patients' records. The target value for different parameters were HbA1c $< 7\%$, FBS 80–130 mg/dL and RBS was < 180 mg/dL respectively. Patients having HbA1c, FBS and RBS levels above the target levels were labeled with poor glycaemic control.

Results: In our study physical activity like exercise or walk frequently in a week was observed in 45% of patients whereas frequent SMBG was recorded in 44% of patients. Good glycemic control was recorded in 19% and poor glycemic control was seen in 81% of diabetic patients.

Conclusion: Majority of patients with type 2 diabetes mellitus at a tertiary care hospital. These study findings could be taken into consideration in future interventional studies aimed at improving glycemic control in these patients.

Key Words: Type 2 diabetes mellitus, complications, glycemic control, mortality

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INTRODUCTION

According to IDF, approximately 425 million adults (20-70 years) had diabetes in 2017; this level is expected to rise to 629 million by 2045.¹ In Pakistan, the prevalence of type 2 diabetes mellitus is 11.77%. In male the prevalence is 11.20 % and in females 9.19 % .² the main therapeutic goal in diabetes is glycemic control in order to prevent its complications. Multiple clinical trials have reported that strict glycemic control can lead to reduction of microvascular complications of diabetes.³ A number of factors which may be responsible for glycemic control, includes age, gender, body mass index (BMI), educational status, history of smoking, duration of the disease, and medication.⁴

Complications of type 2 diabetes mellitus can be worrisome due to its chronic nature and involvement of different organs.

Patients with T2DM can develop complications like hypoglycaemia, hyperglycaemia, diabetic ketoacidosis, dehydration and thrombosis.⁵ The condition is also associated with an economic burden and disability of employment for patient due to frequent doctor visits and recurrent hospitalization. Risk of diabetes increases with stress and dietary changes and the patients with physical inactivity, smoking, tobacco and alcohol consumption may also develop T2DM.^{1,5-9}

In clinical practice, task of optimal control is a challenge for practitioners as well as patients to achieve on a long-term basis due to complex reasons of poor glycemic control in T2DM patients.¹⁰ Diabetes-associated potential complications can be avoided by maintaining the good glycemic control.¹¹ Appropriate glycemic control and management is a fundamental key to either prevent or delay the progression of complications of diabetes. Failure to achieve glycemic control results in increasing burden of diabetes complications. However, less data is reported from Pakistan regarding factors for poor glycemic control and DM complications particularly in chronic T2DM .¹² This study may provide a baseline data for future studies regarding factors associated with poor glycemic control and DM complications among diabetic patients in Pakistan.¹³ Therefore, the objective of this study was to assess the level of glycemic control among patients with type 2 diabetes mellitus (T2DM) attending at a tertiary care hospital of Karachi.

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MATERIALS AND METHODS

The objective of this study was to assess the glycemic control of patients with type II diabetes at a tertiary care hospital, Karachi.

A cross-sectional study was done at the diabetic clinics for T2DM patients over a period of six months from 1st June 2018 to 30th December 2018. The patients taken for the study were T2DM patients aged less than 18 years. Study participants were recruited through consecutive sampling method. A total of 217 patients were included in the study after calculating the sample size using Open epi version assuming poor glycemic control observed in 83% of participants in study of Bukhsh et al.¹⁴ A written informed consent was taken from all participants after explaining the study and their rights as participant. Patients' demographic characteristics, self-care attitude, and compliance to medication were recorded. All available last readings for HbA1c were obtained from patients' records. The target value for different parameters were HbA1c <7%, FBS 80–130 mg/dL and RBS was <180 mg/dL respectively. Patients having HbA1c, FBS and RBS levels above the target levels were labeled with poor glycaemic control.¹⁵ Data were analyzed using Statistical Package for Social Sciences software, version 20. Data were described using means for continuous variables (age, duration of disease, HbA1c) and proportions for categorical variables (educational status, gender, occupation, and type of treatment). Associations between variables were tested by the use of the chi-square test (p value < 0.05 as significant).

RESULTS

A total of 217 patients participated among which 137(63.1%) were females and 80(36.9%) were males. A total of 126(58.1%) were housewives, 20(9.2%) businessman and 71(32.7%) others. Education status was 36% less than matric, 27% matric / inter, 22% graduate and 15 % masters.

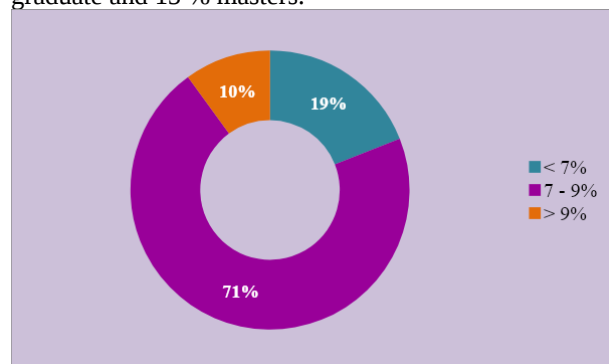


Figure No.1: HbA1c Levels of Patients

Table 1 show the duration of diabetes was more than 10 years in majority of our patients. According to our study oral hypoglycemic agents were the most common regime for type 2 diabetes patients. Physical activity

like exercise or walk frequently in a week was observed in 45% of patients whereas frequent SMBG was recorded in 44% of patients. Family history of diabetes was found in 70% cases. According to the study 95 % patients were following the prescribed treatment and 65% patients had regular medical follow-ups. Good glycemic control was recorded in 19% and poor glycemic control was seen in 81% of diabetic patients.

Table No.1: Self-Care attitude of diabetic patient

Questions	Percentage
1. Duration of diabetes?	
A. Less than 5 years	32%
B. 5 to 10 years	31%
C. More than 10 years	37%
2. What is your current treatment of diabetes?	
A. Oral hypoglycemic drugs	62%
B. Insulin	21%
C. Oral hypoglycemic drugs plus Insulin	17%
3. Family history of diabetes in first degree relatives?	70%
Yes	
4. Exercise or walk:	
A. Most days of week	45%
B. 2 to 3 times a week	9%
C. Once a week	9%
D. Few times a month	8%
E. Never	29%
5. Monitoring blood glucose	
A. 2 to 3 times/week	44%
B. Once a week	16%
C. Few days a month	23%
D. Don't bother to check until symptomatic	16%
6. Do you smoke? (Yes)	11%
7. Have you ever been hospitalized for your diabetes?	30%
Yes	
8. Do you make your own modification in the dose of drugs prescribed?	12%
Yes	
9. Do you carry food like sweet drinks, candy or chocolate just in case of hypoglycemia?	33%
Yes	
10. Visit doctor at :	
A. 1-3 months	61%
B. 3-6 months	21%
C. Annually	9%
D. No regular follow-ups	9%
11. Do you take treatment as prescribed to you?	95%
Yes	

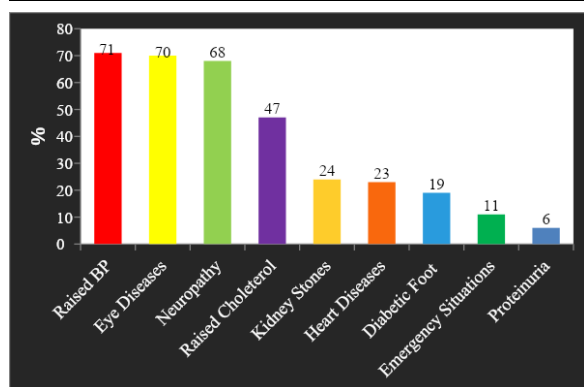


Figure No.2: Complications in Patients with Type II DM

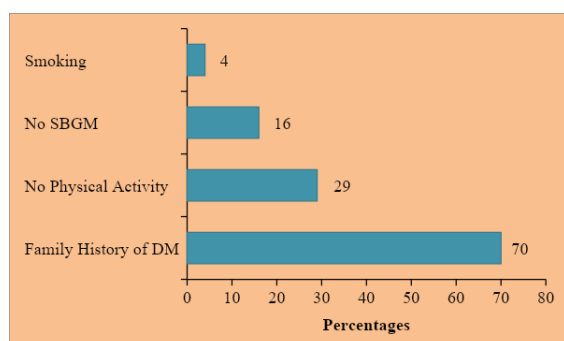


Figure No.3: Factors Related with Poor Glycemic Control

DISCUSSION

United Kingdom Prospective Diabetes Study (UKPDS) study has observed that strict glycemic control can prevent death due to diabetes-related complications. UKPDS reported that microvascular and macrovascular complications can be reduced by 12-43% after reducing HbA1c by 1%.¹⁶ Current guidelines recommend target HbA1c of <6.5% for good glycemic control.¹⁷ The good glycemic control in diabetes is considered as patients having HbA1c <7% which reduces the chances of hypoglycemia. The choice of treatment regime in order to maintain the good glycemic control is very challenging.¹⁸ In our study, poor glycemic control was seen in 81% of patients mostly with HbA1c of 7-9% whereas 10% have HbA1c more than 9. Moreover majority 62% of our patients were receiving OHA despite being the duration of diabetes more than 5 years.

It was reported previously in many studies that factors including self-monitoring of blood glucose, dietary habits, physical activities and medications may affect glycemic control.¹⁹ In one of the study, 83% of patients had poor glycemic control comparable to our 81% such patients and management of diabetes was found as the strongest predictor of glycemic control along with dietary habits and physical activity.^{20,21} Routine activities and lifestyle affects health outcomes of diabetes and many studies found clinically significant

association between glycemic control and self-care activities.^{14,22} We observed that 16% of the patients didn't check their blood glucose and it was also observed that despite being aware of significant effect of physical activities on glycemic control 29% of patients don't have any routine physical activity.

An international study of Malaysia, conducted on 438 patients in private clinics with T2DM, reported that approximately 20% of patients had HbA1c levels of <7%. Studies conducted in public primary health care centers observed that 28.8% of diabetic patients had a HbA1c level <7.5%, while 61.1% had HbA1c of more than 8%.²³ The study carried out in Jordan also found poor glycemic control in 65.1% of patients with a longer duration of the disease and they were non-complaint had poorly controlled HbA1c levels of more than 7%.^{24,25} In our study, we observed good glycemic control (HbA1c <7) in 19% of patients which was very low. The contributing factors can be less frequent SMBG and non-adherence to medical checkups. We found that some (44%) of patients were checking their blood glucose 2-3 times in a week and physical activity was also observed in 45% patients.

A study from Malaysia reported that 23.3% female and 22.4% male have good glycemic control which was found to be affected by age, duration of diabetes mellitus, and drug utilization pattern, whereas diet and non-smoking, were not associated with good glycemic control. Moreover it was observed that good glycemic control was not associated with self-management behavior. Moreover, better glycemic control was seen in Older patients with a shorter duration of diabetes and their treatment included monotherapy.²⁶ Despite the evident benefits of strict glycemic control, 60% of patients failed to achieve the recommended target of glycemic control.^{25,27} There is a considerable variability with regard to attainment of HbA1c goal of <7% among the different classes of diabetes medications; baseline HbA1c is an important determinant of observed efficacy.²⁸

CONCLUSION

In our study, it was concluded that 81% of patients with type 2 diabetes mellitus at a tertiary care hospital have poor glycemic control and these study findings could be taken into consideration in future interventional studies aimed at improving glycemic control in these patients.

Author's Contribution:

Concept & Design of Study:	Fatima Zahra, Rashid Naseem Khan
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Acknowledgement: Data collection and entry was done by Tahreem Irfan, Adina Safi, Mehak Ahmed; Final Year MBBS Students, Liaquat College of Medicine & Dentistry, Karachi.

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

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Comparison of Postoperative Outcomes of Open Versus Closed Hemorrhoidectomy at Tertiary Care Hospital

Comparison of
Postoperative
Outcomes of
Open Versus
Closed
Hemorrhoidectomy

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ABSTRACT

Objective: To compare the postoperative results of open versus closed hemorrhoidectomy.

Study Design: Comparative study.

Place and Duration of Study: This study was conducted at the Surgical Department PMCH Nawabshah. From December 2017 to December 2018.

Materials and Methods: All the patients were admitted through surgical OPD. Digital rectal examination along with proctoscopy was done to rule out other surgical ano-rectal pathologies. All the required investigations were done and open and closed hemorrhoidectomy were performed.

Results: This study was conducted on 120 patients. They were divided into two groups. Group 1 included 60(50%) patients and Group 2 included 60 (50%). Group A underwent only open hemorrhoidectomy and Group B underwent closed Hemorrhoidectomy. Postoperative complications were recorded and results were compiled on this basis. In Group 1 only 25 (41.66%) patients complained of postoperative defecation pain. Only 13(21.66%) complained of postoperative bleeding in 10 (16.6%). In Group 2 18(30%) complained of pain during defecation after surgery and 12(20%) developed early postoperative bleeding.

Conclusion: It is concluded that the closed hemorrhoidectomy is the better option due least pain and bleeding postoperatively as compared to open method.

Key Words: Closed Hemorrhoidectomy, Open Hemorrhoidectomy, Postoperative Pain, and Postoperative Bleeding.

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INTRODUCTION

Hemorrhoids are the common ano-rectal pathologies that are characterized by the symptomatic enlargement and distal displacement of the hemorrhoids. The main clinical features of hemorrhoids are per rectal bleeding, prolapsed, pain, thrombosis, itching and mucus discharge. These are classified according to their degree of prolapse of the anal canal. External hemorrhoids arise from the external hemorrhoid plexus below the dentate line and are called as acute having thrombosis and chronic having anal skin tags.¹

Its etiology is still not completely understood but the risk factors considered are the constipation and prolonged straining due to hard stool and resultantly increasing the intra abdominal pressure which hinders the venous return causing dilatation of vessels there.²

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Hemorrhoids have been treated by surgeon for many centuries. History of topical therapy dates back to to Egyptian papyri of 1700 B.C. The first ever surgical treatment was unveiled by the Hippocratic Treatises of 460 B.C. In this, hemorrhoids were transfixed with needle and tied with thick and large woolen thread.³

In 1937, Milligan Morgan unveiled the procedure of open hemorrhoidectomy while presenting his paper on this procedure. In this wounds were left to heal by secondary intention. In 1959, Ferguson discovered the closed hemorrhoidectomy in which wound is closed primarily with an absorbable suture.⁴

The hemorrhoids are treated by two methods viz conservative and interventional. Conservative treatment involves changes in diet and life style apart from regular exercise, avoidance of straining and constipation relieving medications. The combination conservative therapy are steroids, anesthetics, antiseptics and barrier creams that cause relief of symptoms temporarily. Moreover, venotonic therapies have also enormous effects on bleeding, pruritis and discharge if present.⁵

Surgical therapies involve Haemorrhoidectomy. It is performed by two methods viz Open excision (Milligan-Morgan) and Closed (Ferguson). Recent advances in open technique are diathermy, lasers and ultrasonic dissectors. Variations in Ferguson technique

involve the Ligasure coagulator which is postulated to seal the tissue with minimal thermal spread with resultant reduced postoperative pain.⁶

Open hemorrhoidectomy (Milligan and Morgan procedure) and closed hemorrhoidectomy (Ferguson procedure) are the most commonly used surgical techniques for excision of the hemorrhoid cushions. Since their invention, these remain the gold standard of surgical treatment.

In open technique, hemorrhoidal tissue is excised in the same way as is done in closed one but in former, incision is left open. Surgeons may choose open procedure when the conditions do not allow wound to close or likelihood of postoperative high infection.^{7,8}

The rationale of study is to compare the postoperative outcomes of open versus closed hemorrhoidectomy so that patients may be treated with least complications and provide better surgical method to patients.

MATERIALS AND METHODS

This is a comparative study of 120 patients admitted through Surgical Outpatient department (SOPD) in surgical Department of Peoples Medical College Hospital Nawabshah. This study was done from December 2017 to December 2018. PMC Hospital is a tertiary care hospital where patients are admitted from entire Sind. All the patients admitted had complained of fresh rectal bleeding, Pruritis, prolapsed and constipation. On DRE, hemorrhoids were prolapsed and there was no any mass palpated in rectum. On proctoscopy, no any mass or polyp of rectum was found but only hemorrhoids at 3, 7, 11 o clock were found that were prolapsed but some with strangulation or thrombosis. Pre operative preparation was done and Open/ closed hemorrhoidectomy was done.

RESULTS

In this study, total 120 patients were included from all surgical wards of PMCH Nawabshah. They were divided into two groups. Group 1 included 60 (50%) patients who were operated for hemorrhoids with open hemorrhoidectomy and Group 2 included 60(50%) who underwent closed hemorrhoidectomy as is shown in Pie chart below.

In Group 1, 60 patients were operated and Group 2 also included 60 patients. They were assessed keeping in view the postoperative ratio of complications.

Among Group 1, 25 (41.66%) patients complained of postoperative defecation pain. Only 13(21.66%) complained of postoperative bleeding. 10 (16.6%) patients were catheterized on operative day due to retention of urine. 2 (3.33%) came on follow up with complain of stenosis. 5(8.33%) came with stool incontinence and 2 (3.3%) and only 3 (5%) returned with delayed postoperative bleeding as is shown in table 1.

Among Group 2 patients, 18(30%) complained of pain during defecation after surgery. 12(20%) developed early postoperative bleeding. 9 (15%) patients were catheterized on the operative day due to difficulty in passing urine/ retention of urine. 12 (20%) came with stenosis postoperatively and 7 (11.6%) developed stool incontinence and there was only 2 (3.4%) cases of delayed postoperative bleeding in this group as is shown in table 2.

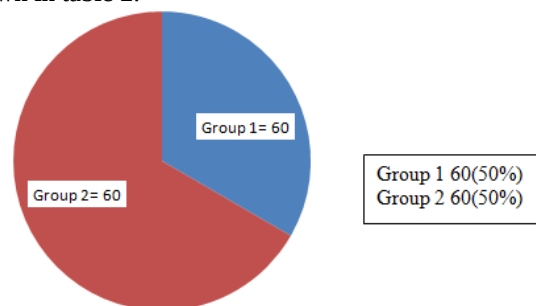


Chart No.1: Group wise patients details

Table 1: Group 1

S.No	Complications	No of patients	%tage
1	Painful defection	25	41.6%
2	Bleeding per rectum	13	21.6%
3	Urinary retention	10	16.6%
4	Stenosis	5	8.3%
5	Incontinence	5	8.3%
6	Delayed bleeding	2	3.6%
Total		60	100%

Table No.2: (Group B)

S.No	Complications	No of patients	%tage
1	Defecation pain	18	30%
2	Early Bleeding	12	20%
3	Urinary retention	9	15%
4	Anal Stenosis	12	20%
5	Incontinence	7	11.6%
6	Delayed bleeding	2	3.4%
Total		60	100%

DISCUSSION

Hemorrhoids are the one of the common ano-rectal disorder. Its prevalence is 39% of whom only 44.7% develop symptoms. These may be external or internal depending on its relation with dentate line. Goligher classified them into four grades that are most important to diagnose and choose the procedure of surgery.⁹

The criteria for ideal operation in any disease should be with low recurrence, minimum pain postoperatively and safe. Conventional hemorrhoidectomy is still considered to be the gold standard method in this regard. It has only 2% of recurrence rate. However, it has also some complications such as pain, perineal discharge and irritation.¹⁰

One study showed rate of fecal incontinence upto 17% and 22% in another study but in our study it is only 8.3% and 11.6% in Group 1 and 2 patients respectively. Postoperative painful defecation was 30% after closed and 41.6% after open hemorrhoidectomy¹¹. One study showed that 14% of patients were reported to develop urinary retention and this study showed little difference for urinary retention to both groups of patients 15% in Group 2 and 16.6% in Group 1 of patients¹². One international study shows the low incidence of postoperative bleeding after closed and a little bit higher incidence after open method. Same is found in our study. 21.6% after open and 20% after closed hemorrhoidectomy. Less than 4% presented with delayed postoperative bleeding after both procedures.¹³

CONCLUSION

Our study concluded that the closed hemorrhoidectomy is the better option as compared to open one because of its capability of least postoperative complications.

Author's Contribution:

Concept & Design of Study: Abdul Hakeem Jamali
Drafting: Mashooq Ali Khawaja, Inayat Ali Zardari

Data Analysis: Zulfqar Ali Imtiaz
Memon, Altaf Hussain Ghumro, Imtiaz Ali Soomro

Revisiting Critically: Abdul Hakeem Jamali, Mashooq Ali Khawaja

Final Approval of version: Abdul Hakeem Jamali

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

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Factors Associated with Distractions of Driving Attention in Young Drivers: An Attribution to Road Traffic Incidence among Children and Adolescents in Peshawar

Sher Bahadur¹, Saminullah Khan², Attaullah Jan³ and Rizwan Anwar⁴

ABSTRACT

Objective: The factors associated with distractive driving in young drivers and its outcomes in terms of incidence they encountered.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Research, Khyber Institute of Child Health, Peshawar during August to November 2018.

Materials and Methods: Using systematic random sampling techniques, every 5th car driver were selected from different parking areas of Peshawar. Self-reported data were recorded on pre-defined checklist which included; demographic data, factors distracting attention of drivers and the information regarding the incidence they encountered due to the distracters. A total of 600 sampled drivers from different parking areas were approached for the participation in the study. Data were entered and analyzed by SPSS version 20.

Results: A total of 600 drivers (73.8% male and 26.3% female) with mean age of 23.5± 4.6 years were being part of the study. The driving distraction was reported by 568 (94.7%) of young drivers. Among the driving distraction mobile use was very common while other driving distractions included; backseat drivers 536(89.3%), adjustment of radio/music system 454(75.7%), grooming 444(74.0%), eating/drinking 370(61.7%), daydreaming 265(44.2%), advertising/billboards 245 (40.8%), passenger interference 221(36.8%) and smoking 145(24.2%) respectively. Furthermore 474(79%) experienced road traffic accidents due to driving distracters where adolescent 2210(44.3%) of adult male and female were the victims of these accidents followed by 78(16.5%), children and 47(9.9%). The mortality due to distractive driving accidents was 33(7.0%).

Conclusion: Both in-vehicle driving distractions were significant determinants of road traffic accident experienced by young drivers in Peshawar. Among distracters; mobile used for calls and texts mostly attributed to RTA. Children, adolescent and old age people were the common victims, resulted into injuries and deaths.

Key Words: Driving attention, distraction, Road Traffic Accident, awareness, distracted driving, cell phones, injury prevention

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INTRODUCTION

Distractions during driving contributes to a large number of road traffic accidents (RTA) but the driving

protocols have been ignored by the people.^{1,2} Distracted driving has been defined as “any activity that diverts attention from driving”.³ It is reported that deviation of attention from driving tasks are directly associated with distracters which leads to specific types of intension during driving in turn leading to serious types of RTAs. It is reported that on average, a driver engaged in a distracting activity once every six minutes.^{2,4} This can cause a wide range of mortality and morbidity among human and animals. Study indicates that 25–50% of all traffic accidents are because of distractions of drivers attention⁵. The prevalence of driving distraction was 32.7% in general drivers while 39% in bus drivers.^{6,7} According to WHO nearly 1.35 million people die each year as a result of road traffic crashes. Road traffic crashes cost most countries 3% of their gross domestic product. More than half of all road traffic deaths are among vulnerable road users: pedestrians, cyclists, and motorcyclists and 93% of the world's fatalities on the roads occur in low- and middle-income countries, even

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though these countries have approximately 60% of the world's vehicles. Road traffic injuries are the leading cause of death for children and young adults aged 5-29 years. Every year between 20 and 50 million more people suffers non-fatal injuries, with many incurring a disability as a result of their injury.⁸ Most of these accidents are associated with distracted driving.⁸ The common factors associated with distractions are; adjustment of wire, switching on the radio for entertainment, switching on the mobile phone for making or attending a call, adjusting the navigation systems and eating during driving⁹. Apart from these factors, lack of knowledge about the influence of distracting on attention, behavior, alteration on driving concentration also play important role in the occurrence of incidences.¹⁰ Others factors include; talking with passengers, looking at outside people, objects or events. The most predominant optional undertakings are connection with a traveler, talking/singing, external diversions, messaging/dialing the phone.^{6,7} Young drivers are more likely to be influenced by these factors and significantly more likely to report distracting activities and incidences due to such distractive activities.¹¹ Use of cell phone during driving remain one of the dangerous distracters which have increase the risk of RTA, while talking during the driving increases the frequency of deviations in a lane relative to the position from the centerline along with increase in accidents.² In spite of the mindfulness of the threats related with distracted driving, drivers are ignorant and take part in this perilous conduct where driving distractions play vital role in mishaps leading to road traffic accidents.

MATERIALS AND METHODS

This was a cross sectional study based on self-reporting of experiences of young drivers from multiple parking areas of Peshawar during December 2018 to March 2019. The parking areas in Peshawar were selected conveniently which included all public areas like markets (Sadder bazaar, university road and city areas) and hospitals (all public and private tertiary care hospitals in Peshawar). The participants were comprised of young drivers. All young (18-40 year age) drivers who could drive or possessed driver's permit were included in the study. A total of 600 drivers were enrolled in the study keeping assuming prevalence 39%, confidence level 95%, absolute precision 0.04 and 10% refusal. For selection of drivers Systematic sampling technique was used where at an interval of 3, the car drivers were requested to take part in the study. Data were collected on an indigenous structured questionnaire. This was comprised of demographic data, experience of RTA and its outcomes. Lists of driving distracters were also part of investigation. Before data collection both verbal and informed consent was taken from the drivers. Data was entered

and analysis was done using SPSS version 20 for both descriptive and inferential statistics.

RESULTS

A total of 600 drivers with mean age of 23.5 ± 4.6 (ranged 18-40) years, out of whom 443(73.8%) were male and 157(26.3%) were female. Most of them 159(26.5%) were civil servants followed by 153(25.5%) students, 112(18.7%) private employees, 101(18.8) self-employed and 75(12.5%) professional drivers respectively

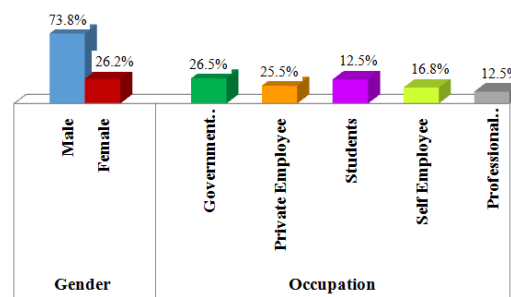


Figure No.1: Distribution of young drivers with respect to gender and occupation

Table No.1: Status of distractive driving and associated factors

Variables		Frequen cy	Percent
Do you think lack of knowledge about effect of distraction could cause accident?			
	Yes	529	88.2
	No	71	11.8
Have you ever been distracted while driving?			
Valid	Yes	568	94.7
	No	32	5.3
Do you ever been a cause of distraction to other while driving?			
	Yes	129	21.5
	No	471	78.5
Have you ever been distracted by attending or calling on cell phone?			
Valid	Yes	456	76.0
	No	144	24.0
Have you ever been distracted by texts message from unwanted marketing cites while driving?			
Valid	Yes	525	87.5
	No	75	12.5
Have you ever been distracted by texts message from family and friends while driving?			
Valid	Yes	562	93.7
	No	38	6.3
Do you use to reply the text messages during driving?			
Valid	Yes	463	77.2
	No	137	22.8

Majority 529(88.2%) of drivers perceived that lack of knowledge about the consequences of driving distracters could be leading cause of accidents. Among drivers 568(94.7%) have been distracted during driving, while 129 (21.5%) have been a cause of distraction to other drivers. Use of mobile for making and attending call during driving was reported by 456 (76.0%), whereas 525 (87.5%) reported that they have been distracted by texts message from network services and unwanted marketing cites. Similarly 562 (93.7%) had experience of receiving text message from family and friends, 463 (77.2%) of them had replied the text message during driving.

Among the common reported driving distractions, adjusting radio or music system accounted for 454(75.7%), eating/drinking (370(61.7%), smoking 145(24.2%), back seat drivers 536(89.3%), general daydreaming 265(44.2%), looking at advertisements/billboards 245 (40.8%), passenger interference 221(36.8%) and grooming 444(74.0%) respectively.

Table No.2: Common Reported distraction during driving

Variables	Frequency	Percent
Adjusting radio or music system		
Yes	454	75.7
No	146	24.3
Eating and drinking		
Yes	370	61.7
No	230	38.3
Smoking		
Yes	145	24.2
No	455	75.8
Back seat drivers		
Yes	536	89.3
No	64	10.7
General daydreaming		
Yes	265	44.2
No	335	55.8
Advertising/billboards		
Yes	245	40.8
No	355	59.2
Passenger Interference		
Yes	221	36.8
No	379	63.2
Grooming		
Yes	444	74.0
No	156	26.0

The road traffic accidents due to driving distraction were reported by 474(79%) of the study population. Out of 474 cases the victims included; children 78(16.5%), adult male 155(32.7%), female 55(11.6%), elderly person 47(9.9%) and car 75(15.8%). Similarly the array of outcomes were; injury to victims 196(41.4%), car damage 72(15.2%), death 33(7.0%) and self-injury 48 (10.1%) respectively.

The array of distractions which have mostly contributed to accidents included; use of cell phone for making and attending call 218(46.0%), unwanted texts from network 85(17.9%), making texts message 73(15.4%), adjusting the radio or music system 74(15.6%), eating and drinking 11(2.3%) and smoking 13(2.7%).

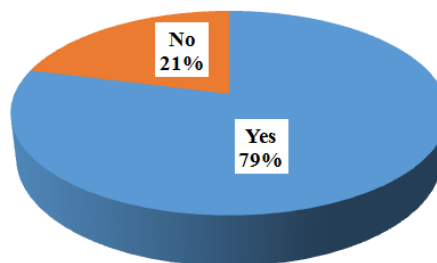


Figure No.1: Prevalence of road traffic accidents due to driving distractions

Table No.3: Victims and outcome of accident due to distractive deriving

Variable	Frequency	Percent
Victims of accident due to distractive deriving		
Children	78	16.5
Adult male	155	32.7
Adult Female	55	11.6
Old Person	47	9.9
Car damaged	75	15.8
No harm	64	13.5
outcomes of accident due to distractive deriving		
Injury to Victim	196	41.4
No Harm	125	26.4
Car Damaged	72	15.2
Death	33	7.0
Self Injury	48	10.1

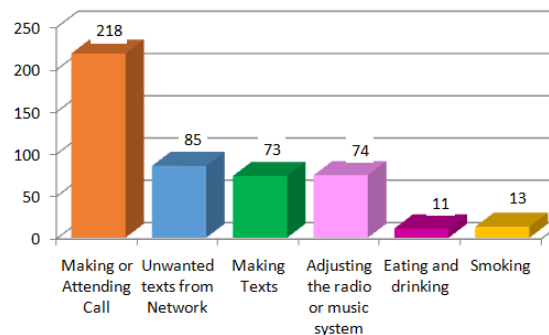


Figure No.3: Frequency of common attributed distracters to RTA.

DISCUSSION

Distracted driving means the practice of driving a motor vehicle while engaged in another activity which distracts the driver's attention away from the road.¹² There are many types of distractions that can lead to impaired driving attentions. Among these various types

of distractions, the use of mobile phone emerged as serious concerns for the safety.^{6,13} Drivers using mobile phones are approximately 4 times more likely to be involved in a crash than drivers not using a mobile phone. Hands-free phones are not much safer than hand-held phone sets, and texting considerably increases the risk of a crash.¹⁴

In present study 529(88.2%) of drivers admitted that lack of knowledge about the consequences of distractive driving could be leading cause of accidents. A previous study also reported that knowledge about distractive driving among young drivers play an important role in reduction of the TRA.¹⁵

The occurrence of distracted driving was reported by 568(94.7%) of drivers. The prevalence of distractive driving varies from region to region. Gershon reported that among teens aged drivers the prevalence of distracting driving was reported in 58% of drivers¹⁶, while distracted driving in college students was 4,517 (91%) for use of mobile for call and texting.¹⁷ The present study also indicates that among the most prevalent causes of distracted driving accidents is use of cell phone specifically for calling and texting during driving. Another important finding in present study is the unwanted messages from network and marketing cites, causing driving distraction. Unfortunately this issue is not yet addressed by the researcher that how these spam messages and marketing campaigns through bulk messages and ads have become threads for road traffic accidents as result of distractive driving. In present study 525(87.5%) of drivers reported that they have been distracted by texts message, marketing ads from mobile networks and other marketing cites. There is a dire need for controlling these messages to reduce the distractive driving particularly and accident as whole. Other driving distractions included; backseat drivers 536(89.3%), adjustment of radio/music system 454(75.7%), grooming 444(74.0%), eating/drinking (370(61.7%)), daydreaming 265(44.2%), advertising/billboards 245 (40.8%), passenger interference 221(36.8%) and smoking 145(24.2%), respectively. A study from Pakistan Lahore reported that 79.2% of drivers were using cell phones, 75.3% adjusting audio system, 71.0% eat during driving, 64.3% interact with others, 47.1% reported grooming while driving, 80.0% watch advertisement or enjoy outside sceneries while driving.¹⁸

The prevalence of road traffic accidents due to distractive driving was reported by 474(79%) of the study population. The victims of those RTA were; children 78(16.5%), adolescent 221(44.3%) and elderly person 47(9.9%) whereas, there in 75(15.8%) only car was damaged. Studies evaluated the association between mobile device use and road traffic injury; all found use of a mobile device while driving significantly increased crash risk.^{19 20} The outcomes of accidents encountered due to distractive driving

included; 196(41.4%) injuries to victims 72(15.2%) car damage, 33(7.0%) death of the victims and 48 (10.1%) self-injury respectively. Similar findings were also reported by the literatures where the authors categorized the outcome into primary and secondary, where we only collected data on the primary outcomes in the present study. Among the primary outcome reported by other studies²¹, injuries to the victims was at the top which was also found in the present study. Other researches also reported that the use of mobile during driving mostly contributed to road traffic accident²¹, however in the present study use of cell phone was attributed to 218(46.0%) accident followed by unwanted texts from network 85(17.9%), making texts message 73(15.4%), adjusting the radio or music system 74(15.6%), eating and drinking 11(2.3%) and smoking 13(2.7%).

CONCLUSION

Based on the result it is concluded that use of cell phone for call and text message is the leading distracters reported by young drivers. The text message from mobile network and marketing ads were annoying during driving. Nearly 79% of young drivers had experienced road traffic accidents due to distractive driving and resulted 7.0% of mortality among children and adolescent. There should be strict restriction on use of cell phone during driving along with ban on marketing ads coming through mobile networks. General awareness among young driver could be more influential which need proper social marketing and health education.

Author's Contribution:

Concept & Design of Study:	Saminullah Khan
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Precipitating Factors of Hepatic Encephalopathy Experience at Shaheed Muhtarma Benazir Bhutto Medical University Larkana

Precipitating Factors of
Hepatic Encephalopathy
Experience

Hakim Ali Abro, Azizullah Jalbani, Chandur Lal, Mumtaz Ali, Abdul Raheem and
Sultan Ahmed

ABSTRACT

Objective: To know the common precipitating factors and their frequency in patients presenting with Hepatic encephalopathy. The aims of this study were to evaluate the precipitant factors and analyze the treatment outcomes of HE in LC.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at the Medical Wards of Shaheed Mohtarma Benazir Bhutto Medical University Larkana from December 2017 to June 2018.

Materials and Methods: This study included all patients (age > 12 years or both genders) with diagnosis of cirrhosis of liver presented with signs and symptoms for hepatic encephalopathy were included. Patients with acute hepatic encephalopathy were excluded from study. Detailed history and examination done and all patients were graded according to clinical criteria and investigation like CBC, viral marker, LFT, serum albumin, total protein, blood sugar, serum electrolyte coagulation profile, blood culture & ascitic fluid culture were carried out and abdominal ultrasound for signs of cirrhosis of liver and child pugh score were assessed in every patient. Data were entered in on preformed proforma.

Results: We surveyed 100 patients admitted with clinical diagnosis of hepatic encephalopathy, for one or more factors responsible for encephalopathy. The commonest precipitating factors were infections 58% upper gastrointestinal bleeding 48% and constipation were present in 44%. 40% patients have electrolyte imbalance, 22% have history of paracentesis, 10% have taken drugs like benzodiazepine and only 8% have taken the high protein diet.

Conclusion: Infection, GI bleeding, constipation and electrolyte imbalance were most common precipitating factors in our setup.

Key Words: Cirrhosis liver, precipitating factors, hepatic encephalopathy.

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INTRODUCTION

Liver disease affects millions of people worldwide however it is very big problem in developing countries like Pakistan. The syndrome of hepatic Encephalopathy (H.E) describes all neuropsychiatric symptoms occurring in patient with acute or chronic liver disease in the absence of other neurological disorders. There is 30% mortality due to hepatic coma¹.

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Due to high prevalence of hepatitis B and C cirrhosis is endemic in Pakistan². HE develops in 50% to 70% of patients with cirrhosis, and its occurrence is a poor prognostic indicator, with projected one- and three-year survival rates of 42% and 23%, respectively, without liver transplantation³. Patients with CLD frequently experience episodes of exacerbations including hepatic encephalopathy precipitated by variety of established precipitants⁴. HE can occur due to acute liver failure or due to one or more precipitating factors in a cirrhotic patient, or could happen as a result of prolonged portal systemic shunting resulting in a chronic portal systemic encephalopathy⁵. Prognosis of patients having chronic HE is better than those who develop acute HE (100% vs. 70%)⁶. Common precipitating factors include gastrointestinal bleeding, infection, constipation, electrolyte imbalance⁷, azotemia and high protein diet. Usage of drugs, such as sedatives⁸, tranquilizers, analgesic and diuretics. Primary precipitants of hepatic encephalopathy are infection like SBP and Variceal Haemorrhag⁹. The pathogenesis of hepatic

encephalopathy is still unclear, however the basic process are failure of hepatic clearance of gut derived substances such as ammonia, free fatty acids, mercaptan etc. either through oxidative failure or shunting, nitrosamine stress both of which result in low grade cerebral edema causing depressed cerebral function¹⁰.

MATERIALS AND METHODS

1. To know the common precipitating factors and their frequency in patients presenting with Hepatic Encephalopathy.
2. Analyze the common biochemical laboratory findings in such patients to stratify the patients according to child Pugh classification of Chronic Liver Disease.

A hospital based descriptive observational study was carried out on 100 patients in Medical wards of Shaheed Mohtarma Benazir Bhutto Medical University Larkana from December 2017 to June 2018. All patients above 12 years of cirrhosis liver with signs and symptoms of hepatic encephalopathy, either at presentation or during the course of hospital stay were included in this study. Patients with acute fulminant hepatic failure were excluded from study. For data collection, Proforma was prepared. Detailed history regarding fever, abdominal pain, gastro intestinal bleeding either Hemetemesis or malena, constipation, high protein intake, H/O paracentesis, surgery. Use of drugs like sedatives, tranquilizers, excessive use of diuretics, analgesics, cough syrups were carefully examined for jaundice, temperature, anemia, asterixis and ascites. Encephalopathy was graded according to clinical criteria as given in Table-I Following investigations were done from each patient. CBC, Viral markers, liver function tests, serum electrolytes, coagulation profile, blood sugar, total protein were carried out abdominal ultrasound was done for signs of cirrhosis of liver, in case of ascites paracentesis was done to look for spontaneous bacterial peritonitis. Child's pugh score was assessed for each patient based on parameters in Table-II. All patients were followed for the duration of their stay in hospital and whether they survived or died at the end of stay was also recorded.

RESULTS

A total number of 100 patients underwent study out of which 71 (71%) were male and 29 (29%) were females, (Table-II) presenting with encephalopathy. Majority of our patients were older than 40 years including 26 males and 12 females. Only 8 patients were below 20 years of age. The age, gender distribution in different clinical presentation and grades of patients with hepatic encephalopathy is given in table II. The precipitating factors of Hepatic Encephalopathy, most commonly found in our patients were infection

58%, Hemetemesis 48% constipation 44%, electrolyte disturbance 40% Drugs likes Benzodiazepine, Diuretics 10% and 8% have history of high protein intake. Anti HCV were positive in 60 (60%) cases HBsAg in 25 (25%) cases and HBsAg Anti HDV and anti HCV in 10 (10%) cases. 5 (5%) cases no cause was detected. In analysis of laboratory findings Hypokalemia, Hyponatremia and hypoglycemia were found in 40 (40%) cases. Hypoalbuminemia were found in 80% cases. Leukocytosis were present in 58 (58%) cases 48 (48%) patient have deranged coagulation profile with prothrombin time > 6 seconds. However 22 (22%) patients were pancytopenic. When the cirrhotic patients were grouped according to child pugh classification 68% patients were found to be in class C (Table III). Majority of our patients who expired were in class C of child's Pugh grading.

Table No.I: Clinical Grading of Hepatic Encephalopathy

Clinical Grade	Clinical Sign
Grade 1	Poor concentration, slurred speech, slow mentation, disordered sleep rhythm
Grade II	Drowsy but easily arousable, occasional aggressive behavior, lethargic
Grade III	Marked Confusion, drowsy, sleepy but responds pain and voice, gross disorientation
Grade IV	Unresponsive to voice, may or may not respond to painful stimuli, unconscious

Table No.2: Age & Gender Distribution

Grades of Hepatic Encephalopathy	No N = 100	No. of Patients according to age & Gender							
		12 - 20		21 - 40		41 - 50		> 50	
		M	F	M	F	M	F	M	F
I	8	0	0	0	0	0	0	4	4
II	16	2	2	0	0	8	2	2	0
III	50	1	1	2	3	26	12	4	1
IV	26	6	1	3	0	6	0	7	3

Table No.3: Precipitating factors found in our patients were

Precipitating factors	Male	Female	Total	%
Infection	38	20	58	58%
G.I bleeding	26	22	48	48%
Constipation	20	24	44	44%
Paracentesis	12	10	22	22%
Drugs	8	2	10	10%
High protein intake	8	0	8	8%

Table No.4: Frequency according to child Pugh classification

Child's Class	No N=100	%
A	12	12%
B	20	20%
C	68	68%

In analysis of laboratory funding, HCV antibodies were found positive in 60 (60%) patients, HBsAg in 25 (25%) and all virus HBsAg, HDV and anti Hcv were found positive in 10 (10%) patient. In (5%) patient, no cause was detected. Hypo kalemia, hyponatremia and hypoglycemia were found in 40 (40%) cases, in 60% cases blood urea was found high while Creatinine was slightly raised in 28 (28%) cases. Hypoalbuminia was found in 80 (80%) cases Leukocytosis (TLC count > 11000 umm) was found in 58 (58%) cases. Coagulation profile was abnormal in 48 (48%) cases with prothrombin time patient > 6 seconds of control. While pancytopenia was detected in 22 (22%) patient, however only thrombocytopenia was found in 36 (36%) cases. When the cirrhotic patients were grouped according to child pugh classification 68% of patients were found to be in class C, as show in table- IV. Out of 100 patients, 34 (34%) died including 20 (20%) males 14 (14%) were females. 50 patients were in grade III and 26 patients were in grade IV hepatic encephalopathy respectively. All those cirrhotic patients who expired were found to be in class C of child's Pugh classification.

DISCUSSION

Liver Cirrhosis is one of the common, challenging and rising health problem in Pakistan. Although the exact pathogenic mechanism is yet to be determined¹¹ We conducted study on 100 patients, majority of patients were above forty years old, comparable in other studies at PIMS Islamabad¹² Baluchistan¹³ also there is male predominance in advanced stages of cirrhosis, also reported internationally at Saudi Arabia¹⁴. In our study anti HCV was found in 60% of cases, that is epidemic in Pakistan, that was comparable in other studies conducted in Pakistan. Alam in Khyber Pakhtoon Khwah¹⁵ at PIMS Islamabad¹². Most of our patient were in end stage of cirrhosis in which hepatitis C was commonest cause. That is against the studies conducted in western countries, which showed alcohol is the main etiological factor¹⁶. Infection was most common precipitant factor i.e SBP in our study, there has been lot of differences in precipitants across the studies. This was consistent with a study done in Pakistan by Mumtaz et al. and Abid et al. who also reported SBP as the most common precipitant in HE¹⁷⁻¹⁸. Our finding is, however, contradicting studies done in the USA by Souheil et al., who observed that infections were responsible in only 3% of cases. This could be related

to adherence to therapy and regular monitoring of patients with LC in the USA, which resulted in early detection and treatment of infections¹⁹. Infection, gastrointestinal bleeding, constipation was important precipitating factors¹² that was also proved in our study. After reviewing literature we assessed that our findings match with studies conducted locally by khuram¹⁸ and Saad Masood¹² only one study conducted by Hameed Ahmed¹⁷ shows electrolyte imbalance was the main cause of HE but the foreign studies revealed infection is less common cause abroad, which may be due to better hygienic conditions of patients and hospitals. In our study 40% patients having electrolyte imbalance, may be because of excessive use of diuretics, or vomiting Leukocytosis were found in 58% cases which supports infection was the most common precipitating factor in our study findings of low haemoglobin, hypoalbuminia correspond with advanced stages of cirrhosis¹⁹ majority of our patient, having high blood urea and Creatinine may be a contributor factor for hepatic encephalopathy. The mortality in our patients was 34% which is comparable with study conducted by Saad Maqsood Islamabad¹². All those patients who expired were mostly in class C of child's classification and grade III or IV hepatic encephalopathy. The limitations of our study include it involving a single center and the small sample size. Further, large-scale, multicenter trials should be evaluated using robust clinical outcomes.

CONCLUSION

Infection, gastrointestinal bleeding, constipation and electrolyte in balance were the most common precipitating factors in our set up.

Author's Contribution:

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Factors Predicting In-Hospital Mortality in Patients with Liver Cirrhosis

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ABSTRACT

Objective: To identify the independent predictors of in hospital mortality in gastro esophageal variceal hemorrhage in cirrhotic patients.

Study Design: Cross sectional

Place and Duration of Study: This study was conducted at the Gastroenterology department of Bakhtawar Amin Hospital and Nishtar hospital Multan from March 2018 to March 2019.

Materials and Methods: 250 patients were included in study. Laboratory and clinical parameters were assessed for their association with in hospital mortality. Laboratory parameters included were serum creatinine, serum bilirubin and clinical parameters were child pugh score, ascites and re-bleed within 24 hours of endoscopy. SPSS version 23 was used for data analysis.

Results: Hemoglobin (g/dL), prothrombin time, S. bilirubin (mg/dL), S. creatinine (mg/dL) and S. albumin (g/dL) of the survivors was observed as 4.9%, 7.6%, 4.9%, 8.9% and 2.7%, respectively. While, hemoglobin (g/dL), prothrombin time, S. bilirubin (mg/dL), S. creatinine (mg/dL) and S. albumin (g/dL) of the non-survivors was observed as 12%, 12%, 12%, 8% and 4% respectively. P value ≤ 0.05 was considered as significant.

Conclusion: Raised values of serum bilirubin, serum creatinine, re-bleeding within 24 hours of endoscopy and presence of PSE were the main independent predictors of in hospital mortality. Control of these parameters with advance management and specialized care is helpful to reduce in hospital mortality rate.

Key Words: Liver Cirrhosis, Gastro-esophageal variceas, in hospital mortality, Endoscopy, Serum creatinine.

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INTRODUCTION

In patients of liver cirrhosis gastro esophageal variceal (GEV) hemorrhage as a result of portal hypertension is a major complication¹. Incidence of gastro esophageal variceal hemorrhage is 30% in cirrhotic patients with approximately 90% bleeding episodes. As compare to other causes of gastrointestinal tract bleeding GEV hemorrhage is responsible for more mortality, morbidity and hospital cost². About 50% of cirrhotic patients die within 6 weeks of first episode of variceal bleeding³.

Esophageal varices occur when blood flow to liver with normal vessels blocked by a scar or clot. To overcome this blockage blood flows through smaller vessels but

can't fulfill the requirement of large volume due to their diameter insufficiency. As a result of this blockage rupture of the vessels may occur causing life threatening blood loss or death^{4,5}.

Because of innovation in management of GEV hemorrhage mortality rate decreased to a significant range⁶. Patients of GEV hemorrhage advanced child pugh score, old age, rebleeding in earlier time after endoscopy, hepatocellular carcinoma, renal failure and encephalopathy are main contributing factor of mortality⁷. Prognosis of such type of patients is very slow but exact predicting prognosis varies according to different authors and their reports conducted in various regions⁸.

In Pakistani population chronic liver disease (CLD) increasing day by day and most common cause of hospital admission is GEV hemorrhage⁹. Along with hospital admissions CLD is huge economic burden on our health care system. In-hospital mortality in Pakistan is 8-50%, a very high rate as compare to any developing country in region¹⁰.

Aim of this study is investigate the predicting factors of mortality in cirrhotic patients admitted in hospital with GEV hemorrhage.

MATERIALS AND METHODS

After permission from the hospital ethical board study was completed gastroenterology department of

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Bakhtawar Amin Hospital and Nishtar hospital Multan in one year duration from 15 March 2018 to 15 March 2019. Patients were included in the study after detail information to patients and obtaining a written consent. Non probability consecutive sampling was used for collection of data. Adult patients of age more than 14 years and who were presented and admitted with GEV hemorrhage due to chronic liver disease were included in the study.

Patients of GEV hemorrhage were admitted in high dependency unit where all kind of necessary monitoring like hemodynamic was available along with highly trained nurses and doctors. Endoscopy was available 24 hours. Vasoconstrictors like octeriotides and terlipressin were also available. Variceal band ligation was treatment of choice in these patients with good visibility. Re-endoscopy was done in patients with frank hematemesis, significant rebleed, fresh bleeding in nasogastric tube, malena and hemodynamically unstable patients (drop of >2 mg/dl hemoglobin).

Complete assessment of patients was done by a surgical team and surgical intervention was done in needed patients. surgical intervention criteria may included re bleed after two episodes of endoscopy. transjugular intrahepatic portasystemic shunt (TIPSS) was performed in patients who were on high risk of surgical intervention. Clinical and laboratory investigation were correlated with mortality and rebleed within 24 hours of endoscopy was assessed. Main laboratory parameters assessed were hemoglobin concentration, serum bilirubin, serum albumin, prothrombin time and serum creatinine.

Liver biopsy, biochemical parameters and imaging investigations were used for diagnosis of CLD. Patients were labeled as HCC positive when space occupying lesion is present on ultrasound; serum alpha fetoprotein level was raised and liver biopsy report. Grading of ascites was also done as “absent” easily controlled and “tense”. When it was controlled with diuretics it was labeled as easily controlled and tense when associated with abdominal and respiratory distress.

Collected data was analyzed by using SPSS version 23, mean and standard deviation was calculated for numerical data like age and frequency percentages were calculated for categorical data like gender, presence of portosystemic encephalopathy, presence of ascites, Child-Pugh class, cirrhosis with HCC and PVT, cirrhosis with portal vein thrombosis [PVT], cirrhosis with hepatocellular carcinoma [HCC] and cirrhosis alone. Test of significance (t-test and chi square test were applied). P value ≤ 0.05 was considered as significant.

RESULTS

Two hundred and thirty patients were included in this study, both genders. The patients were divided into two groups as survivors $n=115$ (50%) and $n=115$ (50%)

non-survivors. The mean age of the survivors was 42.21 ± 3.32 years. There were $n=149$ (66.2%) males and $n=76$ (33.8%) females. The mean age of the non-survivors was 40.23 ± 3.99 years. There were $n=20$ (80%) males and $n=5$ (20%) females. Diagnosis, child-pugh class, ascites and PSE was presented in table I. No significant difference was found except re-bleeding within 24 hours ($p=0.000$). (Table. I).

Hemoglobin (g/dL), prothrombin time, S. bilirubin (mg/dL), S. creatinine (mg/dL) and S. albumin (g/dL) of the survivors was observed as $n=11$ (4.9%), $n=17$ (7.6%), $n=11$ (4.9%), $n=20$ (8.9%) and $n=6$ (2.7%), respectively. While, hemoglobin (g/dL), prothrombin time, S. bilirubin (mg/dL), S. creatinine (mg/dL) and S. albumin (g/dL) of the non-survivors was observed as $n=3$ (12%), $n=3$ (12%), $n=3$ (12%), $n=2$ (8%) and $n=1$ (4%), respectively. (Table. II).

Table No. I: Clinical variables at time of admission in both groups

Variable	Survivors n=225	Non- survivors n=25	P- value
Age (years)	42.21±3.32	40.23±3.99	0.921
Gender			
Male	n=149 (66.2%)	n=20 (80%)	0.163
Female	n=76 (33.8%)	n=5 (20%)	
Diagnosis			
Cirrhosis alone	n=167 (74.2%)	n=21 (84%)	0.283
Cirrhosis + HCC	n=50 (22.2%)	n=6 (24%)	0.840
Cirrhosis + PVT	n=15 (6.7%)	n=2 (8%)	0.802
Cirrhosis + HCC + PVT	n=5 (2.2%)	n=2 (8%)	0.097
Child-Pugh class			
A	n=29 (12.9%)	n=4 (16%)	0.663
B	n=41 (18.2%)	n=7 (28%)	0.239
C	n=154 (68.4%)	n=18 (72%)	0.716
Ascites			
Absent	n=54 (24%)	n=6 (24%)	1.0
Easily controlled	n=154 (68.4%)	n=16 (68%)	0.651
Tense	n=14 (6.2%)	n=3 (12%)	0.276
PSE			
Absent	n=196 (87.1%)	n=24 (96%)	0.194
Stage 1 or 2	n=27 (12%)	n=5 (20%)	0.256
Stage 3 or 4	n=16 (7.1%)	n=2 (8%)	0.870
Re-bleeding within 24 h	n=19 (8.4%)	n=14 (56%)	0.000

Table No.2: Laboratory parameters at time of admission in both groups

Variable	Survivors n=225	Non-survivors n=25	P-value
Hemoglobin (g/dL)	n=11 (4.9%)	n=3 (12%)	0.142
Prothrombin time (s)*	n=17 (7.6%)	n=3 (12%)	0.437
S. bilirubin (mg/dL)	n=11 (4.9%)	n=3 (12%)	0.142
S. creatinine (mg/dL)	n=20 (8.9%)	n=2 (8%)	0.882
S. albumin (g/dL)	n=6 (2.7%)	n=1 (4%)	0.701

DISCUSSION

Gastrointestinal bleeding in patients with chronic liver disease and portal hypertension is major cause of in hospital mortality, latest modalities including prophylactic antibiotics, terlipressin, variceal band ligation and TIPSS in management of GEV hemorrhage reduce the rate of in hospital mortality¹¹. Mortality rate at our hospital is consistent in comparison to other hospital of region.

Pauwels et al¹² conducted a study in 1998 and reported that in hospital mortality rate decreased about 50% in last 15 years in cirrhotic patients who were admitted in hospital with variceal bleeding. This is only because of advances in management of bleeding factors and early availability of specialized care. A similar study was conducted by Chojkier et al¹³ and reported 35% bleeding related in hospital mortality in cirrhotic patients. This study can be compared our study.

Another study was conducted by Afessa et al¹⁴ in 2000 on investigation of frequency of in hospital mortality of cirrhotic patients presented with GEV hemorrhage. He reported 21% mortality rate which is too much improved percentage from last few years. Chalasani et al¹⁵ also conducted a similar study and reported 14.2% mortality rate in cirrhotic bleeding patients, a much improved proportion due to early and advance care of such patients.

Decrease in mortality rate in world shows control on disease and research work of health profession to overcome diseases and associated hazards. Similar study was conducted by Del Olmo et al¹⁶ on a large sample of cirrhotic patients presented with GEV hemorrhage and reported more declined proportion of 7.4%. in his study he also reported that deranged laboratory values like serum creatinine, serum bilirubin after endoscopy are also independent factors of mortality of patients. In our study we also investigate this variable.

Carbonell et al¹⁷ conducted a study in 2004 and reported a similar finding that survival rate from in hospital mortality is improved to a significant range

from last two decades. A small proportion of mortality was reported in his study just because of advancement in management system and early availability of specialized care. In 1997 Magliocchetti et al¹⁸ conducted a study on this topic and concluded that advance age, child pugh score, greater transfusions are also striking associated factors of mortality in cirrhotic patients.

Similarly Patch et al¹⁹ reported 6 contributing factors of mortality in cirrhotic patients presented with GEV bleeding. These factors include partial thromboplastin time, moderate to severe ascites, creatinine, need for ventilation, platelet count and white blood cell count. In our study we also investigate these contributing factors and reported similar findings.

In a study conducted by Ismail et al²⁰ reported 8.7% in hospital mortality rate in patients of chronic liver disease who were admitted with gastro-esophageal variceal hemorrhage. He also concluded serum creatinine, serum bilirubin are contributing factors along advance age. Sudden increase of these values after endoscopy is responsible for death. Re-bleed within 24 hours of intestinal endoscopy also an independent factor of mortality.

CONCLUSION

Raised values of serum bilirubin, serum creatinine, re-bleeding within 24 hours of endoscopy and presence of PSE were the main independent predictors of in hospital mortality. Control of these parameters with advance management and specialized care is helpful to reduce in hospital mortality rate.

Author's Contribution:

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To Observe the Outcomes of Early versus Delayed Laparoscopic Cholecystectomy in Patients Presented with Acute Cholecystitis

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ABSTRACT

Objective: To compare the outcomes between early versus delayed laparoscopic cholecystectomy in patients with acute cholecystitis.

Study Design: Observational study

Place and Duration of Study: This study was conducted at the Department of Surgery, Unit-1, Sandeman Provincial Civil Hospital, Quetta from 1st January 2017 to 31st December 2018.

Materials and Methods: One hundred and forty patients of both genders presented with acute cholecystitis were included in this study. Patient ages were ranging from 15 to 60 years. Patients were divided into two groups Group I received early cholecystectomy within <6 days after diagnosis and Group II received delayed cholecystectomy after 4 to 6 weeks of diagnosis. Outcomes were recorded such as operative and post operative complications, conversion to open surgery, hospital stay and return to routine activity.

Results: Ninety eight (70%) patients were females while 42 (30%) were males. 52 (37.14%) patients were ages between 15 to 30 years, 58 (41.43%) had ages 31 to 45 years and 30 (21.43%) patients were ages 46 to 60 years. Conversion to open cholecystectomy, preoperative complications and post-operative complications, length of hospital stay were significantly less in early cholecystectomy than delayed cholecystectomy p-value <0.05.

Conclusion: Early laparoscopic cholecystectomy shows better results as compared to delayed laparoscopic cholecystectomy.

Key Words: Acute cholecystitis, Early laparoscopic cholecystectomy, Delayed cholecystectomy, Post-operative complications

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INTRODUCTION

A variety of treatments have been offered from time to time for gall bladder (GB) diseases. Cholecystectomy has stayed as one of the best and most accepted treatment modalities for GB diseases. Every year, about 500,000 people all over the world have to remove their gall bladders. Acute cholecystitis was traditionally treated with antibiotics and supportive treatment and cholecystectomy was performed after 6 weeks of the acute episode.¹⁻⁴ The potential hazard of severe complications, if surgery is performed in an area of distorted anatomy caused by acute inflammation was the major concern.⁵

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Till date laparoscopic cholecystectomy is considered the 'gold standard' in the treatment of cholelithiasis/ cholecystitis and highlights all the advantages of laparoscopy as minimally invasive surgical aid.⁶ Initially laparoscopic cholecystectomy used to be performed in selected cases, but with advances in instrumentation, better visualisation because of new generation cameras, optics, increasing knowledge about the anatomy of the hepato-biliary tree and the surrounding structures with improved surgical skills.^{7,8} Surgeons started performing laparoscopic cholecystectomy even in acute cholecystitis, which was initially considered a relative contraindication. After 48 hours it is now the procedure of choice for patient presenting with acute cholecystitis unless it is contraindicated for technical reason or safety.^{9,10} The present study was undertaken to compare the outcome and postoperative complications of early versus delayed laparoscopic cholecystectomy in acute cholecystitis.

MATERIALS AND METHODS

This observational study was conducted at Department of Surgery, Unit-1, Sandeman Provincial Civil Hospital, Quetta from 1st January 2017 to 31st

December 2018. A total OF 140 of both genders presented with acute cholecystitis were included in this study. Patient ages were ranging from 15 to 60 years. Patient's detailed medical history including age, sex were examined after taking informed consent from all the patients. Patients with coagulopathy, severe chronic obstructive pulmonary disease, end stage liver disease, congestive cardiac failure, obstructive jaundice and pregnant women were excluded from this prospective, observational study. All the patients received laparoscopic cholecystectomy. Patients were equally divided into two groups Group I received early cholecystectomy within less than 6 days after diagnosis and Group II received delayed cholecystectomy after 5 to 7 days up to 6 weeks of diagnosis. Peroperative and post-operative complications, hospital stay, duration of surgery, conversion to open surgery and back to routine activity were examined and compare these variables between early and delayed cholecystectomy. All the statistical data was analyzed by SPSS 20.0. P-value <0.05 was considered as significant.

RESULTS

There were 98 (70%) female patients in which 50 patients in Group I and 48 patients in Group II while 42 (30%) were males in which 20 in Group I and 22 in Group II. 52 (37.14%) (28 in Group I, 24 in Group II) patients were ages between 15 to 30 years, 58 (41.43%) (28 in Group I, 30 in Group II) had ages 31 to 45 years and 30 (21.43%) (14 in Group I, 16 in Group II) patients were ages 46 to 60 years (Table 1)

Mean operative time in Group I was 51.5 ± 12.4 minutes while in Group II it was 64.7 ± 11.6 minutes. Per-operative complications such as haemorrhage, bile duct trauma, conversion to open surgery in Group I and II was noted in 4 and 10 patients, 0 and 1 patient, 1 and 6 patients respectively. Post-operative complications such as surgical site infection, nausea vomiting, bile leakage were recorded and compared in both groups as 2 in Group I and 16 in Group II, 4 in Group I and 8 in Group II, 1 and 5 patients respectively. The mean hospital stay in Group I was 4.26 ± 2.3 and in Group II it was 7.69 ± 2.4 days. The mean duration of back to routine activity in Group I was 12.42 ± 4.68 days and in Group II it was 16.34 ± 5.62 days (Table 2).

Table No.1: Gender and age wise distribution in both groups

Variable	Group I	Group II	Total (%)
Gender			
Female	50	48	98 (70%)
Male	20	22	42 (30%)
Age (years)			
15 – 30	28	24	52 (37.14%)
31 – 45	28	30	58 (41.43%)
46 – 60	14	16	30 (21.43%)

P-value >0.05

Table No. 2: Comparison of outcomes in both groups (N=140)

Variable	Group I	Group II	P value
Mean operative time (min)	51.5 ± 12.4	64.7 ± 11.6	0.002
Per-operative complication			
Hemorrhage	4 (5.71%)	10 (14.29%)	0.04
Bile duct injury	-	1 (1.43%)	0.01
Conversion to open	1 (1.43%)	6 (8.57%)	0.03
Post-operative complications			
SSI	2 (2.86%)	16 (22.86%)	0.007
Nausea/vomiting	4 (5.71%)	8 (11.43%)	0.004
Bile leakage	1 (1.43%)	5 (7.14%)	0.007
Mean hospital stay (days)	4.26 ± 2.3	7.69 ± 2.4	0.005
Mean time to routine activity	12.42 ± 4.68	16.34 ± 5.62	0.002

DISCUSSION

In present study, mean operative time in Group I was 51.5 ± 12.4 minutes while in Group II it was 64.7 ± 11.6 minutes. A study conducted by Memon et al¹¹ reported that the mean operative time was 53.8 ± 11.2 minute in early cholecystectomy group and 62.68 ± 12.38 minutes in delayed group. In our study we found that per-operative complications such as hemorrhage found in 5.71% in Group I and 14.29% patients in Group II. Rate of conversion to open surgery was high in delayed cholecystectomy group than early cholecystectomy group 8.57% and 1.43%. These results shows similarity to some other studies in which conversion to open surgery rate was high in delayed cholecystectomy as compared to early.^{12,13} In our study post-operative complications such as surgical site infection, nausea vomiting, bile leakage were recorded and compare in both groups and observed early cholecystectomy had less prevalence of post-operative complications as compared to delayed cholecystectomy 10% and above 30%. These results shows similarity to other studies conducted regarding acute cholecystitis and reported that rate of post-operative complications were high in delay cholecystectomy as compared to early cholecystectomy group.^{14,15} In this study we observed that the mean hospital stay in Group I was 4.26 ± 2.3 and in Group II it was 7.69 ± 2.4 days. The mean duration of back to routine activity in Group I was 12.42 ± 4.68 days and in Group II it was 16.34 ± 5.62 days. These results were similar to some other studies.^{16,17} Overall we found that patients who received early cholecystectomy had less post-operative complication than the patients

received delayed cholecystectomy. We found no mortality during the study period and at follow-up.

CONCLUSION

Acute cholecystitis is the most common disorder and laparoscopic cholecystectomy is the most common performing procedure in surgical department. It is concluded from this study that patients who received early laparoscopic cholecystectomy had less complication rate as compared to delayed laparoscopic cholecystectomy. Early laparoscopic cholecystectomy was safe and cost effective procedure with less hospital stay and less time to back to routine activity.

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Immediate Maternal Complications in Vacuum Vaginal Deliveries

Roeda Shams and Fazia Raza

Maternal
Complications in
Vacuum Vaginal
Deliveries

ABSTRACT

Objective: To prove that vacuum is safe and can reduce c/section rate if patient selection is proper and conducted by trained obstetrician.

Study Design: Observational retrospective

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology, Rehman Medical Institute, Peshawar KPK from July 2017 to December 2018.

Materials and Methods: A total number of 59 instrumental deliveries included. All patients were closely followed throughout labour while maintaining partogram, prolong second stage was considered to be 2-3 hours for nulliparous and 1-2 hours for multiparous women as per ward protocol. Foetal distress was diagnosed either by meconium staining or non re assuring foetal heart rate tracing. Poor maternal effort was highly subjective and more associated with prolong labour.

Results: There were 58 (98.30%) were vacuum and only one was forceps delivery. 26 (44 %) patients were nulliparous and 33 (56%) were multi parous. Most common indication for instrumental deliveries was prolong second stage [n=29(49.1%)] followed by poor maternal effort [n=19(32.2 %)] No serious maternal complications were noticed in all 59 patients. 7 (11.8%) patients went into mild to moderate post-partum haemorrhage. Five (8.4%) patients received vaginal tears. Four (6.7%) patients had perineal tears. Only one patient experienced shoulder dystocia.

Conclusion: Vacuum is not associated with serious immediate maternal complications provided it is conducted by trained obstetrician and in properly selected patients.

Key Words: Vacuum, Maternal, Complications

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INTRODUCTION

Instrumental vaginal delivery which means application of vacuum or forceps in second stage of labour to assist mother in delivering baby is key element of all obstetric care. The current operative vaginal delivery rate in United States is 1-23%.¹ Some have reported it as 10-20%.^{2,3} Although vacuum was invented long before outlet forceps by Dr. James young in 1705, but it fails to gain popularity till 1950 when it was again reintroduced with safety by Dr. Tage malmstrom.⁴ The overall rate of vacuum vaginal delivery is rising in proportion to forceps delivery. Although a good practice at instrumental delivery can reduce risk of c/section but are associated with maternal and foetal morbidity.³

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The main indication of instrumental vaginal deliveries are prolong second stage of labour (2-3 hours in nulliparous and 1-2 in multiparous women), non re assuring fetal heart rate testing, shortening of second stage of labour in patients with cardiac vascular and neurological diseases and patients with poor expulsive efforts.⁵ Among these the abnormal CTG and poor maternal efforts are subjective to the observer or care giver.

The main contra indications to the use of instrumental deliveries include foetal osteogenesis imperfecta, bleeding disorder, incomplete cervical dilatation. Unengaged vertex, non-vertex presentation, cephalopelvic disproportion, foetal gestation <34 weeks.⁵

There are three types of instrumental procedures, depending upon station of vertex. Outlet (when foetal skull has reached pelvic floor and scalp visible at introitus), low (when vertex is at +2/+5) and mid-pelvic (when vertex above +2 but below 0).⁷ The selection of instrument is mostly depended upon clinical situation, Position of vertex, and expertise and comfort of care giver.

Vacuum is considered to be more maternal friendly with less maternal morbidity as compared to forceps but on contrary results in more neonatal complications.⁸

There are 2 main types of cup hard and soft cup. Soft cups are associated with more failure but less maternal perineal tear and foetal scalp injuries.⁹

The major immediate maternal complications associated with instrumental deliveries are perineal tears, vaginal tears, cervical tears, hematomas, post-partum haemorrhage.^{10,11} The late complications includes, urinary and stool incontinence, pelvic pain and pelvic organ prolapse. The purpose of our study is to prove that vacuum extraction is associated with less maternal complications provided patient selection is proper and is conducted by trained person.

MATERIALS AND METHODS

This observational retrospective study was conducted in Rehman Medical Institute over a period of 18 months from 1st July 2017 to 31st December 2018. All patients who had instrumental deliveries were included in the study. Patient records were collected from labour register and record files. Most of the patients were booked but few were referred cases. All patients were closely followed throughout labour while maintaining partogram. prolong second stage was considered to be 2-3 hours for nulliparous and 1-2 hours for multiparous women as per ward protocol. Fetal distress was diagnosed either by meconium staining or non re assuring fetal heart rate tracing. Poor maternal effort was highly subjective and more associated with prolong labour. Instrumental delivery was decided and conducted by consultant. The instrument of choice was mainly soft vacuum cup due to consultant comfort and maternal safety. Only low or outlet vacuum were applied. The data was collected in term of gravidity, whether labour was spontaneous or induced, indication for instrumental delivery, maternal complications and selection of instrument. The data was analysed through SPSS-23.

RESULTS

Total number of instrumental deliveries were 59.out of these 58 (98.30%) were vacuum and only one was forceps delivery.26 (44 %) patients were nulliparous and 33 (56%) were multi parous. Most common indication for instrumental deliveries was prolong second stage (n=29(49.1%)) followed by poor maternal effort [n=19(32.2 %)], meconium staining [n=10(16.9%)] and to shorten second stage was only in one patient with cardiac problem. Thirty one patients (52.4%) had spontaneous labour and 20(15.25%) were induced.8 patients had trial of labour after c/section. No serious maternal complications were noticed in all 59 patients. Seven (11.8%) patients went into mild to moderate post-partum haemorrhages, with no need for blood transfusions or surgical intervention.5(8.4%) patients received vaginal tears.4(6.7%) patients had perineal tears out of which 2 were first degree and 2 second degree. None had received sphincter injury. Only one patient experienced shoulder dystocia.

Table No.1: Type of instruments (n=59)

Type of Instruments	2017(July – Dec) (n=26)	2018(Jan –Jun) (n=33)
Vacuum delivery	26	32 (98.30%)
Forceps delivery	None	1 (1.70%)

Table No.2: Frequency of parity

Parity	2017(July – Dec)	2018(Jan – Dec)
Primigravidas	20	6 (44%)
Multigravidas	20	13 (56%)

Table No.3: Complications

Complications	2017 (July–Dec)	2018 (Jan –Dec)
Vaginal tears	3	2 (8.4%)
Perineal tears	None	4 (6.7%)
Post-partum haemorrhages	4	3 (11.8%)
Shoulder dystocia	None	1

Table No.4: Frequency of delivery

Variable	2017 July –Dec)	2018 (Jan –Dec)
Spontaneous labour	13	18 (52.4%)
Induced labour	11	9 (15.25%)
VBAC	2	6 (13.5%)

DISCUSSION

Instrumental deliveries are an important component of all obstetric unit worldwide. It is an alternative to caesarean delivery. There is substantial evidence that instrumental deliveries increases maternal morbidity. Vacuum in comparison to forceps has been shown to carry less maternal morbidity .This make it more likely to be opted by obstetrician. In our study the instrument of choice was vacuum with forceps used only in 1 patient. Our findings were consistent with studies in developing countries^{15,16}. While In study of S hehla Raza including 100 patients ,forceps deliveries were more frequent (68% as compared to vacuum 32%).²² Another study conducted in Suhail Hospital forceps was commonest mode of delivery (52.4%) followed by vacuum (44.5%) deliveries.¹³

A randomized control trail conducted on 118 patients maternal soft tissue trauma was observed in 36.1%¹¹ in vacuum while it was only 28%in our study. In our study instrumental deliveries were more common in multiparous (56%)as compared to nulliparous (44%).while many other study including Suhail hospital studies have shown increase trend of instrumental deliveries in nulliparous women^{11,14,17,18} Our study shows no relationship of increase in rate of instrumental delivery with induction of labour. Instrumental deliveries were more common in spontaneous deliveries (52.4%) then in induced labour (15.25%)

The most common indication for instrumental deliveries was prolong second stage (49.1%), followed by poor maternal effort (32.2%) and meconium staining (16.9%). This is not consistent with other studies, where poor maternal effort¹⁹ and foetal distress was common indication.^{20,21}

The most common maternal complication was postpartum haemorrhages (11.8%) followed by vaginal tears (8.4%), perineal tears (6.7%) and with only one patient having shoulder dystocia. Only 1st and 2nd degree perineal tears were observed with no sphincter injuries. No cervical tear was observed. These results were in consistence with many studies showing that no serious maternal complication is associated with ventouse delivery in comparison to forceps.^{8,9,18-20.}

CONCLUSION

Soft vacuum cup is not associated with serious immediate maternal complications provided it is conducted by trained obstetrician and in properly selected patients.

Author's Contribution:

Concept & Design of Study: Roeda Shams
 Drafting: Fazia Raza
 Data Analysis: Fazia Raza
 Revisiting Critically: Roeda Shams, Fazia Raza
 Final Approval of version: Roeda Shams

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

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Examine the Incidence of Neonatal Sepsis also Analyze the Risk Factors and Mortality Associated with Neonatal Sepsis

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ABSTRACT

Objective: To examine the prevalence of neonatal sepsis and also determine the risk factors and mortality associated with this malignant disorder.

Study Design: Prospective/Observational

Place and Duration of Study: This study was conducted at the Neonatal intensive care unit Pediatric Medicine, Bolan Medical Complex Hospital Quetta from June 2018 to December 2018.

Materials and Methods: A total of 320 patients of both genders who were admitted to NICU were included in this study. Patients and mothers demographic were recorded. Diagnosis of neonatal sepsis was done clinically. Prevalence of neonatal sepsis was recorded. Risk factors and mortality associated to neonatal sepsis were examined.

Results: Out of 320 patients, 60 (18.75%) diagnosed to have neonatal sepsis. In which 31 (51.67%) neonates were males while 48.33% were females. Maternal risk factors such as maternal age, PROM, delivery mode, history of UTI and history of antenatal care were highly associated to neonatal sepsis p-value 0.001. Neonatal risk factors such as birth weight, gestational age, birth asphyxia and resuscitation at birth were significantly associated to neonatal sepsis. 18 (30%) neonates died due to sepsis.

Conclusion: The prevalence of neonatal sepsis and mortality associated to this malignant disorder in our setup was high and the most prevalent risk factors were birth weight, gestational age, birth asphyxia significantly associated to neonatal sepsis.

Key Words: New born, Sepsis, Incidence, Risk factors, Mortality

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INTRODUCTION

Approximately, one million deaths per year are caused by infection occurring in the neonatal period (0-28 days), accounting for over 25% of global neonatal deaths¹, 99% of these deaths occur in developing countries.² Early onset neonatal sepsis (EONS) remains a major cause for neonatal mortality and morbidity. The case fatality in EONS ranges from 16.7% to 19.4%.^{3,4} Neonatal septicemia (NNS) is a great masquerader and can present with very nonspecific manifestations pertaining to any system of the body. More than half of neonates admitted to neonatal intensive care units (NICUs) carry a diagnosis of "suspected sepsis" and

these infants account for up to 25% of NICU days in some units.⁵ In addition, many other conditions can mimic the sepsis, which leads to both over and under treatment and each has its own hazards.⁶ Screening tests such as total and differential leukocyte counts, band cells, absolute neutrophil counts (ANCs), and rapid immunological techniques like C-reactive proteins (CRPs) assays may help in the diagnosis of septicemia; however, they lack the capacity to detect specific pathogens and are not available in many centers in developing countries.⁷ The gold standard for diagnosis of NNS is a positive blood culture, which is positive in only 50-80% at best, however, negative blood culture does not rule out the disease.^{8,9}

It is important to know the etiology, various risk factors and antimicrobial sensitivity patterns of organisms that cause neonatal infections in developing countries in order to develop effective treatment strategies and to reduce neonatal mortality.^{10,11} Most of the previous studies on NNS were on hospital born neonates, however, the fact remains that the majority of childbirths in our country are occurring at home or in the community by trained or untrained birth attendants. However, data on diagnosis, severity, bacteriological profile and antibiotic sensitivity of home/domiciliary delivered and community-acquired infections in neonates are scanty.

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The present study was conducted aimed to examine the incidence rate of neonatal sepsis and factors associated to neonatal sepsis. Mortality due to neonatal sepsis was also examined. This study will be helpful to make better strategies in prevention of risk factors that were significantly associated to neonatal sepsis.

MATERIALS AND METHODS

This prospective observational study was conducted at Neonatal intensive care unit, Bolan Medical Complex Hospital Quetta from 1st June 2018 to 31st December 2018. Total 320 patients of both genders who were admitted to NICU were included in this study. Patients ages were ranging from birth to 30 days. Patients demographic details including, age, sex, gestational age, birth weight, resuscitation after birth and Apgar score were recorded after taking informed consent from parent's guardians. Mothers demographic were also recorded. Neonates with neurological disorders, neonates required surgical treatments and those parents who were not interested to participate were excluded from this study. All the neonates were diagnosed clinically to examine the prevalence of neonatal sepsis. Risk factors associated to neonatal sepsis were examined. Mortality due to neonatal sepsis was also recorded. All the data was analyzed by SPSS 21.0. Percentages and frequency were recorded to analyze the values. P-value <0.05 was set as significant value.

RESULTS

There were 170 (53.12%) male neonates and 150 (46.88%) neonates were females. 180 (56.25%) patients were ages 0 to 7 days while 140 patients had ages above 7 days. 110 (34.38%) patients had low birth weight less than 2.5kg, 165 (51.56%) patients had normal birth weight and 20 (6.25%) patients had birth weight above 4kg. 60 (18.75%) patients had gestational age less than 37 weeks (preterm) while 260 (81.25%) neonates had term delivery. 50 (15.63%) patients had birth asphyxia. 162 (50.63%) patients had Apgar score less than 7 and 158 (49.37%) patients had above 7 at 5 min. 126 (39.37%) patients found resuscitation at birth (Table 1).

According to the mother's demographic details, 67 (20.94%) mothers were ages less than 20 years, 163 (50.94%) had ages 20 to 30 years, 75 (23.44%) were ages 31 to 40 years and 15 (4.69%) were ages above 40 years. 198 (61.88%) mothers were primiparous and 38.12% were multiparous. 120 (37.5%) mothers found to have premature rupture of membrane. 200 (62.5%) had vaginal delivery, 110 (34.38%) had C-section and 10 (3.12%) had instrumental delivery. 270 (84.38%) gave birth at hospital, 30 (9.38%) were health centers and 20 (6.25%) had home delivery. 25 (7.81%) mothers had history of foul smelling liquor. 34 (10.63%) had history of urinary tract infection and 165 (51.56%) had history of antenatal care (Table 2).

Table No. 1: Demographical details of all the neonates

Variables	No.	%
Gender		
Male	170	53.12
Female	150	46.88
Age (days)		
1 – 7	180	56.25
> 7	140	43.75
Birth Weight (kg)		
LBW <2.5	110	34.38
NBW 2.5-4	165	51.56
> 4	20	6.25
Gestational Age		
Term	260	81.25
Preterm	60	18.75
Birth Asphyxia		
Yes	50	15.63
No	270	84.37
Apgar Score		
<7	162	50.63
> 7	158	49.37
Resuscitation		
Yes	126	39.37
No	194	60.63

Table No.2: Mothers demographical details

Variable	No.	%
Age (years)		
<20	67	20.94
20 – 30	163	50.94
31 – 40	75	23.44
> 40 yrs	15	4.69
Parity		
Primi	198	61.88
Multi	122	38.12
PROM		
Yes	120	37.5
No	200	62.5
Delivery Mode		
Vaginal	200	62.5
C-section	110	34.38
Instrumental	10	3.12
Place of Delivery		
Hospital	270	84.38
Health centers	30	9.38
Home	20	6.25
History of Foul Smelling Liquor		
Yes	25	7.81
No	295	92.19
UTI History		
Yes	34	10.63
No	286	89.37
Antenatal Care History		
Yes	165	51.56
No	155	49.44

Out of 320 neonates 60 (18.75%) patients had neonatal sepsis (Table 3). From total 170 male patients 31 (18.24%) patient had neonatal sepsis and out of total females, 29 (19.33%) patients had neonatal sepsis. 27 patients had neonatal sepsis with ages 0 to 7 days and 33 patients had sepsis with ages above 7 days (8 to 30 days). 20/110 patients with LBW, 25/165 patients with NBW and 15/20 patients with >4kg birth weight were found to have neonatal sepsis. 32/60 patients with preterm delivery and 28/260 with term delivery had neonatal sepsis. Out of 50 patients with birth asphyxia 35 patients had neonatal sepsis p-value <0.05. 40 patients had neonatal sepsis with Apgar score <7 and 20 with Apgar score >7. 50 patients with neonatal sepsis had resuscitation at birth (Table 4).

According to the maternal risk factors associated to the neonatal sepsis, maternal age, PROM, delivery mode, history of UTI and history of antenatal care were highly associated to neonatal sepsis p-value 0.001 (Table 5). According to the mortality due to neonatal sepsis 18 (30%) patients died and 42 (70%) recovered after treatment (Table 6).

Table No.3: Frequency of neonatal sepsis

Neonatal Sepsis	No.	%
Yes	60	18.75
No	260	81.25

P-value <0.05

Table No.4: Neonatal risk factors associated to neonatal sepsis

Variable	Total (%)	Neonatal sepsis (%)	P value
Gender			
Male	170 (100)	31 (18.24)	0.07
Female	150 (100)	29 (19.33)	
Neonatal age (days)			
1- 7	180 (100)	27 (15)	0.32
>7	160 (100)	33 (20.62)	
Birth weight			
LBW	110 (100)	26 (23.64)	0.75
NBW	165 (100)	30 (18.18)	
Over weight	20 (100)	4 (20)	
Gestational age			
Term	260 (100)	28 (10.77)	0.02
Preterm	60 (100)	32 (53.33)	
Birth Asphyxia			
Yes	50 (100)	35 (70%)	0.001
No	270 (100)	15 (5.55)	
Apgar Score			
≤7	162 (100)	40 (24.69)	0.045
>7	158 (100)	20 (12.66)	
Resuscitation at Birth			
Yes	126 (100)	50 (39.68)	0.03
No	194 (100)	10 (5.15)	

Table No.5: Maternal risk factors associated to neonatal sepsis

Variable	Total (%)	Neonatal sepsis (%)	P value
Neonatal Age (years)			
<20	67 (100)	25 (37.31)	0.01
20 – 30	163 (100)	20 (18.40)	
31 – 40	75 (100)	10 (13.33)	
> 40	15 (100)	5 (33.33)	
PROM			
Yes	120 (100)	45 (37.5)	0.03
No	200 (100)	15 (7.5)	
Delivery Mode			
Vaginal	200 (100)	25 (12.5)	0.012
C-section	110 (100)	34 (30.91)	
Instrumental	10 (100)	1 (10)	
Place of Delivery			
Hospital	270 (100)	48 (18.78)	0.035
Health centers	30 (100)	8 (26.67)	
Home	20 (100)	4 (20%)	
UTI History			
Yes	34 (100)	19 (55.88)	0.001
No	286 (100)	41 (14.34)	
Antenatal Care History			
Yes	165 (100)	45 (27.27)	0.002
No	155 (100)	15 (9.68)	

Table No.6: Mortality among neonatal sepsis patients (n=60)

Mortality	No.	%
Died	18	30.0
Recovered	42	70.0

DISCUSSION

Globally, neonatal sepsis is one of the most common infections found in neonates with high mortality and morbidity rate.^{12,13} The present study was conducted to examine the incidence rate of neonatal sepsis and risk factors associated with neonatal sepsis also analyze the mortality rate among patients with neonatal sepsis. In present study we included 320 neonates who had admission to NICU at our institution. Out of 320 patients, we found 60 (18.75%) patients had neonatal sepsis. These results were similar to some other studies conducted regarding neonatal sepsis in which the prevalence rate varies from 15 to 40%.¹⁴⁻¹⁶ Many studies showed the incidence rate of neonatal sepsis was above 50% among neonates who were admitted to NICU.^{17,18}

In our study, from total 170 male patients 31 (18.24%) patient had neonatal sepsis and out of total females 29 (19.33%) patients had neonatal sepsis, there were no significant difference found between genders and we considered that genders were not significant risk factor. Different authors showed similarity to our study results

regarding gender wise prevalence of neonatal sepsis.^{19,20} In present study we found that 20 out of 110 total study patients with LBW, 25 out of 165 patients with normal birth weight (2.5 to 4kg) and 15 out of 20 patients with >4kg birth weight were found to have neonatal sepsis. We found that neonates with over birth weight and low birth weight had a high prevalence of neonatal sepsis and we found those two factors were significantly associated to neonatal sepsis. These results showed similarity to some other studies in which birth weight was highly associated to neonatal sepsis.²¹ In this study we found 32 out of 60 patients with preterm delivery and 28 out of 260 with term delivery had neonatal sepsis. Out of 50 patients with birth asphyxia 35 patients had neonatal sepsis p-value <0.05. 40 patients had neonatal sepsis with Apgar score <7 and 20 with Apgar score >7. 50 patients with neonatal sepsis had resuscitation at birth. Many of previous studies demonstrated birth asphyxia, Apgar score and preterm delivery were the significant neonatal risk factors associated to neonatal sepsis.^{22,23}

In the present study, according to the maternal risk factors associated to the neonatal sepsis, maternal age, PROM, delivery mode, history of urinary tract infection and history of antenatal care were highly associated to neonatal sepsis. We found that mothers with ages below 20 years and above 40 years were the significant risk factors of neonatal sepsis. We found mother with premature rupture of membrane had a high prevalence of neonatal sepsis 37.5% out of 120. These results were comparable to some other studies.^{24,25} This study showed that mothers with C-section delivery were also a significant risk factor. Urinary tract infection was found to be a common risk factor and we found out of 34 mothers 55.88% neonates had neonatal sepsis. Antenatal care was also a significant risk factor associated to neonatal sepsis. These results showed similarity to many previous studies in which maternal age, PROM history, delivery mode, urinary tract infection and meconium stained liquor were the common risk factors and highly associated to neonatal sepsis.^{24,25}

In the current study the mortality rate was 30% and recovered neonates after treatment were 70% among patients with neonatal sepsis. Many of studies reported the mortality rate due to neonatal sepsis was 20% to 70%.²⁶ We observed that early and better treatment modalities were very helpful to reduce the mortality and morbidity rate.

CONCLUSION

Sepsis is commonly found malignant and life threatening disease in all over the world with high rate of mortality. From this study we concluded that the incidence rate of neonatal sepsis is low with low rate of mortality compared to many previous studies. Risk factors such as birth weight, birth asphyxia, Apgar

score <7, resuscitation at birth, maternal age, PROM history, UTI history and delivery mode were the highly associated risk factors. Early detection and better treatment may helps to reduce the mortality rate.

Author's Contribution:

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Risk of Cesarean Delivery in Induced Labour

Fazia Raza and Roeda Shams

Risk of Cesarean
Delivery in
Induced Labour

ABSTRACT

Objective: To determine risk of cesarean section in induced labour.

Study Design: Retrospective observational

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology, Rehman Medical Institute from January 2018 to December 2018.

Materials and Methods: A total of 1875 patients were admitted for induction of labour. Data was collected from labour register and patients record file. All patients were induced with Prostin E2. Maximum of 4 doses at interval of 4 hours with exception of patients with PROM, who were induced with 50µg Misoprostol orally as per ward protocol were given. Data collected included parity, gestational age, indication for induction and indication of cesarean section.

Results: There were 102 had emergency cesarean section (23.75 of all induced patients) and 327 (76.3%) patients had normal vaginal deliveries. The most common indication for induction was prolong pregnancies [n=147 (34.2%)] followed by PROM [n=71(16.5%), PIH [n=469 (10.7%)], reduced liquor [n=37 (8.6%)], reduced fetal movements (n=33 (7.6%)] and diabetes [n=33(7.6%)]. The most common indication for cesarean section in induced patients was failed induction [n=53 (51.9%)], followed by prolong second stage [n=30(29.4%)]. The average cesarean section rate (elective + emergency) was 40.7%. The rate of emergency c/section in induced patients was 13.55% in comparison to 15.7% in spontaneous labour.

Conclusion: Induction of labour for medical reason is not associated with increase in risk of cesarean section.

Key Words: Risk, Cesarean delivery, Induced labour

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INTRODUCTION

Induction of labour is most common obstetric procedure worldwide. Labour is induced in all such condition where continuation of pregnancy possess more maternal or foetal risk than induction. Induction of labour is on rise and has reached to about 20% in most countries in past few years.^{1,2} There are number of medical and elective indication for induction of labour. Induction is termed as elective if conducted solely for the convenience of patient or provider without any maternal or foetal compromise.³ Medical indications include IUGR, intrauterine foetal death. PROM, pregnancy >41 weeks, uncontrolled diabetes and hypertensive disorders.^{2,4} Induced labour is associated with many complications like failed induction, prolong labour, more pain, more analgesia, fetal distress and more fetal and maternal monitoring,

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but the major concern is increase rate of cesarean section.

Cesarean section rate has rising trend over past few year⁵ and increase in elective induction is considered to have major contribution to it.^{6,7}

Several studies have been conducted to determine the association of cesarean section with induced labour but have conflicting result⁸

There is no agreed or accepted definition of failed induction but according to some studies it is considered to be successful if patient delivers normal vaginally and failed if it end up in c/section⁹ while, some defines failure as inability to enter into active phase after 12 hour oxytocin administration.^{10,11} There are several factors affecting success of induction including parity, indication for induction, cervical ripening¹² and method of induction and individual obstetrician decision.¹³

The main indication for cesarean section in induced labour are failed induction, meconium staining or failed progress. The purpose of our study is to determine the association between c/section and induced labour.

MATERIALS AND METHODS

This is a retrospective observational study conducted on all women, who underwent induction of labour for medical indications in Rehman Medical Institute from January 2018 to December 2018. All patients who were admitted for induction were included in study. Most of

the patients were booked patients of consultants but some were referred cases. All patients were induced with 3mg of prostin E2 vaginal pessaries with exception of those with PROM. Who were induced with oral 50ug of misoprostol. Maximum of 4 doses of prostaglandin E2 and misoprostol were given at interval of 4 hours. AT 4 cm cervical dilatation or with start of contraction, labour was augmented with amniotomy and syntocinon. This was protocol followed by all consultants for induction of labour. The information collected included parity, gestational age, indication for induction and indication of caesarean section. The data was analyzed using SPSS-20.

RESULTS

There were 1836 (97.9%) were delivered while 39 (2.1%) patients were admitted for observation. One thousand, one hundred and twenty (59.7%) patients had normal vaginal deliveries and 755 (40.3%) had cesarean section. Out of total caesarean sections, 534 were elective or planned c/sections while 221 were emergency caesarean deliveries. One hundred and two of emergency c/sections were conducted on patients with induced labour while 119 were performed in patients with spontaneous labour (Tables 1-2).

Table No.1: Frequency of ward statistic

Total admissions	2306
Total obstetric admissions	1875
Total inductions	429
Total vaginal deliveries	1120 (59.7%)
Total caesarean section	755 (40.3%)
Total c/sections after inductions	102 (23.7%) of all inductions (13.5% of all c/sections)
Total vaginal deliveries after inductions	327(76.3%) of all inductions
Total deliveries (NVDS = C/sections)	1836

Table No.2: Total cesarean sections (n=755)

Cesarean section	No.	%
Total elective c/sections	534	70.8
Total Emergency c/sections	221	29.2
Emergency c/sections in induced patients	102	13.5
Emergency c/section in spontaneous labour	119	15.7
C/sections in induced primi parous	68	66.6
C/sections in induced multi parous	34	33.4

The average caesarean section rate was 40.7%. 429 (23%) patients were induced. Out of these 102 had emergency c/section (23.75 of all induced patients) and 327 (76.3%) patients had normal vaginal deliveries. 203 (47%) of induced patients were primiparous and 226(53%) were multigravidas (Table 3). The most

common indication for induction was prolong pregnancies (n=147 (34.2%)) followed by pre labor rupture of membrane (PROM) (n=71 (16.5%)), pregnancy induced hypertension (PIH) (n=46 (10.7%)), reduced liquor (n=37 (8.6%)), reduced fetal movements (n=33 (7.7%)), diabetes (n=33 (7.7%)) and rest were rare causes (Table 4). Out of total 102 induced patients who, ended up in c/section 68 (66.6%) were primiparous. and 34 (33.3%) were multigravidas. The most common indication for c/section in induced patients were failed induction (n=53(51.9%)), followed by prolong second stage (n=30(29.4%)), abnormal fetal heart rate pattern (n=10(9.8%)) and meconium stained liquor (n=9 (8.8%)) [Table 5]. The rate of emergency c/section in induced patients was 13.5% in comparison to 15.7% in spontaneous labour.

Table No.3: Total patient induced (n=429)

Induction	No.	%
Primi-parous	203	47.3
Multi-parous	226	52.7

Table No.4: Indications for induction of labour (n=429)

Indication	No.	%
Prolong pregnancy	147	34.2
PROM	71	16.5
Gestational hypertension	46	10.7
Reduced liquor	37	8.6
Reduced fetal movements	33	7.7
Uncontrolled diabetes	33	7.7
Obstetric cholestasis	18	4.3
Intra uterine growth restriction	11	2.5
Bad obstetrical history	9	2.1
Intra uterine death	9	2.1
Pre eclampsia	4	0.9
Poly hydramnios	5	1.2
Suspected macrosomia	4	0.9
DVT	1	0.3
Pancreatitis	1	0.3

Table No.5: Indications of c/sections in induced patients (n=102)

Indication	No.	%
Failed induction	53	51.9
Prolong second stage	30	29.4
Abnormal fetal heart rate tracing	10	9.8
Meconium stained liquor	9	8.8

DISCUSSION

The current world wide rising trend of c/deliveries is a major concern .The most common cause is considered to be increase in rate of induction in all obstetric units. One large study involving 1,389 induced patients showed that c/section rate is not increased, no matter

what ever is indication of labour but makes difference if bishop score is poor particularly in nulliparous.¹⁴ cesarean delivery rate was 23.4% in patients induced for medical reason while 23.8% in patients induced for elective reasons and 12 % in spontaneous labour. Our results are consistent with this study showing cesarean delivery rate of 13.5% in patients induced for medical reasons .c/section rate was high in primiparous (66.65) as compared to multigravidas (33.3)

Another large study was conducted including data from 5 (level 3) hospital of north Portugal in 2013. According to this study rate of induction was between 16.9 and 41.7%.¹⁵ The proportion of induce patients for elective indications were 20.3% to 45.55% and rate of c/section was 41.55. The main indication to proceed for c/delivery was failed induction (21-27%) in patient with elective induction and was 17-34% in patients with medical indication. Two of hospital found increase c/deliveries in induced labour.¹⁵ According to this study again it's the indication that makes difference. In our study induction rate was 13.5% and all had medical indication as elective indication is not entertained in our unit. The average c/section rate was 40.7% while 13.5% in induced patients. The main indication for c/section was failed induction [n=53 (51.9%)]

Another study conducted by Vahartian in 2004 concluded that women who underwent elective induction have 3.5 time more risk of having cesarean deliveries as compared to spontaneous labour and especially in patients with poor bishop score.¹⁶ In our study c/section rate was not much different between induced patients and patients with spontaneous labour (13.5% and 15.7% respectively) [Table 2].

Another recent systemic review and meta-analysis of randomized controlled trial has demonstrated no risk of cesarean section in uncomplicated singleton gestation.¹⁷ Our results are in consistent with this finding. We compared rate of c/section to induction of labour in individual months which do not show any linear relationship. In month of April and November and December induction was lowest but c/section rate was highest, while on contrary induction were at its highest rate in March, May, September and October but cesarean section rate was lowest.

One large systemic review also disagreed with fact that induction of labour increases c/deliveries .it rather shows that induction reduces the cesarean deliveries risk.¹⁸ Another systemic review and meta-analysis on use of labor induction and risk of cesarean delivery published in 2014 also concluded that induction of labor reduces risk of c/section compared with expectant management in term and post term pregnancy.¹⁹

CONCLUSION

Induction of labour for medical reason does not increase risk of cesarean section.

Author's Contribution:

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Revisiting Critically:	Fazia Raza, Roeda Shams
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Cognizance of Forensic Odontology among the Dental Practitioners in Lahore

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Cognizance of
Forensic
Odontology
among the Dental
Practitioners

ABSTRACT

Objective: To assess the knowledge towards forensic odontology among dental professionals and to evaluate the need for initiation of formal training in this subject.

Study Design: Descriptive / cross sectional study.

Place and Duration of Study: This study was conducted at the Lahore Medical and Dental College, de'Montmorency College of Dentistry, Fatima Memorial Hospital, University of Lahore and CMH college of Dentistry over a period of months from July to September 2018.

Materials and Methods: A questionnaire that was distributed amongst various teaching dental institutes in Lahore after the approval from ethical committees of all these institutions. Data collected was analyzed through SPSS version 20; bivariate correlation was used with Pearson correlation coefficient, level of significance was set to $p \leq 0.01$.

Results: A total of 316 dental practitioners from five dental institutions in Lahore took part in this study. Our data reflected that 72.15% of the study population was familiar with forensic odontology however merely 6.32% of participants have adequate knowledge of subject. Interestingly 82.61% of the house surgeons, 75.64% of the postgraduates and 76% of the faculty members were interested in formal training regarding this subject.

Conclusion: The knowledge and practice of forensic dentistry is inadequate but it can expand if proper awareness and education is delivered. This condition could be improved by making forensic odontology an integral part of BDS academic curriculum.

Key Words: forensic odontology, cognizance, dental records, assessment, Lahore.

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INTRODUCTION

Forensic odontology is a branch of forensic medicine which implements the use of dentistry to discuss legal matters. It deals with the teeth and the marks they leave behind in order to identify criminal suspects or human remains. It involves identification of a person living or dead, criminal records, data collection, preservation, processing and analysis of the given evidence¹.

Forensic dentistry has become a fundamental part of forensic medicine and has progressively recognized itself as an imperative science in medico-legal cases since late nineteenth century. This may be accredited to the increase in mass disasters consequent to civil war, acts of terrorism and genocide where severe mutilations or burning of bodies may happen.^{2,3}

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Each individual has a unique set of teeth that can help in recognizing the one. The teeth are covered by a highly mineralized layer of enamel that is 96% mineralized as compared to bone that is only 50-70% mineralized. This tremendous mineralized layer supports the teeth to survive trauma better than any other body tissue.⁴ Identification by teeth becomes imperative when human remains are charred, skeletonized or decomposed and cannot be identified through other means. When multiple bodies are recovered from a location or in mass disasters, it is comparatively easy to identify a person using dental aspects⁵. Dental pulp is also a source of DNA and polymerized chain reactions (PCR) allow amplification of even highly degraded DNA.⁶

We can also discover the fatalities by different comparative and reconstructive techniques including the bite analysis, age estimation, gender recognition, rugae pattern and lip prints.⁷

Bite mark analysis is worthwhile in eliminating certain suspects. Bite mark cases are frequently involved with heinous crimes; child abuse, sexual assault, homicide or domestic violence. Analysis includes the recognition, evidence collection, preservation, documentation, physical dental profiling of the victim and comparing with bite mark, physical dental profiling of the suspect.⁸

Age assessment has expanded reputation in the field of forensic odontology with rising need for identification

of unknown descendants. The neonatal lines seen in all primary teeth and first permanent molars are the indicators of birth, the age at the time of fetal death can be determined through incremental lines of von Ebner. Amongst children and adolescents, tooth eruption and tooth calcification are valuable tools for age assessment. The third molar is also a valuable indicator of age estimation during the age of 16-23 years.⁹ The determination of D- and L-aspartic acid (Asp) content from teeth has been applied in age estimation for forensic purposes over the past decades. It was first introduced to assess age from tooth enamel and later from dentin and cementum.¹⁰

Sex determination by using X and Y chromosome DNA analysis have been developed with advances in gene analysis techniques.¹¹ Sex differentiation is also based on morphology of the skull and metric features; the size of skull, mastoid process, suprarobital ridge, zygomatic extensions, nasal aperture and mandibular gonial angle that is less obtuse and flared in males and it is more obtuse in females with no flaring.¹²

Rugoscopy is an old method of human identification particularly for edentulous people where different patterns of rugae are analyzed for comparison. Rugae are ridges present on the anterior part of the palatal mucosa on each side of the midpalatal raphe behind the incisive papilla. The rugae can resist decomposition to an extent. Predominant pattern seen in the rugae is wavy followed by curved, straight and circular, respectively. Females in general have slightly more rugae than males.¹³

Cheiloscopy is the technique that deals with the identification of humans based on lip traces when fingerprints are absent. It usually presents in cases when a person has been bound or gagged, prints on a glass that a person drank from, prints on cigarette butt, prints on glass window if they were pressed up against it.^{14,15}

The history of forensic odontology dates back 4500 years. One of the first dental identifications⁷ was recorded in 2500 BC in which molars linked by a gold wire were located in a tomb in Giza. The earliest recorded case was in 66 AD of Roman Emperor Nero's mother who sent for the head of her enemy and verified his death using a discolored front tooth.^{16,17}

The death of Adolf Hitler in 1945 and the mystery behind it was also solved using forensic odontology evidence. His remains consisted of charred pieces of bone, including the upper and lower jaw which had a 9 unit bridge. Later, a 5 unit x-ray of Hitler's head taken in 1944 was released from the archives in Washington which revealed bridgework and periodontal disease which all matched the evidence given by Hitler's American dentist; Hugo Blaschke.¹⁸ Forensic odontology was also used to successfully identify 80% of the Tsunami victims in South East Asia in December 2004.¹⁹

Historically in Pakistan, one of the most famed cases was of General Zia-ul Haq's; he died in a plane crash in 1988 due to explosion and was identified by his dentition.²⁰ In 2016, a renowned celebrity, Junaid Jamshed died in a plane crash and was identified by his dentition. His remains were identified on the bases of dental records; OPG radiograph and amalgam fillings, data was used for mandibular reconstruction.

In conclusion, forensic odontology plays a major role in the recognition of a person who cannot be recognized by other means. Unfortunately, there is no significant work progress or formal training going on in this regard in Pakistan; this subject is included as a topic in oral and maxillofacial surgery with only five didactics lectures as showed on the website of Pakistan Medical and Dental Council (PM&DC).²¹

MATERIALS AND METHODS

This study is designed as a cross sectional study, including 318 dental professionals from five teaching dental institutions in Lahore; Lahore Medical and Dental College, Punjab Dental Hospital, Fatima Memorial Hospital, University of Lahore and CMH college of Dentistry.

We designed a close ended questionnaire consisting of 14 questions which include gender, awareness, court witness, bite marks, formal training and scope. The questionnaire was thoroughly discussed amongst our ethical committee and research team; the questions were short listed and chosen specifically to highlight our topic. The dental professionals were visited on a single day after the approval from ethical committees of all these institutions. The questionnaire was handed out to all available and willing participants. Confidentiality and anonymity of the participants was assured.

Data collected was analyzed through SPSS version 20. Bivariate correlation was used with Pearson correlation coefficient. Level of significance was set to $p \leq 0.01$.

RESULTS

A total of 316 dental practitioners from five dental institutions in Lahore took part in this study. 93(29.4%) of our participants were males, 211(66.77%) were females and 12(3.81%) were non-specified. As we have divided our population into three categories; there were 138(43.67%) house surgeons, 78(24.68%) postgraduate trainees and 100(31.65%) faculty members. The participants were inquired about their knowledge related to forensic odontology and their attitude towards the subject, their feedback was then compared. Our data reflected that 72.15% of participant were familiar with forensic odontology (Table-1) but only 6.32% of the study population; 5% of the house surgeons, 5.13% of the postgraduates and 10% of the faculty felt that their knowledge was adequate (Table-2). Result showed that 90.51% of study group was unaware regarding forensic odontology as part of their BDS undergraduate

curriculum (Table-3). However 56.52% of the house surgeons, 60.26% of the postgraduates and 79% of the faculty members were familiar in this regard that a dental practitioner can present in court as an expert witness for the identification of suspect or victim when it comes to legal issues.

Secondary objective was to assess the need to initiate formal training in this subject. The data revealed that 82.61% of the house surgeons, 75.64% of the postgraduates and 76% of the faculty members were interested in formal training regarding this subject.

Table No. 1: Do you think your knowledge of forensic odontology is adequate?

	Designation			Total
	House Surgeon	Postgraduate	Faculty	
Yes	11 (7.97%)	6 (7.69%)	13 (13%)	30 (9.49%)
No	127 (92.02%)	72 (92.30%)	87 (87%)	286 (90.50%)
Total	138	78	100	316

Table No.2: Do you think your knowledge of forensic odontology is adequate?

	Designation			Total
	House Surgeon	Postgraduate	Faculty	
Yes	6 (4.34%)	4 (8.12%)	10 (10%)	20 (6.32%)
No	132 (95.65%)	74 (94.87%)	90 (90%)	296 (93.67%)
Total	138	78	100	316

DISCUSSION

Forensic odontology is an important branch of dentistry that would assist in solving cases of abuses and deaths. The progress in forensic odontology in Pakistan has been relatively slow. The objective of this study was to assess the understanding and inclination of dental practitioners towards forensic odontology. Our results revealed that 72.15% study group; 57.25% of the house surgeons, 78.21% of the postgraduates and 88% of the faculty members were aware of this branch of dentistry. However the adequacy of knowledge was only 6.32% comprising 1.9% of the house surgeons, 1.3% of the postgraduates and 3.2% of the faculty.

Study by Muhammad Zeeshan Baig *et al* concluded that there is lack of knowledge and awareness among dental professionals of twin cities of Rawalpindi-Islamabad. The results of their study revealed that about 27.84% of their dentists were not aware of forensic odontology; only 0.67% of the participants had studied forensic odontology in undergraduate or postgraduate courses. Mainstream of the participants (63.85%) were even not cognizant of this subject as a part of their curriculum. None of the participants ever received any formal training in this field²².

Al-Khalaf A H *et al* conducted a survey to measure the familiarity and practice of forensic dentistry among dental practitioners in the eastern province of Saudi Arabia. Their results showed that 74.7% of the participants considered themselves to have insufficient information of forensic dentistry; only 23.1% updated their knowledge through internet and two-third of the participants had not been trained in this subject during their undergraduate program.²³

Our next query was about forensic odontology as a part of curriculum. Result showed that 92.03% of the house surgeons, 92.31% of the postgraduates and 87% of the faculty members were unaware regarding forensic odontology as part of curriculum; it had not been taught at any level that there is a lack of adequate knowledge among dental practitioners regarding forensic odontology and its part in the BDS curriculum. As per PMDC curriculum for BDS, 5 lectures of forensic odontology are included in the subject of oral and maxillofacial surgery.²⁴

When we asked about that dentist can testify as an expert witness in court to present forensic dental evidence we get surprisingly high awareness; 56.52% of the house surgeons, 60.26% of the postgraduates and 79% of the faculty members were familiar in this regard that a dental practitioner can present in court as an expert witness for the identification of suspect or victim when it comes to legal issues like child abuse, domestic violence, rape cases, suicide attempts

When asked about the maintenance of these records, 59.52% of the house surgeons, 78.21% of the postgraduates and 73% faculty members were aware of maintaining records. Study done by Naggarajappa *et al* in Kanpur proved that all the dental practitioners maintained the dental records can become valuable members of the dental identification process by developing and maintaining standards of record keeping.²⁵

Participants showed immense response regarding training and teaching in this subject; the data revealed that 82.61% of the house surgeons, 75.64% of the postgraduates and 76% of the faculty members are interested in formal training regarding this subject. There is a tremendous need of commencing a formal training regarding this subject; also there should be seminars, lectures and courses for general dentists.

Regarding the scope of this field; 80.43% of the house surgeons, 85.9% of the postgraduates and 92% of the faculty members are in favor of forensic odontology.

CONCLUSION

Forensic odontology plays a major role when it comes to the identification procedure during calamities and disasters. The knowledge and practice of forensic dentistry is inadequate among dental practitioners. It is high time to get our undergraduates and postgraduates students trained in this subject. It should be included effectively in BDS curriculum and additional extensive training at postgraduate level would be helpful to

acquire modern technical skills related to forensic odontology. Government and Health department should arrange workshops and seminars for reaching a level of cognizance and training that is required.

Author's Contribution:

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Comparison of Effects of Single Visit Full Mouth Ultrasonic Debridement with Two Visits Partial Mouth Ultrasonic Debridement in the Treatment of Chronic Periodontitis

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ABSTRACT

Objective: The objective of this study is to compare the clinical effects of single visit full mouth ultrasonic debridement to those of two visit partial mouth ultrasonic debridement up to one month following periodontal treatment.

Study Design: An Experimental & Interventional study

Place and Duration of Study: This study was conducted at the Out-patient Department (Periodontology) of Isra Dental College Hospital, Isra University, Hyderabad from April 2017 to September 2017.

Materials and Methods: Sixty patients of moderate chronic periodontitis were selected through purposive non-probability sampling. All patients were examined at baseline i.e. before treatment, followed up by 1 week, and 1 month respectively. Probing pocket depth (PPD), clinical attachment level (CAL) Index and Plaque index (PI) was measured.

Results: After treatment, both groups showed significant improvement in clinical parameters. Full-mouth treatments resulted in greater improvements in full-mouth mean plaque percentage, probing pocket depth and bleeding on probing as conventional therapy. When data was analyzed based on pocket depth and tooth type, there was no difference between groups in attachment gains. The full-mouth groups demonstrated greater reduction in BOP% and number of pockets and the total treatment time was significantly shorter.

Conclusion: This study concluded that Full mouth has more beneficial effects on reducing gingival inflammation, plaque level, probing depth, but not significant improvement in clinical attachment level as compare to partial mouth. Moreover, full-mouth ultrasonic debridement provides clinically relevant improvements in the periodontal treatment.

Key Words: Periodontitis, Full mouth ultrasonic debridement, Partial mouth ultrasonic debridement. PPD (Probing pocket depth), PI (Plaque index) CAL (Clinical attachment loss), BOP (Bleeding on probing), QRP (Quadrant root planning), FMRP (Full mouth root planning) Q-SRP (Quadrant scaling root planning) FMdis (Full mouth disinfection)

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INTRODUCTION

Chronic periodontitis is the most common form of periodontitis with about 80% of prevalence¹⁻². The periodontal disease is an opportunistic infection

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associated with the formation of bacterial bio films on the tooth surfaces³ The bio film is considered as the primary agent in the etiology of periodontitis. However, only the bio film is not enough to determine the disease, genetic and host (e.g., oral hygiene stress, diabetes, and smoking) may also be present⁴⁻⁵.

Adequate removal of pathogenic bacteria from the supra- and sub gingival environment, non-surgical mechanical periodontal therapy is required for optimal healing of the diseased periodontal tissues. Conventionally, non-surgical mechanical therapy is performed in a quadrant- or sextant-wise manner with a time gap of 1 or 2 weeks between appointments. Thus, it usually takes 1-2 weeks to complete mechanical treatment of the whole mouth⁶. Numerous clinical and microbiological studies have confirmed that non-surgical mechanical therapy performed in the conventional method is effective in reducing the

bacterial load, resulting in clinical improvement⁷. If the transmission of pathogens happen in earlier phase of healing, it can re-infect the site and thus delaying healing. In order to avoid this, Quirynen et al in 1995 introduced one stage full-mouth therapy which resulted in significantly greater improvements than conventional quadrant-wise therapy⁸.

The study demonstrated superior results with full-mouth mechanical debridement and adjunctive anti-microbial agents but raised the question regarding the currently accepted approach with spaced appointments as the initial treatment. Full-mouth treatment without the use of adjunctive anti-microbial agents was also capable of providing similar results, implying that extra-dental sites may not play a major role in the re-infection of treated pockets. Although this treatment concept appears to be rational considering the infectious nature of periodontal disease, there appear to be no studies done in our population which have actually addressed this issue. So for that reason, the purpose of the present study was to compare the clinical effects of single-visit full-mouth ultrasonic debridement to those of two visit partial mouth ultrasonic debridement.

MATERIALS AND METHODS

An interventional study was conducted at Department of Periodontology, Isra Dental College for six months. The sample size was calculated to be 60 using RaoSoft sample size calculator with error =0.05, confidence interval =95%, population =250. The patients were selected using non-probability purposive sampling. All the patients from age 30-60 years and those with at least 20 teeth present at the time of study, moderate chronic periodontitis with up to 5mm of pocket depth and having no periodontal treatment in 6 months' time were included in the study.

All those patients with pregnancy, normal gingiva, advanced periodontitis, patients with diagnosed systemic diseases, smokers and those who have received periodontal treatment in 6 months or any antibiotic treatment in last 3 months were excluded from the study.

The study was performed after the approval of ethical review committee of Bhitai Dental and Medical College, Mirpurkhas. All patients were examined at baseline i.e. before treatment, followed up by 1 week, and 1 month respectively after patients consent. Probing pocket depth (PPD) was checked with periodontal probe, clinical attachment level (CAL) Index was measured using a CPITN probe and was calculated by subtracting the gingival margin level from the probing depth. Bleeding on probing (BOP) was recorded after probing as present or absent. And Plaque index (PI) was detected with dental explorer. These measurements was performed at four points i.e. mesial, buccal, distal and palatal/lingual areas. Measurements were recorded by a single calibrated examiner on clinical Proforma. After

recording of all measurements the patients was divided into two groups:

a. Single visit full mouth ultrasonic debridement: Complete ultrasonic debridement of all teeth (supra and subgingivally) was done in one visit with piezoelectric ultrasonic scaler.

b. Two visit partial mouth ultrasonic debridement: Complete ultrasonic debridement was done in two halves. On the first visit debridement of the entire upper quadrant was done with piezoelectric ultrasonic scaler. Patient was then recalled after one week for the debridement of the lower jaw. The first evaluation was performed after one week of treatment. CAL, BOP, PPD and PI was measured. The final evaluation was made after 30 days of treatment.

After examination the data was tabulated and analyzed statistically for mean and Standard deviation by using Statistical Package for Social Science (SPSS) software, version 21. After collecting data student t-test and chi-square was applied. P value less than or equal to 95% confident interval ($p=0.05$) was considered statistically significant.

RESULTS

Total 60 subjects were analyzed and they were equally divided ($n = 30$) into two groups i.e. Group I: (Full-mouth) and Group II: (Partial mouth). In Group I: (Full-mouth), the mean age of study subjects was 42.34 ± 10.37 years. In Group II: (Partial mouth), the mean age of study subjects was 45.6 ± 8.24 years. There was no statistically significant difference of age between Group I: (Full-mouth) and Group II: (Partial mouth). (p value = 0.415)

Table 2 shows the difference two groups with respect to Plaque index score, probing pocket Depth, bleeding on probing and clinical Attachment level. The mean difference was significant in all the above mentioned criteria.

Table No.1 Distribution of subjects according to age (in years) among the groups (full and partial ultrasonic debridement) $n = 60$

	Group I: (Full-mouth) $n = 30$	Group II: (Partial mouth) $n = 30$	t-value	P value
Age (in years) Range	42.34 ± 10.37 (32 to 53 years)	45.6 ± 8.24 (37 to 54 years)	0.074	0.415

Results are presented as Mean $\pm$ Standard Deviation

DISCUSSION

In the present study, the Full mouth debridement group was treated by ultrasonic tooth debridement in one visit. The results of this study showed that Full mouth has more beneficial effects on reducing gingival

inflammation, plaque level, probing pocket depth, and improving clinical attachment level as compare to partial mouth.

Table No: 2 Comparison of different variables between the two groups (N=60)

Between the two groups (14-30)				
Plaque Index Scores	Group I Full Mouth (n=30)	Group II Partial Mouth (n=30)	Difference of the means	p value
	Mean±SD	Mean±SD		
Baseline	1.84±0.11	1.83±0.21	0.01	0.001
At one week	1.32±0.12	1.06±0.20	0.26	
At 1 month	1.03±0.15	1.04±0.09	0.01	
PROBING POCKET DEPTH				
Baseline	4.17 ±0.59	4.18 ±0.66	0.01	0.005
At one week	2.76±0.57	3.74 ±0.63	0.98	
At 1 month	2.60±0.52	2.57 ±0.56	0.03	
BLEEDING ON PROBING				
Baseline	73.85±15.20	72.75 ± 25.70	1.1	0.006
At one week	15.90 ±9.32	17.70 ± 9.29	1.8	
At 1 month	12.75±13.69	6.6 ± 5.39	6.5	
CLINICAL ATTACHMENT LEVEL				
Baseline	4.20 ± 0.57	4.20±0.67	0.01	0.04
At one week	3.99 ± 0.59	4.10 ± 0.62	0.11	
At 1 month	3.79 ± 0.54	3.98 ± 0.56	0.19	

p value = 0.05 is significant, 0.01 is very significant and 0.001 is highly significant

This was similar to the study conducted by Shakeel M et al.⁹ who revealed that Full mouth disinfection (FMdis) has more beneficial effects on reducing gingival inflammation, plaque level, probing depth, and improving clinical attachment level over Quadrant scaling root planning (Q-SRP). It is also an agreement with the study of Zijng V et al.¹⁰ reported similar findings in his study i.e. FM-SRP and MS-SRP result in overall clinically and microbiologically comparable outcomes where recolonization of periodontal lesions may be better prevented by FM-SRP. The results of

present study are in contradiction with the studies done by Predin T et al.¹¹ who showed similar clinical outcomes following both treatment modalities. It is also in contrast with the study of Soares L.G.² which reported that at the evaluation, 90 days after treatment, no statistical difference was found between the two periodontal therapies.

The clinical findings in the present study were in agreement with Wennstrom et al. who observed improvements in the PI, PPD, BOP, and CAL. In this study the PI improved in each session which might be due to the oral hygiene re-instruction in this study for all patients especially for those in the Q-SRP group as they needed more visits to complete the Q-SRP and within these sessions oral hygiene was reinforced¹².

The present study is in agreement with several studies which also found mean increase of CAL and reduction of CPD in both groups^{13,14}. The results of Vandekerckhove et al.¹⁵ also agreed with the study of Quirynen et al.¹⁶ but they showed treatment reduced the CPD of multi rooted teeth as well as the single rooted teeth compared to Q-SRP. The CPD reduction in both of the mentioned studies was not statistically different for less than the 6 mm pockets. In our research moderate cases of chronic periodontitis were incorporated in the study.

In the present study, both treatment strategies resulted in similar and significant ($P < 0.01$) improvements in PI, PPD, POB, and CAL from baseline at 1 week and 1 month following the completion of therapy. The results of this study indicate a continuous clinical improvement at 1 week and 1 month, thus confirming previous findings of Badersten et al.¹⁷ Moreover, in this study, the PD in the area of an initial pocket depth of 4-5 mm decreased by 1.35 mm after QRP and 1.53 mm after FMRP. Lee et al.¹⁸ reported a PD in the area of an initial pocket depth of 4-5 mm, which decreased by 1.4 mm and 1.7 mm after QRP and FMRP, respectively.

However, there were no significant differences in the clinical effectiveness between QRP and FMRP. These findings are in accordance with the results reported by Apatzidou and Kinane¹⁹ and Koshy et al.²⁰ who also failed to find statistically significant differences between the two treatment modalities.

Several authors compared the microbiological effects of full-mouth disinfection with quadrant wise root planning, reporting differing results. For example, the studies by Quirynen et al.²¹ and De Soete et al.²² indicated advantages of the full-mouth approach versus quadrant wise treatment.

By contrast, Apatzidou and Kinane¹⁹ and Jervøe-Storm et al.²³ reported no significant differences between the groups for the bacterial load. Nevertheless, a comparison between studies is difficult due to their differences with respect to sampling time points, sampling methods, and microbiological techniques applied.

In this study, the probing depth in the area of the initial pocket depth of 4-5 mm decreased 1.10 mm after Q-SRP and 2.40 mm after FMdis. Knofler et al²⁴ reported a probing depth in the area of the initial pocket depth of 4-5 mm, which decreased by 1.1 and 1.0 mm after Q-SRP and FMdis, respectively. Jervoe- Storm et al²⁵ reported similar results showing decrease of 1.6 mm and 1.5 mm, respectively.

CONCLUSION

This study concluded that Full mouth has more beneficial effects on reducing gingival inflammation, plaque level, probing depth, gingival recession and improving clinical attachment level as compare to partial mouth. Moreover, full-mouth ultrasonic debridement provides clinically relevant improvements in the periodontal treatment.

Author's Contribution:

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 Final Approval of version: Arsalan Ahmed

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

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Elevated Levels of Serum Creatine Phosphokinase as a Marker for Diagnosing Renal Failure and Rhabdomyolysis due to Para Phenylene-Diamine (PPD) Poisoning

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ABSTRACT

Objective: To determine the clinical lab diagnostic accuracy for renal failure and rhabdomyolysis due to paraphenylene-diamine (PPD).

Study Design: Non-experimental cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Forensic Medicine, Foundation University Medical College, Islamabad from Jan-Dec 2018.

Materials and Methods: Data was analyzed on SPSS version 20. Chi-square test was applied for the analysis of qualitative variables. Two tail tests were applied for quantitative variables. Frequencies with percentages mean with standard deviation and median with inter-quartile range was given for quantitative data. P-value < 0.05 was considered significant. Exclusion criteria include patient with mixed disease history or having medical co-morbidities were excluded from this study

Results: In the present study, 658 cases of Kala Pathar poisoning were diagnosed and treated. M: F ratio is 5:20. There were 518 (78.8%) females and 139 (21.2%) males. Majority of the female patients were married 488 (78.0%). Most common clinical manifestations include marked facial edema; dysphagia and stridor. Post complications include Rhabdomyolysis and acute renal failure which develop after two to five days. Initial lab investigations within 6-8 hours after ingestion showed marked increase in TLC count, SGPT and Na⁺ ions. There is decrease in K⁺ & HCO₃ ions. There is marked elevation of serum creatinine kinase (CK) after 24 hours.

Conclusion: 'PPD poisoning is more common in females of younger age group belonging to rural areas. Early diagnosis and prompt supportive treatment can save many lives. There is no specific antidote available.

Key Words: Para Phenylene Diamine, acute renal failure.

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INTRODUCTION

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Serum Creatine Kinase (CK) or Creatine Phosphokinase (CPK) is an enzyme primarily found in muscle tissue. It catalyzes the conversion of creatine into phosphocreatine and adenosine-triphosphate (ATP) into adenosine diphosphate (ADP).

This reaction is reversible and thus phosphocreatine serves as a rapidly available source of ATP when muscle is stressed or inflamed¹. When the poison damages the muscle membrane (sarcoplasmic membrane), it becomes permeable and releases the myocytic enzymes like lactic dehydrogenase (LDH), creatine phosphokinase (CPK) and aspartate aminotransferase (AST) into the bloodstream². Extraneous exercise, running or accidental injuries to the muscles damages the sarcoplasmic membrane that releases the muscular enzymes in to the blood results in high levels of creatine phosphokinase (CPK). Most of these patients are either sports man or victims of Road traffic accidents. These patients are usually referred to rheumatologists to evaluate any idiopathic

inflammatory myopathy (IIM)³. However, it was also found that in certain cases of poisoning the levels of CKP are also very high. Such poisons causes direct damage to the myocytes. These include snake bite and ingestion of Hair dye (Paraphenylene-diamine)⁴.

Paraphenylenediamine (PPD) poisoning is an emerging problem of developing African and South Asian countries⁵. It is a main ingredient of hair dye formulation marked with the name of 'Kaala Pathar' and easily available in market at a low cost. It is available in the form of powder or crystals. It is used as hair dye to enhance the color of hair when mixed with henna. Para phenyl Diamine (PPD) is brown or black color substance highly toxic, insoluble in water but easily soluble in hydrogen peroxide. PPD is a coal-tar derivative which on oxidation by cytochrome P450-peroxidase produces Brondrowski's base having allergenic, mutagenic and highly toxic properties. PPD activates type -4 hypersensitivity reaction, capillary leaking, anaphylactic reactions and cellular damage to nephrons and hepatocytes⁶. This poison produces highly toxic effect on respiratory, hepatic, renal and cardiac systems by inhibiting cellular oxidation and also effect on muscles. It causes rhabdomyolysis, laryngeal edema, severe metabolic acidosis and acute renal failure⁷.

PPD is used in industry of making tattoo marks over body, fabrics, dark makeup and printing inks⁸. The incidence of suicide with household items is increasing every year. Most common incidences of suicide were reported in low socioeconomic countries^{4,6}.

The clinical manifestations include edema of the face, neck, pharynx, tongue and larynx initially within 6-8 hours of ingestion. Post symptoms include angioneurotic edema, rhabdomyolysis. It produces very devastating effects on different systems leading to acute renal failure, respiratory acidosis and hepatic failure. Its toxicity depends upon the quantity of dose ingested. When taken orally, death may occur within initial 6-24 hours due to angioneurotic edema⁹.

MATERIALS AND METHODS

It was a non-experimental cross-sectional study. In this study we compared test's classification of a diagnosis with a normal non diseased population standard's classification of lab test and clinical manifestations in a population of two districts of KPK and Punjab. The study was conducted at District Head Quarter (DHQ) Hospitals of two districts of South Punjab Bakkhar, DG Khan and one from district of KPK i.e. DI Khan. Data collected from Jan-Dec 2018. A total of 658 cases of PPD (kala pathar) presented to emergency department over a period of 1 year. The ratio of male and female cases was 5:20 respectively and age range of both the genders was 15-30 years. Prior to the analysis, collected data was subjected to Kolmogorov-Simonov normality test. The demographic statistics

included gender, age, and socioeconomic status, mode of administration, intention and amount ingested. Information about treatment, discharge and mortality within first 48 hours was recorded. The clinical lab findings were correlated with clinical manifestations. Data was analyzed on statistical package for social sciences (SPSS) version 20. Chi-square test was applied for the analysis of qualitative variables. Two tail tests were applied for quantitative variables. Frequencies with percentages mean with standard deviation and median with inter-quartile range was given for quantitative data. P-value < 0.05 was considered significant. Exclusion criteria include patient with elevated levels of CPK due to acute and chronic myopathies, accidental crush injuries and Road traffic accidents were excluded from this study.

RESULTS

In the present study, 658 cases of Kala Pathar poisoning were diagnosed and treated. There were 518 (78.8%) females and 139 (21.2%) males. Their age range was from 5 - 59 years, in adults average age was 21 ± 6 for females and 35 ± 3 for males. 33 (5.0%) were children (5-12 years). In adults, median age was 21.0 (IQR 4) years. Among children, there were 22 (68.7 %) males and 11 (33.3%) females. The results were opposite to that found in adults. The majority female victims were adult i.e. 507 (81.1%), and 117 (18.7%) were males. (Table I).

The Poison was taken orally by all patients (n=658). Majority of the female patients were married 488 (78.0%) The socioeconomic status of all the presented cases was below average. The intention of suicide was determined. 499 (98.2%) females and 101 males use it either as exhibitional poison or with the intention of suicide.

Table No.1: Demographic characteristics of the patients

Gender	Poisoning due to Para Phenylene Damine (PPD)	
	Children (5 >12 years)	Adults
Male	22 (68.7%)	117 (18.7%)
Female	11 (33.3%)	507 (81.1%)

Clinical manifestations include marked edema of face; dysphagia and stridor are the early presenting complaints. Rhabdomyolysis, hepatic damage, neuropathy and acute renal failure were developing after two to five days. Urine examination showed albinuria and haemoglobinuria. Survival rate is subject to early performance of gastric lavage, hemo-perfusion and symptomatic treatment. Out of 668 case 581 arrived within 2 hours of ingestion.

Initial lab results showed decrease in Hemoglobin $<11.9 \pm 2.2$ gm/dl, increase white blood counts of $>14000 \pm 2000$ g/dl, platelet counts $\pm >$

422,000; serum glutamate-pyruvate transaminase (SGPT) $> \pm 229$ IU/L, increase Sodium 141 mmol/L, decrease Potassium 3.4 mmol/L, decrease Bicarbonate ± 24.2 mmol/L. Serum creatinine phosphokinase (CPK) ± 1200 U/L after 24 hours. Arterial blood gas (ABGs) analysis showed partial pressure of oxygen 121 mmHg, carbon dioxide 33.90 mmHg and pH of 7.41 (Table -2) Chest X ray done was unremarkable.

Table No.2: Clinical Features and outcome of Kala Pathar poisoning

Clinical Features	N=658 (%)
Pain in Throat	416 (63.2%)
Oral Erythema	376 (57.1%)
Cervicofacial Edema	658 (100 %)
Dysphagia	317 (48.1%)
Dysphonia	416 (63.2%)
Difficulty in Opening of Mouth	311(47.6%)
Muscle Aches/Rigidity	100 (15.1%)
Dark urine	134 (20.3%)
Rhabdomyolysis	309 (46.9%)
Oliguria/Anuria	405 (61.5%)
Acute Renal Failure	406 (61.5%)
Hyperkalemia	303 (47.8%)
Hepatitis	314 (48.1%)
Hemodynamic shock	203 (30.8%)
Sinus bradycardia	103 15.6%)
Sinus tachycardia	213 (32.3%)
Outcome	N (%)
Tracheotomy	324 (49.2%)
Ventilator	212 (32.2%)
ICU stay (days)	6.43 $\pm$ 3.61
Mortality	06 (37.5)

On examination of victims, arrived within 2 hour of ingestion have marked puffiness on face and neck. After 8 hours patient was vitally unstable, heart rate 150-160/min, gradual fall in blood pressure systolic 90-100 mmHg and diastolic 50-60 mmHg, hyperventilation rate 35-40/min, and slight raise in temperature 38.8°C. Neurological examination include Glasgow Comma Scale (GCS) 11 $\pm$ 2 /15 and diminished muscle reflexes. There was an average loss of power 3/5 in upper limb whereas, 1/5 in lower limbs. Sensory system was intact.

Clinical lab diagnostic accuracy was determined after 6-8 hours showed marked hemolysis [Hb 8.5 $\pm$ 1.6 gm/dL (12.1-15.1 gm/dL)], low levels of potassium (K) [2.2 $\pm$ 1.1 mEq/L (3.5-5.2 mEq/L)], raised creatinine (CPK) 1200 $\pm$ 2U/L (22-198 U/L), raised WBC that is 15.6 $\pm$ 1.7 (4.0-10.0 $\times$ 10⁹/L), increased SGPT (Table-3). 289 (44%) cases respond to symptomatic treatment when given within initial 12 hours of ingestion. Common complaints include anxiety, generalized pain and marked facial swelling. Patients were managed with anxiolytics (bromazepam) to relief anxiety,

transfusion of glucose and i/v electrolytes for correcting electrolyte imbalance and forced alkaline diuresis to avoid renal failure. These procedures were performed within 6 hours of admission. Fluid input and output chart was maintained. Anti histamines were given along with steroids for hypersensitivity as most patients present with cervico-facial edema.

Table No.3: Laboratory parameters

Laboratory parameters	Mean + SD	Normal Range
TLC (4.0-10.0 $\times$ 10 ⁹ /L)	15.6 $\pm$ 1.7	4.0-10.0 $\times$ 10 ⁹ /L)
CPK (U/L)	1200 $\pm$ 200	22 – 198
AST (U/L)	1365.18 $\pm$ 1186.28	10-40
ALT (U/L)	851.19 $\pm$ 1604	7-56
Serum creatinine (mg/dL)	1.98 $\pm$ 1.6	0.50-1.2

The patients were kept under observation for 2 days. If symptoms persist and lab investigations showed raised CPK level and urine color changes to brown turbid then it is a diagnostic for the parphenyl Diamine such patients then referred to tertiary care Hospitals for Hemodialysis to avoid ARF. Catheterization in the emergency department reveals dark brown urine. There is no specific antidote for PPD.

The mortality rate is quiet high. On average survival rate is less than 20% (n=119). The median for duration of stay in the hospital was 7 $\pm$ 2 days (inter-quartile range=6.45). Out of 518 female patients with 26 (5.0%) had a pregnancy. 44 (8.6%) had left the hospital against medical advice.

DISCUSSION

The levels of many muscle enzymes such as serum lactic dehydrogenase (LDH), creatine phosphokinase (CPK), and aspartate transaminase (AST) increases in the main blood stream after myocardial infarction. Their elevated levels can help in diagnosis and quantification of infarct size¹⁰. Similarly elevated CPK levels and marked cervico-facial edema can also help in early diagnosis of PPD poisoning 658(100%)¹¹. The primary differential diagnosis for the elevated CPK levels is the snake bite poisoning 234(34%), paraphenylene-diamine (PPD) poisoning (23%) and muscular diseases of unknown origin known as idiopathic inflammatory myopathies (IIMs) 445(52%)^{12,13,14}.

During the last decade, there has been a remarkable increase in the misuse of PPD¹⁵. Most of the cases reported from low socioeconomic rural areas located in southern districts of Punjab and KPK⁴⁻⁶. Almost in all cases of the adult, victim uses it with suicidal intention¹⁶. The poison is cheap and easily available. It has salty taste in contrast to most of the poisons with bitter taste that is why it has become third most popular

suicidal poisons among young females¹⁷. In current study 517 victims were females and out of them 488 (78%) females were married; this indicate that the problem was more linked with family disputes and low socioeconomic status. The chemical composition of kala-pathar is Para-phenylen-diamine, Sodium ethylene, Diamine tetra acetic acid and Propylene glycol. These compounds are harmful for kidneys and liver. The metabolites cause renal tubular necrosis leading to hyper kalemia and raised SGPT¹¹. The toxicity of Para-phenylene-diamine is dose dependent with estimated lethal dose of oral 0.5g- 0.8g/kg or 7–10 grams/daily¹⁸.

In 241(37.5%) cases PPD causes unconsciousness leading to coma; in another two studies done in 2011 and 2014 percentage was 20 and 26.3%⁶⁻¹³. Hemolysis, acute septicemia and myocarditis might be the underlying cause. Hyperkalemia in 12.5% patients was observed¹⁴. Hyperkalemia was noted to be 20% and 26.3% patients in another study¹³⁻¹⁴. Rhabdomyolysis and Acute Renal Failure (ARF) may be cause of hyperkalemia. Skeletal muscle fatigue was evident in 62.4% patients in our study due to rhabdomyolysis. ARF occurred in 37.5% of patients whereas in study done on the same population in 2011 and 2014 indicates 47.4% and 40 %^{6, 13}. We also found that the ALT a markers of hepatitis was significantly higher in our patients. Acute renal failure (ARF) develops as a consequence of tubular necrosis. ARF developed only in patients who ingested more than 100ml of kala-pathar. Cervico-facial edema was not dose dependent it was present in all victims¹⁹. CPK levels were 642, 410, and 271 above baseline on days 4, 7, and 10 after the exercise due to muscle break down²⁰. These levels were much lower than found in our study. In another study CPK level was 1200 $\pm$ 2.2 in 324 (39.2%) patients. These patients ingested with suicide intention and underwent tracheotomy to clear airway obstruction. Angioedema, Dysphagia, Rhabdomyolysis was observed in more than 60% of the patients¹⁸⁻²⁰. We believe that elevated levels of CPK is a good a reliable indicator for diagnosing PPD poisoning in for young patients admitted with ARF and marked Cervico-facial edema.

CONCLUSION

High index diagnostic indicators such as Hyperkeleemia, increase ALT and CPK are the diagnostic indicators in cases presented with clinical features such as dysphagia, angioedema, rhabdomyolysis and acute renal failure. There is no specific antidote for PPD and treatment is supportive. Supportive treatment may be helpful such as tracheotomy and alkaline dieresis for preventing choking and renal failure. It is recommended that more such findings should be published in peer reviewed journals, so they could influence the

authorities. It is suggested that sale of Kala Pathar should be legally restricted by government.

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Versus Midazolam in Preventing Etomidate Induced Myoclonus and Reduction of Hemodynamic Stress Response Following Intubation, A Multicenter Trial

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ABSTRACT

Objective: The effectiveness of dexmedetomidine versus midazolam in preventing etomidate induced myoclonus and reduction of hemodynamic stress response following intubation.

Study Design: A Randomized controlled trial.

Place and Duration of Study: This study was conducted at the Department of Anesthesia at Multan Medical and dental College, Bakhtawar Amin Hospital, Ch Pervaiz Ellahi Institute cardiology, Multan and Sahiwal Medical College Sahiwal from January 2018 to March 2019.

Materials and Methods: All 100 patients were indiscriminately allocated into two equal groups. Group-D was given dexmedetomidine and group-M was given midazolam. Age, weight, gender distribution, ASA status, hemodynamic factors (heart rate and mean blood pressure) and the incidence along with its severity were compared. Data was put in SPSS version 23 computer software and analyzed by applying Chi square and Independent t tests. P value ≤ 0.05 was considered of statistical importance.

Results: Age, weight, gender distribution and ASA status was not significantly different between Group D and Group M ($p > 0.05$). There was statistically noteworthy fall in post intubation heart rate as well as mean blood pressure in Group D as compared to Group M ($p < 0.05$). Grade 0, 1, 2 and 3 myoclonus was seen in 56%, 30%, 16% and 2% patients of Group D; and 18%, 22%, 46% and 14% of the Group M patients, respectively ($p < 0.001$).

Conclusion: In the patients who premedicated with dexmedetomidine, the incidence as well as the intensity of myoclonus was considerably lower as compared to patients who were premedicated with midazolam. Moreover, dexmedetomidine was a successful agent to significantly attenuate the hemodynamic stress responses of intubation.

Key Words: Dexmedetomidine, midazolam, hemodynamic stress response, myoclonus.

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INTRODUCTION

Etomidate directly works on gamma aminobutyric acid (GABA) receptors. It is sedative hypnotic agent which is derived from the imidazole group.

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It blocks neuroexcitation to produce anesthesia and it is known to have insignificant effects on respiratory system along with relatively stable hemodynamic profile in comparison with other anesthesia induction agents.

Most common side effects of etomidate include pain at the site of injection and myoclonus. Incidence of pain was reduced with the newer fat emulsion preparations but no decrease in the incidence of myoclonus was seen^{1,2}. Myoclonus occurs in almost 80% of the patients, who were not medicated, after the induction of anesthesia with the injection etomidate, increasing the vulnerability of regurgitation, aspiration as well as hypoventilation in non-fasting patients³⁻⁶. Myoclonus can be troublesome in cases of limited cardiovascular reserve and the patients with open eye injuries³.

The jerky movements of myoclonus cases the detachment of the ECG leads in the patients on continuous monitoring which can lead to significant delay in monitoring and therefore, reduce the chances of successful timely intervention⁶. The neurologic

mechanism behind the occurrence of myoclonus following etomidate injection is not well understood yet. However, some researchers may suggest it to be some sort of seizure activity. In spite of the above effects, anesthesia induction with etomidate is smooth and provides favorable pharmacokinetics and toxicity profile which enables rapid recovery following single dose⁷. Etomidate can be used easily in the patients with shock, intracranial hypertension and respiratory diseases.

A lot of drugs have been tried so far to minimize the occurrence as well as intensity of myoclonus following the etomidate injection, which include opioids³, midazolam⁸, magnesium sulphate⁹ and rocuronium¹⁰. Among many new agents being used for premedication to reduce myoclonus is dexmedetomidine¹¹. Dexmedetomidine has anxiolytic as well as analgesic activity. It acts on the alpha-2 adrenoceptors and is commonly used in intensive care and anesthesia²⁴. It has recently been tried as premedication to decrease the occurrence as well as severity of myoclonus following etomidate induced anesthesia. The mode of action of dexmedetomidine is not yet clear.

Dexmedetomidine has been tried in various population but the data of its trial in Asian population is not available. In current study, we plan to match the effectiveness of midazolam with that of dexmedetomidine in decreasing the occurrence as well as severity of myoclonus among the patients who were anesthetized with etomidate, as a primary objective. Moreover, we plan to compare the efficacy of both the agents in lessening the hemodynamic stress responses of intubation.

MATERIALS AND METHODS

Our research is a prospective, randomized controlled trial which was directed Department of Anesthesia at Department of Anesthesia at Multan Medical and dental College, Bakhtawar Amin Hospital, Ch Pervaiz Ellahi Institute cardiology, Multan and Sahiwal Medical College Sahiwal, from January 2018 to March 2019. Sample size was calculated by taking the study by Dey S et al.¹² as reference. After taking the ethical approval from the Hospital Ethics Committee, 100 adult patients were selected. All the selected patients were to undergo surgical procedure under general anesthesia on elective basis. All the selected patients had American Society of Anesthesiologists (ASA) Grade I or II and gave informed consent for the study. All the patients who had previous history of any drug allergy, psychiatric disorders, systemic infections, sepsis, use of beta blocker drugs, and cardiac issues were not selected for the study.

All the participants were indiscriminately allocated into two equal groups. The patients in Group D were given dexmedetomidine (0.5 µg /kg) in the form of infusion in 10 ml of normal saline over a duration of 10 minutes,

preceding the induction of general anesthesia. The patients in Group M were given midazolam (0.015 mg/kg) in the form of infusion in 10 ml of normal saline over a duration of 10 minutes, preceding the induction of general anesthesia. Detailed pre anesthetic evaluation was done for all the patients. Alprazolam (0.25 mg) was provided to all the patients a night before and 2 hours preceding the surgery as pre medication in the form of tablet. Standard monitors were applied in the operation theatre. Intravenous cannulas were passed. Baseline heart rate along with mean arterial pressure was recorded. All the Group D patients received dexmedetomidine (0.5 µg/ kg) in the form of infusion in 10 ml of normal saline and the patients in Group M were given midazolam (0.015 mg/ kg) in the form of infusion in 10 ml of normal saline, over a duration of 10 minutes. Patients' ECG and SpO₂ were continuously monitored. Injection etomidate (0.3mg /kg) was given over 30 seconds or till eyelash reflex was diminished. Injection fentanyl 2µg /kg was given which was followed by injection vecuronium 0.1mg /kg for facilitating endotracheal intubation. Positive pressure ventilation was started with the help of bag and mask. N₂O and O₂ were given at 70:30 and 0.4 - 0.8% isoflurane were used as inhalational agents. Appropriate size cuffed endotracheal tube was passed. Heart rate along with mean blood pressure was documented prior to injection of study drug; after the injection of study drug and before intubation; and at 0, 1, 3 and 5 minutes following intubation. The presence of myoclonus was observed in all the patients after the administration of study drug and etomidate. Myoclonus was well-defined as the spontaneous contraction of a few fibers of one muscle or some muscles of a group which lead to noticeable movement of the matching body parts. In case of presence of myoclonus, the grade of myoclonus was also recorded. The scale used to classify the intensity of myoclonus is as followed;

- 0 = no myoclonus
- 1 = slight myoclonus (little contraction of a few muscle fibers e.g. of arm)
- 2 = modest myoclonus (contraction in diverse muscle groups e.g. muscles of face and foot)
- 3 = severe myoclonus (intensive contraction in 2 or additional groups of muscles e.g. whole body movement or adduction of a limb)

The data compared between Group D and M included age, mean weight, gender distribution, ASA status, hemodynamic factors (heart rate and mean blood pressure) and the incidence along with its severity. All the data was gathered on a p performa by the researchers themselves. The data was put in SPSS version 23 computer software and analyzed. Chi square test was applied on nominal data and continuous data was compared by applying Independent t test. P value ≤0.05 was reflected to be of statistical importance.

RESULTS

Age, weight, gender distribution and ASA status was not considerably dissimilar in Group D and M ($p > 0.05$). Table-1

Table No.1: Baseline Data

Variable	Group D (n=50)	Group M (n=50)	P- Value
Age, years	38.50±10.33	40.04±10.10	0.453
Weight, Kg	54.12±13.63	57.14±12.74	0.255
Male / Female	29/21	27/23	0.687
ASA-I / ASA-II	39/11	45/15	0.362

Data was entered as mean $\pm$ S.D unless stated otherwise.

Table No.2: Hemodynamic Effects

Factor	Group D (n=50)	Group M (n=50)	P- Value
Heart Rate, Baseline	84.62±6.59	84.08±10.33	0.756
Heart Rate, after test drug injection	80.51±4.15	82.80±5.86	0.026
Heart Rate, at 0 min after intubation	75.21±3.75	80.96±5.09	<0.001
Heart Rate, at 1 min after intubation	78.10±4.17	89.11±7.29	<0.001
Heart Rate, at 3 min after intubation	75.84±3.84	83.60±6.43	<0.001
Heart Rate, at 5 min after intubation	73.94±2.85	81.88±4.95	<0.001
Mean BP, Baseline	101.32±5.67	99.82±4.95	0.162
Mean BP, after test drug injection	98.40±5.44	96.74±5.17	0.121
Mean BP, at 0 min after intubation	94.51±4.51	96.50±5.29	0.044
Mean BP, at 1 min after intubation	99.26±4.92	101.34±4.21	0.025
Mean BP, at 3 min after intubation	96.01±4.31	99.31±5.64	0.001
Mean BP, at 5 min after intubation	94.41±3.84	96.26±5.28	0.047

Data was entered as mean $\pm$ S.D.

There was no **significant** difference of heart rate and mean blood pressure before intubation between the two groups. There was statistically substantial fall in post intubation heart rate in Group D as paralleled to Group M ($p < 0.001$). There was no decrease in post intubation heart rate as well as blood pressure in Group M. The decrease in mean arterial pressure was statistically noteworthy in Group D in comparison with Group M at 0, 1, 3 and 5 minutes post intubation (p value 0.044, 0.025, 0.001 and 0.047, respectively). Table-2.

There was no myoclonus seen in 26 (56%) of Group D patients and 9 (18%) in the Group M patients. Grade 1 myoclonus was seen 15 (30%) of Group D patients and 11 (22%) of Group M patients. Grade 2 myoclonus was observed in 8 (16%) of Group D patients and 23 (46%) of Group M patients and grade 3 myoclonus was observed in 1 (2%) of Group D patients and 7 (14%) of Group M patients. The change in the occurrence of myoclonus was statistically substantial ($p < 0.001$). Table-3

Table No.3: Myoclonus Incidence, N (%)

Grade of Myoclonus	Group D (n=50)	Group M (n=50)	P- Value
0	26 (52)	9 (18)	<0.001
1	15 (30)	11 (22)	
2	8 (16)	23 (46)	
3	1 (2)	7 (14)	

DISCUSSION

Our study clearly suggested that dexmedetomidine is an effective agent in attenuating the hemodynamic stress response and incidence as well as severity of myoclonus caused by etomidate. Many other agents such as sufentanil and remifentanil have been tried for decreasing incidence of myoclonus^{3,5}. Locus ceruleus has highest density of alpha 2 adrenoceptors which is the site of action for dexmedetomidine¹³. Activation of these receptors impedes the release of nor adrenalin which consequences in sedation and hypnosis. Other effects of dexmedetomidine are related to analgesia, anxiolysis and sympatholysis. Stress responses of endotracheal intubation and laryngoscopy are significantly attenuated by dexmedetomidine which decreases the doses of propofol and opioids¹⁴.

Results of various studies¹⁵⁻²¹ conducted around the world were in agreement with the results of our study. Dexmedetomidine at a dose of 1 μ g /kg was given over 15 minutes prior to initiation of anesthesia, in the study performed by Menda et al¹⁵. They witnessed significant decrease in heart rate during intraoperative period as compared to the baseline value. Mizrak et al¹⁶ found out that thiopental or dexmedetomidine is effective in decreasing the severity and occurrence of myoclonus after etomidate injection. The frequency of

myoclonus was around 34% in dexmedetomidine group, 36% in thiopental group while 64% in the control group. In a study conducted by Isitemiz et al¹⁷, fentanyl (1 µg /kg) alone and the combination of fentanyl (0.5 µg /kg) and midazolam (0.015 mg /kg) were operative in decreasing the occurrence of myoclonus due to etomidate.

Gunes et al¹⁸ compared midazolam with dexmedetomidine and found out that both the drugs work in dropping the occurrence of myoclonus caused by etomidate. Similar results were found out by Salman N et al¹⁹ that both midazolam and dexmedetomidine are effective in reducing myoclonus incidence following etomidate injection but they also observed respiratory depression in the midazolam group. Sulaiman et al²⁰ calculated the properties of dexmedetomidine over the hemodynamic responses of endotracheal intubation and laryngoscopy. They found it to be effective in suppressing the hemodynamic stress responses. They administered 0.5 µg/kg dose of dexmedetomidine as infusion over ten minutes before the induction of anesthesia. Laun HF et al²¹ used two different doses of dexmedetomidine i.e. 0.5 µg/kg and 1 µg/kg. Both doses were effective in reducing myoclonus occurrence but the incidence of adverse effects such as bradycardia was more with the higher dose.

CONCLUSION

In the patients who pre medicated with dexmedetomidine, the incidence as well as the severity of myoclonus was considerably lower as compared to the patients who were pre medicated with midazolam. Moreover, dexmedetomidine was a successful agent to attenuate, to a significant extent, the hemodynamic stress responses of intubation.

Author's Contribution:

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To Compare the Frequency of Deep Surgical Wound Infection in Patients Undergoing Laparotomy With or Without Post-Operative Drain

Ahmad Shah¹, Mohammad Ishaq Durani¹ and Samina Karim²

ABSTRACT

Objective: To examine the frequency of deep surgical wound infection in patients underwent laparotomy procedure with or without post-operative drain.

Study Design: Comparative/observational

Place and Duration of Study: This study was conducted at the Department of Surgery Unit-1, Sandeman Provincial Civil Hospital, Quetta from January 2017 to June 2018.

Materials and Methods: One hundred and forty patients of both genders with ages 15 to 60 years whom were received laparotomy treatment due to intra-abdominal infection or complicated appendicitis were included in this study. Patient's medical history, age, sex and residency were recorded after taking informed consent. All the patients were divided into two groups, Group I contained 70 patients and received post-operative drain and Group II contains 70 patients and received laparotomy without drain. Deep surgical wound infection was examined at 7th day after surgery and compare between both groups.

Results: Ninety (64.28%) patients 43 in Group I and 47 in Group II were males and 50 (35.72%) patients 27 in Group I and 23 in Group II were females. In Group I and II 25 and 27 patients were ages 15 to 30 years, 30 and 28 patients had ages 36 to 45 years, 15 and 15 patients were ages between 46 to 60 years. 8 (11.43%) patients in Group I and 10 (14.29%) patients had deep surgical infection within 1 week after surgery. Statistically there is no significant difference between the both groups ($p>0.356$)

Conclusion: There is no difference in developing deep surgical site infection in patients undergoing laparotomy with drain or without drain placement.

Key Words: Emergency laparotomy, Deep surgical site infection, PO Drain placement.

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INTRODUCTION

Post-operative drainage procedure of the abdominal cavity after surgical incision of abdomen (laparotomy) has been performing since from many decades. As per the British Surgeon Law Tait,¹ when in doubt, surgical drain is very useful to clear the doubt.^{2,3} Now a days, a surgical incision into the abdominal cavity (laparotomy) procedure/treatment is commonly performing in surgical departments, but it is very difficult for surgeons

to choose the post-operative wound irrigation/drains procedure due to the risk of increasing surgical site infections. Post-operative drains can help the surgeons to diagnose the infection and to lessen the morbidity, but post-operative drains/wound irrigation can cause the deep surgical site infections (DSSIs).^{4,5} Deep surgical site infections is the most common morbidity found in patients who has treated with laparotomy treatment and it can cause the delay in healing wound, increase in infections, increase in treatment cost and time loss of expertise due to the long stay at hospital.^{6,7}

In Pakistan, many studies have been conducted to evaluate the frequency of DSSIs and the results shows that rate of surgical site infection (SSIs) are 13%,⁸ and these results are higher than the western countries.⁶ In USA the SSIs rate is 1.9%.

Recently, many of international researches regarding DSSIs resulted 14.5% to 25%.^{9,10} Many other researches shows that an increase duration of hospital stay of patients are 6 to 25 days due to the DSSIs.¹¹ In Germany, approximately one million extra days of hospital stay and an extra cost of approx three billion/year were estimated due to post-operative

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surgical site infections.¹² DSSIs cause the considerable alarming in all surgical intercession. Abdominal infections are the most frequent morbidities found in Pakistan due to the lack of better techniques and medication to control the rate of surgical site infections, intestinal leakage and post-operative adhesion and it may cause to increase the ratio of DSSIs.

MATERIALS AND METHODS

This comparative/observational study was conducted at Department of Surgery Unit-1, Sandeman Provincial Civil Hospital, Quetta from 1st January 2017 to 30th June 2018. One hundred and forty patients of both genders with ages 15 to 60 years whom were received laparotomy treatment due to intra-abdominal infection or complicated appendicitis were included in this study. Patient's medical history, age, sex and residency was recorded after taking informed consent. Patients with suspected pancreatitis, diabetics, chronic liver disease, Immune compromised, or having history of hypersensitivity reactions or known allergy to latex were excluded from the study. All the patients were divided into two groups, Group I contains 70 patients and received post-operative drain and Group II contains 70 patients and received laparotomy without drain. Deep surgical wound infections were examined at 7th day after surgery and compare the results of both groups. Data was analyzed by SPSS 21. P-value <0.05 was considered as significant.

RESULTS

Ninety 90 (64.28%) patients 43 (61.43%) in Group I and 47 (67.14%) in Group II were males and 50 (35.72%) patients 27 (38.57%) in Group I and 23 (32.86%) in Group II were females. In Group I and II 25 (35.71%) and 27 (38.57%) patients were ages 15 to 30 years, 30 (42.86%) and 28 (40%) patients had ages 36 to 45 years, 15 (21.43%) and 15 (21.43%) patients were ages between 46 to 60 years. 80 patients had rural residency in which 38 (54.28%) patients in Group I and 42 (60%) patients in Group II while 60 patients had urban residency (32 in Group I, 28 in Group II) [Table 1].

Table No.1: Demographic information of the patients

Variable	Group I	Group II
Gender		
Male	43 (61.43%)	47 (67.14%)
Female	27 (38.57%)	23 (32.86%)
Age (years)		
15 – 30	25 (35.71%)	27 (38.57%)
31 – 45	30 (42.86%)	28 (40%)
46 – 60	15 (21.43%)	15 (21.43%)
Residency		
Rural	38 (54.28%)	42 (60%)
Urban	32 (45.71%)	28 (40%)

p-value>0.05

Mean hospital stay in Group I was 7.32±4.61 days and in Group II it was 6.45±3.85 days respectively. 8 (11.43%) patients in Group I and 10 (14.29%) patients had deep surgical infection within 1 week after surgery. The difference was not statistically significant p-value 0.356 (Table 2).

Table No.2: Mean hospital stay and frequency of deep surgical site infection

Variable	Group I	Group II
Mean hospital stay (days)	7.32±4.61	6.45±3.85
Deep surgical site infection		
Yes	8 (11.43%)	10 (14.29%)
No	62 (88.57%)	60 (85.71%)

P-value 0.356

DISCUSSION

Deep surgical site infection is the world most common post-operative complication found in surgical centers. Several of studies illustrated that the rate of surgical site infection 14 to 25 percent.^{9,13} In present study total one hundred and forty patients whom were undergoing laparotomy treatment due to intra-abdominal cavity and other perforated infections were included and all of them were equally divided 70 patients in each group. Group I received laparotomy with post-operative drain and Group II received no drain placement. We found that there were 90 (64.29%) patients were male while 35.71% patients were females. Several previous studies regarding laparotomy reported that the male patient's population was high as compared to females.60 to 80%.¹⁴⁻¹⁶

In our study overall 37.14% patients Group I and II 25 (35.71%) and 27 (38.57%) patients were ages 15 to 30 years and 41.43% patients 30 (42.86%) and 28 (40%) patients were ages 31 to 45 years. A study conducted by Atif et al¹⁷ regarding laparotomy with post-operative drain and no drain placement in which 400 patients were included with mean age of 38.92±6.246 years and 229(57.2%) male patients. Another study shows similarity to our study in which majority of patients were ages between 20 to 40 years.¹⁸

In present study the overall deep surgical site infection rate was 12.86%. These results were similar to some other studies conducted regarding prevalence of deep surgical site infection in patients received laparotomy with post-operative drain and no drain placement 10 to 15%.¹⁹⁻²⁰ In our study, we found no significant difference regarding deep surgical site infection whether post-operative drain placement or without placement of drain 8 (11.43%) patients in Group I and 10 (14.29%) patients had deep surgical infection within 1 week after surgery. The difference was not statistically significant p-value 0.356. Many of studies

shows similarity to our study in which no statistical significant difference found in developing deep surgical site infection in patients drain was placed or not placed ($P>0.05$).^{21,22} But in contrast some of studies demonstrated that the rate of surgical site infection was high in patients who receive post-operative drain as compared to without drain placement.^{23,24} WHO developed guidelines for the prevention of development of SSI based on the available literature.¹⁰ It was seen that some low quality evidence is available regarding the use of prolonged antibiotic prophylaxis in patients with placement of drain. It was seen that prolong use of antibiotic in presence of a wound drain has neither benefit nor harm in reducing SSI when compared to per operative prophylaxis alone (OR: 0.79; 95% CI: 0.53–1.20).²⁴

Thus the available evidence clearly suggests that drain can be used safely in the surgery and can play a role of friend for the surgeons for early detection of any leakage or fluid accumulation so that immediate step can be taken to rectify the condition.

CONCLUSION

Post-operative drain placement is a safe and effective approach with no risk of increasing deep surgical site infection. We found no difference in developing deep surgical site infection in patients undergoing laparotomy with drain or without drain placement.

Author's Contribution:

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

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Association Between Serum Ferritin Level and Glycemic Control in Patients of Type 2 Diabetes Mellitus With and Without Retinopathy

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ABSTRACT

Objective: To determine the significance of serum ferritin level in Pakistani diabetic population with or without retinopathy and its association with glycemic control.

Study Design: Cross-sectional

Place and Duration of Study: This study was conducted at the Department of Hematology, Shaikh Zayed Hospital, Lahore from January 2015 to June 2015.

Materials and Methods: Twenty one normal healthy controls and 42 known diabetics of disease duration more than five years (21 without retinopathy and 21 with retinopathy) were included. All were tested for serum ferritin and Hb A1c levels.

Results: Ferritin levels were found to be higher in diabetic groups as compared to normal control group. Both diabetic groups with or without retinopathy had significantly higher levels of HbA1c as compared to normal controls. Higher serum ferritin levels were observed with longer duration of diabetes.

Conclusion: Ferritin levels are higher in diabetic groups with and without retinopathy as compared to controls and correlated with poor glycemic control.

Key Words: Diabetes, Diabetic Retinopathy, Ferritin, Glycemic Control

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INTRODUCTION

Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia and one of the leading causes of morbidity and mortality in human population.¹ There are two types of DM. Type 1 diabetes is insulin dependent whereas type 2 diabetes is non-insulin dependent and more common than type 1. Both types are associated with microvascular and macrovascular complications like retinopathy, nephropathy, neuropathy and coronary artery disease.^{2,3}

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According to the International Diabetic Federation (IDF), Pakistan currently ranks at number 2 in MENA region for number of diabetic patients aged 18-99 years. The diabetics in Pakistan were estimated at 7.6 million in 2017.⁴ In a country wide population based survey conducted in Pakistan, 16.98% of the general population aged 20 years or above is suffering from type 2 diabetes mellitus.⁵

American diabetic association has recently approved HbA1c as a reliable test both for diagnosis of DM and assessment of glycemic control in known diabetic patients. The value of HbA1c for non-diabetic people is less than 5.7 %, for pre-diabetics is 5.7% to 6.4% and for diagnosis of DM is 6.5%.^{3,6} Studies have shown variable cut off thresholds of HbA1c for increased risk of retinopathy.⁷

The advantage of HbA1c is that there is no need to fast and lower variability than FBS and OGTT. It also gives excellent estimate of glycemic control for the period of preceding 3-4 months which is equal to the life span of red blood cells.^{1,6}

Iron is a major factor in the causation of glucose intolerance, gestational diabetes, type 2 diabetes and insulin resistance syndrome. Patients of DM with poor diabetic control exhibited elevated levels of serum ferritin which is also associated with diabetic

complications like retinopathy, nephropathy and vascular dysfunction.^{8,9}

Elevated iron stores are also responsible for damage to liver, heart, endocrine organs and skeletal muscles.¹⁰ Researchers in a retrospective study showed that iron excess (by measuring ferritin) could increase risk of diabetes mellitus by three times.¹¹

Serum ferritin is a simple index of iron stores and a cost effective test. The measurement of ferritin in serum by immune assay is a non-invasive, reliable and easy test for body iron stores as compared to previously used measures e.g liver and bone marrow biopsy which are invasive and expensive.¹²

Diabetic Retinopathy (DR) is an important etiological factor of blindness in developing countries. Several studies have been conducted to find prevalence of DR in Pakistan. Results vary from 15 % to as high as 43%.¹³

In diabetics with retinopathy, the metabolism of iron is impaired and its role is bidirectional. There is hyperglycemia induced destruction of heme molecule, over expression of proteins related to iron metabolism like hepcidin and ferroportin and intra retinal and vitreal hemorrhages. All lead to iron overload in diabetic eye. Iron overload, in turn, causes retinal neurodegeneration of rods and cones due to increased oxidative stress. Iron overload also causes defective phagocytosis and synthesis of cytokines which worsen the pathogenesis.¹²

Duration of diabetes is one of the important factors involving in its pathogenesis. Studies have shown odds ratio of 1.13 and 1.16 for per year increase of DR. However about 20% diabetics with type 2 DM may present with retinopathy at the moment of diagnosis. In type 2 diabetes, prevalence of retinopathy is 50 percent after 10 years.¹⁴ This emphasizes the role of factors other than duration and glycemic control alone.

MATERIALS AND METHODS

It was a cross sectional analytical study conducted at Department of Hematology, Sheikh Zayed Hospital from 1st January 2015 to 30th June 2015 on 63 subjects aged 30-60 yrs with normal hemoglobin level. Study population was divided into three groups consisted of 21 normal healthy controls, 21 diabetics without retinopathy and 21 diabetics with retinopathy with duration more than five years. Subjects with hypertension and hypertensive retinopathy, haemochromatosis, iron supplements, history of blood transfusion or iron loss like gastrointestinal bleed and history of blood donation were excluded. Subjects having chronic diseases, acute and chronic infections, malignancies and autoimmune diseases were also excluded. CBC was performed on haematology analyzer KX-21 by electric impedance method, HbA1c on chemistry analyzer Dimension-System by turbidmetric inhibition immunoassay (TINIA) and

Serum ferritin on Immulite 100-System by chemiluminescence immunoassay. Data of diabetic patients visiting diabetic clinic and ophthalmology departments of Shaikh Zayed

Hospital, was collected according to inclusion criteria. Data was analyzed using SPSS 20. P-value <0.05 was taken as significant.

RESULTS

There were 15 males in group A, 13 in group B and 12 in C. The difference of gender among groups was insignificant with p-value = 0.619. The age distribution for three groups was insignificant with p-value = 0.061. There were 15 cases with age < 40 years, 20 cases with age 40-50 years and 28 cases with age > 50 years. The average ages for the three groups were 37, 50 and 55 years (Tables 1-2).

There were 0, 2 and 5 cases with high ferritin levels in three groups respectively. The mean ferritin levels for group A, B and C were 92.2±73.2, 121.6±113.0, and 199.5±162.1 µg/l respectively. The median ferritin levels recorded for three groups were 58.6, 83.6 and 139.0 µg/l and the difference among groups was significant with p-value 0.021 by chi-square. Hyperferritinemia was not found different among males and females. There was 1 male and 1 female in group B, and 3 males and 2 females in group C with high ferritin levels (Table 3).

Table No.1: Gender distribution of cases

Gender	Group A (n=21)		Group B (n=21)		Group C (n=21)	
	No.	%	No.	%	No.	%
Male	15	71.4	13	61.9	12	57.1
Female	6	28.6	8	38.1	9	42.9

Chi-square = 0.96, p-value = 0.619 (Not significant)

Table No.2: Age distribution of cases

Age (years)	Group A (n=21)		Group B (n=21)		Group C (n=21)	
	No.	%	No.	%	No.	%
<40	9	42.9	4	19.1	2	9.5
40-50	7	33.3	7	33.3	6	26.6
>50	5	23.8	10	47.6	13	61.9

Chi-square = 8.8, p-value = 0.061 (Significant)

Table No.3: Distribution of ferritin levels for three study groups

Ferritin level (µg/l)	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
High ferritin	-	-	2	9.5	5	23.8
Normal	21	100.0	19	90.5	16	76.2
Total	21	100.0	21	100.0	21	100.0
Mean±SD	92.2±73.2		121.6±113.0		199.5±162.1	
Median (Q1 – Q3)	58.6 (36.5 – 111.0)		83.6 (37.1 – 185.0)		139.0 (96.4 – 262.0)	

Chi-square = 7.69, p-value = 0.021 (Significant)

Table No.4: Distribution of hemoglobin A_{1c} levels for study groups

Hemoglobin A _{1c} (%)	Group A		Group B		Group C	
	No.	%	No.	%	No.	%
≤ 5.70	21	100.0	-	-	-	-
6.5 - 7.00	-	-	6	28.6	2	9.5
>7.00	-	-	15	71.4	19	90.5
Total	21	100.0	21	100.0	21	100.0
Mean±SD	5.26±0.29		8.10 ±1.38		8.40±2.04	
Median (Q1 – Q3)	5.3 (5.1 – 5.5)		7.9 (6.9 – 10.1)		8.1 (7.8 – 9.1)	

Chi-square = 82.76 p-value < 0.001 (Significant)

Table No.5: Distribution of duration of diabetes for the diabetic groups

Duration of DM (years)	Group B		Group C	
	No.	%	No.	%
≤ 10	16	76.2	10	47.6
11 - 15	5	23.8	7	33.3
>15	-	-	4	19.0
Total	21	100.0	21	100.0
Mean±SD	9.0±2.6		12.0±4.0	
Median (Q1–Q3)	8 (7 – 10)		11 (10 – 15)	

Chi-square = 7.28 p-value = 0.026 (Significant).

Table No.6: Association of ferritin level with HbA_{1c}

HbA _{1c}	Ferritin levels				Total	
	Hyperferritinemia		Normal			
	No.	%	No.	%	No.	%
≤ 5.70	-	-	21	37.5	21	33.3
6.5 - 7.00	1	14.3	7	12.5	8	12.7
>7.00	6	85.7	28	50.0	34	54.0
Total	7	100	41	100	63	100.0

Chi-square = 6.24, P-value = 0.047

HbA_{1c} levels for three groups were measured and the mean levels were 5.26±0.29 %, 8.10±1.38 % and 8.46±2.04% for the three groups with median levels of 5.3%, 7.9% and 8.1% respectively. HbA_{1c} >7.0% was seen, it was noted that there were 15 (71.4%) in group B and 19 (90.5%) in group C. The differences for frequencies was significant with p-value <0.001 (Table 4). The mean duration of diabetes for group B was 9.0±2.6 years and that for group C was 12.0±4.0 years. Majority (76.2%) of cases in group B and nearly half (47.6%) in group C had the disease for <10 years respectively. Difference for categories of duration was significantly different with p-value 0.026 (Table 5). In the end all groups were studied together for the association between HbA_{1c} and hyperferritinemia. It was observed that the association was significant with p-value 0.047. (Table 6).

DISCUSSION

Diabetes mellitus (DM) is a major public health concern, affecting millions of people across the globe. In our study, there were 15 males in group A, 13 in

group B and 12 in C. The difference of age, gender and hemoglobin level among groups was insignificant. It was in accordance with results of study by Smotra et al.¹⁵

There were 0, 2 and 5 cases with high ferritin levels in groups A, B and C respectively. The ferritin levels were found to be higher in diabetic groups as compared to normal control group. The difference among groups was significant. It was in accordance with studies conducted by Chen¹⁶, Borah¹⁷ and Farhan.¹⁸

Both diabetic groups with or without retinopathy had significantly higher HbA_{1c} levels as compared to normal controls. Increased HbA_{1c} levels in both diabetic groups correlated with the level of hyperferritinemia in the same groups. It was similar to the observations of Momeni¹⁹ and Raj.²⁰

Higher serum ferritin levels were seen in patients with longer duration of diabetes. Diabetics with retinopathy in Group C had significantly increase duration of diabetes and also exhibited higher Ferritin Levels when compared with group B. It is in accordance of study conducted by Kundu²¹ and Jaganatha et al.²² Whereas the findings of above referred international studies are in line with conclusion made in our present study, some other studies reported different observations.

One study was performed by Elis et al²³ by making three study groups like ours. The groups were compact and similar in parameters like age, gender and hemoglobin concentration. Serum ferritin concentrations did not diverge noticeable among three groups. No statistical significant relationship between glycemic control and serum iron or ferritin concentration in two diabetic groups was seen. In studies conducted by Sharifi et al²⁴ and Pramila Devi et al²⁵ reported that there was no relationship between serum ferritin and HbA_{1c} in diabetic patients of both sexes.

CONCLUSION

Hyperferritinemia can predict retinopathy in diabetics with poor glycemic control (HbA_{1c} > 7) and a duration longer than ten years. It is suggested that estimation of HbA_{1c} level may be used as a routine test for diagnosis of DM and to check the glycemic control in diabetics respectively. Pakistani diabetics shall also be evaluated for hyperferritinemia and be trialed with iron chelators and blood donations to reduce iron overload and consequent diabetic complications, as being practiced in developed countries.

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

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Examine the Prevalence of the Complications and Causes Associated With Foreign Body Patients

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ABSTRACT

Objective: The prevalence of complications related to foreign body patients.

Study Design: Cross sectional

Place and Duration of Study: This study was conducted at the Department of ENT, Bolan Medical College Hospital Quetta from June 2018 to December 2018.

Materials and Methods: A total of 205 patients both males and females of different age groups having foreign bodies in their external ear were included. Patients detailed history previous or current was examine. General anesthesia used to those having previous visualization and those who were uncooperative.

Results: There were 135 (65.85%) male patients and 70 (34.15%) were females. One hundred and fifteen (56.10%) patients were aged between less than 12 years, 60 (29.27%) patients were aged between 12 to 31 years and 30 (14.63%) patients had ages > 31 years. 62 (30.24%) patients had found bleeding, 41 (20%) patients had laceration, 5 (2.44%) patients had perforation and 97 (47.32%) patients had not found any complication. Cotton bud was the most frequent cause in foreign bodies' patients found in 41.95% patients.

Conclusion: The use of sticks and cotton bud was found to be the most frequent cause of foreign body's external ear. People use this method for cleaning their ears frequently but it is very harmful for external ear and can cause severe complications like bleeding and laceration as observed in this study. People should have to aware about this painful medical emergency.

Key Words: General anesthesia, External auditory canal, Foreign body, Complications, Causes

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INTRODUCTION

Foreign bodies in the ear are the otorhinolaryngological emergencies. 12% people visited ENT emergency because of foreign bodies. Rate of complication is high as 23 %. Many studies showed that most of the cases have foreign body in the external auditory ear.^{1,2}

Foreign bodies (FB) in external auditory canal (EAC) commonly found in children and people age of >16 years.³ Many of the cases found in children aged between 4 to 11 years than the children <4 years.^{4,5} The objects causes the FB in the ear can be in the solid state like stone, buttons and many other inorganic objects or

rather than inorganic like small piece of match sticks, cotton buds, small food particles, seeds, insects etc. However insects are the most frequent cause in patients aged of greater than ten years.⁶ Beads, small pearls and cotton buds are the most common FB types that were observed in 30% incidences.⁷ Problems/complications rate of FB in ear is high as haemorrhage 51.9% than the complications of tympanic membrane and laceration rate is 1%.² Most of the studies show that the rate of complication increases due to the abandoned attempt to extract the FB in the ear in the 1st attempt because patients having age <10 are uncooperative and make the treatment critical.⁶

The extraction of the harmful objects (foreign bodies) from the ear is the common procedure performed at the ENT Department. This procedure is very simple but sometime it acquired GA (general anesthesia) and extraction under operating microscope,⁷ when the patient is uncooperative especially children or when the objects are found deeply in the ear, and these factors make the extraction procedure complicated.

MATERIALS AND METHODS

This cross-sectional study was conducted at Department of ENT, Bolan Medical College Hospital Quetta from 1st June 2018 to 31st December 2108. A total of 205

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patients both males and females of different age groups having foreign bodies in their external ear were included. Those patients having other ear problems such as wax in ear, otitis, fungus and those having previous failed extraction treatment and those who were not willing to participate in this study was excluded. Patients detailed history of age, gender, and complaint status and time duration having the foreign bodies in the ear was examine. Otoloscopic observation had done to the included patients. GA (general anesthesia) used due to the abandoned attempt to extract the FB in the ear in the 1st attempt because some patients are uncooperative such as children and make the treatment critical. The statistical data was analyzed by SPSS 20.

RESULTS

There were 135 (65.85%) male patients and 70 (34.15%) were females. 115 (56.10%) patients were aged between less than 12 years, 60 (29.27%) patients were aged between 12 to 31 years and 30 (14.63%) patients had ages >31 years. Sixty two (30.24%) patients had found bleeding, 41 (20%) patients had laceration, 5 (2.44%) patients had perforation tympanic membrane and 97 (47.32%) patients had not found any complication (Table 1).

Table No.1: Demographic information of the patients

Variable	No.	%
Gender		
Male	135	65.85
Female	70	34.15
Age (years)		
< 11	115	56.10
12 – 31	60	29.27
> 31	30	14.63
Complication		
Hemorrhage/Bleeding	38	26.39
Laceration	20	13.89
Perforation TM	2	1.39
Not Found	84	58.33

Table No.2: Frequency of foreign bodies causes

Cause	No.	%
Cotton Bud	86	41.95
Beads	40	19.51
Small Grain/Seeds	30	14.63
Broken Sticks	14	6.82
Small stone/Pearls	12	5.85
Small Insects	10	4.87
Paper Piece	6	2.92
Button	4	1.95
Food Particle	3	1.46

Cotton bud was the most frequent type in foreign bodies found in 86 (41.95%), beads found in 40 (19.51%), small grains or seeds found in 30 (14.63%),

broken match sticks found in 14 (6.83%) patients, small stone or pearls found in 12 (5.85%) patients, small insects found in 10 (4.87%) patients, paper pieces found in 6 (2.92%) patients, small buttons found in 4 (1.95%) patients, and 3 (1.46%) patient found food particle in their ears (Table 2).

DISCUSSION

Extraction of foreign bodies from the ear is the simple and common procedure performing at ENT Department, but it can be complicated especially in children due to multiple factors such as noncooperation of younger children, facilities available, experience of doctor, and object of foreign body.^{11,12} Several unsuccessful attempts for removing the foreign body from the same year can damage the external canal and can cause the perforation of TM (tympanic membrane) and the object impacted deeply in the ear.³ Foreign bodies objects mostly found in children.

Our study shows that mostly 115 (56.10%) patients had ages < 11 years. This result is less regarding age group as compared to the research of Thompson et al.¹⁰ If we go through the other research of Fasnula et al¹² the estimated mean age was 10.9 Years but the age range was from two to fifty nine years.

In this study, maximum patients were found aged between 3 to 11 years and 11 is the point break differ from children and adults and this results shows similarity to the other studies.^{4,5} However, many other research shows that the ages of 18 and 15 years is the point of differ between children and adults.^{12,13}

In this study, we observed that male patient's rate was higher 65.85% than the female 34.15% patients and this is comparatively similar to the some other studies.¹⁴ In our research we found complications or problems in patients such as Laceration, bleeding and perforation. We found 62 (30.24%) patients had found bleeding, 41 (20%) patients had laceration, 5 (2.44%) patients had perforation tympanic membrane and 97 (47.32%) patients had not found any complication, these results showing approximately similarity to the some other studies.¹⁵⁻¹⁷

In Our study, we found cotton bud was the most frequent type in foreign bodies found in 86 (41.95%), this result was approximately same to the Shahid¹⁸ and Abbas¹⁴ et al, we found beads found in 40 (19.51%), small grains or seeds found in 30 (14.63%), broken match sticks found in 14 (6.83%) patients, small stone or pearls found in 12 (5.85%) patients, small insects found in 10 (4.88%) patients, paper pieces found in 5 (2.44%) patients, small buttons found in 4 (1.95%) patients, and 3 (1.46%) patient found food particle in their ears, and these results was different from the other studies, it may be due to the number of patients and environmental factors.^{2,9,17,15} General anesthesia was given to 19 (9.26%) patients aged between 3 to 11 years because of noncooperation and severity of complication

in the EAC (external auditory canal) and this rate is higher than some other studies.^{12,14} In this study most of the patients had no complications associated with foreign bodies EAC (external auditory canal).

CONCLUSION

In this cross sectional study, we concluded that use of sticks and cotton bud was found to be the most frequent cause of foreign bodies external ear. People use this method for cleaning their ears frequently but it is very harmful for external ear and can cause severe complications like bleeding and laceration as observed in this study. People should have to aware about this painful medical emergency.

Author's Contribution:

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Gender Differences in Prevalence of Dental Caries in Undergraduate Dental Students at Islam Dental College

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ABSTRACT

Objective: The current study is to evaluate the gender differences in the prevalence of dental caries..

Study Design: It is an observational cross sectional study.

Place and Duration of Study: This study was conducted at the undergraduate level dental students at Islam Dental College, Sialkot from May, 2017 to January, 2018.

Materials and Methods: A sample of 156 undergraduate dental students was selected representing both genders with age 18-25 years. The The Decayed, Missing, Filled (DMF) index (DMFT index) was used to quantify the aggregate life of the dental caries. The students were demanded to sit upright on the dental chair. Sterilized instruments were used for each student separate. World Health Organization (WHO) recommended procedure was followed to examine the oral dental status regarding caries. All permanent teeth were examined for the presence of caries. The relationship between gender and the prevalence of dental caries was assessed by the Chi-square test. Independent t-test was performed to test means differences between groups. P-value ≤ 0.05 was considered as significance results.

Results: A sample of 156 students was examined. The results of this study revealed that average overall DMFT score difference was not found significant with gender (1.64 ± 1.25 vs 1.40 ± 1.16 ; $p=0.282$). However, number of dental caries that is the factor of DMFT average was statistically significant with $p=0.002$ and number of missing teeth was significant ($p=0.045$) with graduate study years.

Conclusion: Females were the most affected by dental caries. According to DMFT scale low level decayed was presented in undergrad dental students. Relationship between DMFT score and age groups was highly statistical significant. However, the decayed factor of the average DMFT score was significant while other factors of DMFT score were non-significant.

Key Words: Prevalence; Dental Caries; DMFT Index; Cross Sectional Study; Gender

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INTRODUCTION

Dental caries is a long term microbial and infectious disease, in which normal molecular interactions between the teeth's surface and the adjacent microbial biofilm is disrupted. It results in the demineralization of teeth, which if left untreated, leads to cavitation and pulp damage. The interaction of different factors, such as, fermentable carbohydrates rich food, especially refined sugars, particular bacteria in dental plaque, and

a susceptible tooth surface causes demineralization of the tooth.¹

Dental caries is an extensive long-term infectious disease in which billions of people are effected globally. It is a single most prevalent chronic disease and its severity increases later in life which if left untreated. The decayed, missing teeth or damaged teeth has a great effect on daily life as they cause problem with eating, chewing, smiling and communication. Gender influences the people's oral health, eating habits, related DMFT index and behaviors. World Health Organization (WHO) categorized dental caries as third most prevalent oral disease that affect people irrespective of their demography.² The prevalence of dental caries is almost 100% of the adult population in the majority of countries worldwide.³

In Pakistan, oral health situation is showing desperate results; dental caries is five times more common than asthma and seven times more common than hay fever.⁴ Now it is a major public health problem among developing countries because of inadequate oral hygiene practices, increased intake of sugar as well as inadequate exposure to fluoride supplements.⁵ Thus, it is not surprising that the WHO calls for actions for

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continuous improvement in oral and dental health.⁶ It has been documented that dental health workers play a significant role in enhancement of public health education level by motivating general public to take good care of their oral health during their clinical practicing years at undergraduate level.⁷

The Decayed, Missing, Filled (DMF) index has been used for almost 80 years and is well accepted as the significant measure of caries experience in dental epidemiology.^{8,9} When the index is used for teeth, this index is called DMFT, and scores per individual can range from 0 to 28 or 32. The DMFT values will be interpreted according to DMF scoring scale. In dental caries, sex differences have also been commonly observed, with most studies showing that women and girls are at higher risk of caries.¹⁰ The factors causing increased burden of dental caries in females are not fully understood, and some of these factors may differ among populations. The current study was conducted to assess the influence of gender and age on the DMFT index. For the dental caries, both variables (gender and age) are considered as significant variables.

Current study also seeks to assess the prevalence of dental caries with gender differences in undergrad dental students. Hence it was essential to evaluate the present condition of dental caries status as well as awareness about oral health.

MATERIALS AND METHODS

An observational cross sectional study was performed. A sample of 156 students was selected by non-probability convenient sampling. The study was conducted between May, 2017 to January, 2018. The current study was conducted on the undergraduate dental students with 18-25 ages of Islam dental collage, Sialkot, Panjab. Confidentiality and security of data was ensured and written consent form was signed by participant. The subjects were informed that there are no disadvantages or risks involved in the study. More than 25 years age students, belonging to the other field except dental students and unwilling students were excluded.

WHO recommended procedure was followed to examine the oral dental status regarding caries. Students were examined by qualified dentist in the operative department of Islam dental college. A Performa was filled by researcher herself which consists two parts. In this 1st part, demographic data such as name, age, gender, area and year of degree are included while in other part DMFT index was used to assess the dental caries condition in undergraduate dental students. This index is used to quantify and calculate the aggregate life of the dental caries situation. In DMFT index, (D) indicates the decayed, (M) missing, (F) filling and (T) teeth. $DMFT\ index = D + M + F$, in this equation D is the untreated number of dental caries teeth, M presents the missing teeth due to caries and F indicates the number

of teeth with filling. For the interpretation, DMF scale was used, according to this scale, 0-4, 5-9 and >9 scores represent the low, moderate and high decayed status respectively. The students were required to sit upright on the dental chair. Sterilized instruments were used for each student separately. Whole procedure and protocol to examine the teeth of students was followed by examiner.

Statistical Analysis: Data was entered and analyzed by software, statistical package for social sciences (SPSS) Version 20.0. Mean and standard deviation were analyzed for quantitative data, while for qualitative data frequency and percentages were calculated. The relationship between gender and the prevalence of dental caries was assessed by the Chi-square test. Independent t-test was performed to test the average DMFT, dental caries or decayed, missing, and filling differences between different groups. Leven's test for homogeneity was also performed to fulfill the assumption of equal variance for independent t-test. 95% confidence level was used and P-Value ≤ 0.05 was considered as significant.

RESULTS

A sample of 156 undergraduate dental students was selected in this study. Socio demographic characteristics of participants are displayed in Table 1. A large number 114(73%) of total were females while approximately fourth part 42(27%) were male students.

Table No.1: Socio demographic characteristics of participants

Characteristics		n	%
Gender	Male	42	26.9
	Female	114	73.1
Age (Years)	<19	28	17.9
	19-21	49	31.4
	21-23	51	32.7
	23-25	28	17.9
Area	Rural	67	42.9
	Urban	89	57.1
Graduation Year	1st Year	43	27.6
	2nd Year	38	24.4
	3rd Year	40	25.6
	4th Year	35	22.4
Caries Status	DMFT=0 (Healthy)	46	29.5
	DMFT>0 (Caries present)	110	70.5
DMFT Index (Score)	0	46	29.5
	1	30	19.2
	2	45	28.8
	3	31	19.9
	4	4	2.6
Total		156	100.0

Most of the students 51(32.70%) and 49(31.40%) belong to the age group 21-23 and 19-21 respectively. Participants 89(57.10%) were the residents of urban area. While, students 43(27.60%), 40(25.60%), 38(24.40%) and 35(22.40%) were taken from 1st, 3rd, 2nd and 4th year respectively which is approximately equal. 110(70%) students out of total were positive with dental caries with DMFT score (>0), while other 46(30%) were healthy students with DMFT score=0. 79(71.82%) female and 31(28.18%) male students were examined with dental caries out of 110 students with DMFT score >0 which are presented in Figure.1. DMFT Index score was also presented in Table 1. DMFT Score with 0 were 46(29.50%) which were free from dental caries; with 2 DMFT Score were 45(28.80%) which make a large number of dental caries. DMFT Score 1 and 3 were 30(19.20%) and 31(19.90%) while 4 score was 4(2.60%) of total. The association of DMFT Index score with demographic characteristic was presented in Table 2. Age and graduation year were statistically significant with p-value 0.000 and 0.015 respectively. While other variables like gender and area were non-significant with $P>0.05$. Comparison of average DMFT Index score in male and female in Table 3. Number of decayed which was the one portion of DMFT Index had mean $\pm$ S.D, 1.10 $\pm$ 0.93 and 0.62 $\pm$ 0.80 in male and female respectively which was statistically significant with $p=0.005$ between male and female. While other portion such as number of missing and filling teeth were not

significant with $P>0.05$ in male and female. Overall DMFT Index was also not significant.

Table No.2: Association of DMFT Index with demographic characteristic

Variables		DMFT Index					Total	Chi-Square	df	P-Value
		0	1	2	3	4				
Gender	Male	11	7	12	10	2	42	1.94	4	0.747
	Female	35	23	33	21	2	114			
Age (Years)	<19	18	0	7	2	1	28	57.15	12	0.000*
	19-21	21	5	11	10	2	49			
	21-23	7	20	12	11	1	51			
	23-25	0	5	15	8	0	28			
Area	Rural	22	5	20	17	3	67	13.13	12	0.36
	Urban	24	25	25	14	1	89			
Graduation Year	1st Year	14	3	13	11	2	43	12.41	4	0.015*
	2nd Year	9	9	12	7	1	38			
	3rd Year	13	13	8	6	0	40			
	4th Year	10	5	12	7	1	35			
Total		46	30	45	31	4	156			

*significance results with $p\text{-value}\leq 0.05$ using Chi-Square test

Table No.3. Comparison of average DMFT Score in male and female

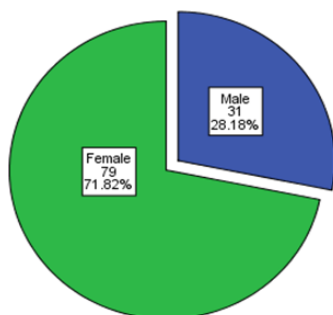
Association of DMFT Score with Gender				t	df	P-Value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Characteristics		n	Mean±S.D						Lower	Upper
DMFT Index	Male	42	1.64±1.25	1.084	68.709	0.282	.23935	.22071	-.20100	.67969
	Female	114	1.40±1.16							
No. of Decayed	Male	42	1.10±0.93	2.911	64.705	0.005*	.47243	.16228	.14831	.79655
	Female	114	0.62±0.80							
No. of Missing Teeth	Male	42	0.0±0.0	-1.228	154	0.221	-.03509	.02858	-.09154	.02136
	Female	114	0.04±0.18							
No. of Filling Teeth	Male	42	0.57±0.67	-1.476	80.028	0.144	-.18296	.12395	-.42963	.06371
	Female	114	0.75±0.74							

*significance results with $p\text{-value}\leq 0.05$ using independent t-test

Table No.4: Association of graduate study years with DMFT Index Score with gender

Gender	Graduate Study Year (No. of Student)	DMFT Index	No. of Decayed	No. of Missing teeth	No. of Filling teeth
Male	1st Year (n=10)	1.70 $\pm$ 1.42	1.40 $\pm$ 1.17	—	0.30 $\pm$ 0.48
	2nd Year (n=11)	1.73 $\pm$ 1.10	1.36 $\pm$ 0.92	—	0.36 $\pm$ 0.50
	3rd Year (n=12)	1.25 $\pm$ 1.14	0.67 $\pm$ 0.65	—	0.67 $\pm$ 0.78
	4th Year (n=9)	2.0 $\pm$ 1.41	1.0 $\pm$ 0.87	—	1.0 $\pm$ 0.71
	Overall (42)	1.64 $\pm$ 1.24	1.10 $\pm$ 0.93	—	0.57 $\pm$ 0.67
Female	1st Year (n=33)	1.61 $\pm$ 1.30	0.97 $\pm$ 0.92	—	0.63 $\pm$ 0.65
	2nd Year (n=27)	1.44 $\pm$ 1.15	0.70 $\pm$ 0.87	—	0.74 $\pm$ 0.59
	3rd Year (n=28)	1.14 $\pm$ 1.04	0.39 $\pm$ 0.63	0.071 $\pm$ 0.26	0.68 $\pm$ 0.82
	4th Year (n=26)	1.38 $\pm$ 1.10	0.35 $\pm$ 0.56	0.08 $\pm$ 0.27	1.0 $\pm$ 0.85
	Overall (114)	1.40 $\pm$ 1.16	0.62 $\pm$ 0.80	0.035 $\pm$ 0.18	0.75 $\pm$ 0.74
P-Value		0.282	0.002*	0.045*	0.16

Caries Status: DMFT Score >0 (Dental Caries Present)

**Figure No.1. Dental caries status in both genders**

In Table 4. Association of gender and DMFT index score in different graduation years is presented. No of decayed average 1.10 ± 0.93 and 0.62 ± 0.80 in male and female students and this relationship is statistically significant with $p=0.002$. And number of missing teeth average were 0.00 ± 0.00 and 0.035 ± 0.18 in male and female students respectively and also significant with $p=0.045$ in different graduation years.

DISCUSSION

Current study was performed to evaluate the prevalence of dental caries with gender differences. A sample of 156 undergraduate dental students of both genders with age 18-25 years were selected by non-probability convenient sampling. In Pakistan, undergraduate dental program is comprised of four years of education with a year of house job. DMFT index score and oral health are affected by gender and age.¹⁴

In the current study, graduate students was divided in four groups, <19, 19-21, 21-23 and 23-25. Association between DMFT score and age was highly statistical significant with $p<0.05$. The results of current study were showed the same trend regarding age and gender to other cross sectional study conducted by an author on undergraduate dental students in Lahore Medical and Dental College, Lahore.¹¹ Other studies of same study design also supported that the caries prevalence was higher in females than males.^{12,13,16}

In the current study, relationship of DMFT score and area was not significant with $p=0.36$, while another study which was published in 2016, author reported that caries was higher in rural area¹⁷ which was the opposite to this study results, because that study was conducted in developed countries.

The results of this study revealed that average overall DMFT score difference was not found significant in male and female (1.64 ± 1.25 vs 1.40 ± 1.16 ; $p=0.282$). DMFT Index for male was found 1.64 ± 1.25 (Low dental caries) with no. of decayed, no. of missing teeth and no. of filling teeth were 1.10 ± 0.93 , 0.0 ± 0.0 and 0.57 ± 0.67 examined while in female DMFT Index was examined 1.40 ± 1.16 (Low dental caries), with no. of decayed, no. of missing teeth and no. of filling teeth

were observed 0.62 ± 0.80 , 0.04 ± 0.18 and 0.75 ± 0.74 respectively. However, no. of dental caries that is the factor of DMFT average was statistically significant with $p=0.002$ and no. of missing teeth was significant ($p=0.045$) with graduate study years. The results of current study revealed that there is lower dental caries status in male and female both. Results of various studies which was conducted in Pakistan and Saudi Arabia also reported similar results.^{11,15}

CONCLUSION

Dental caries is most common in female as compare to male. Average overall DMFT score difference was not significant in both genders. Results of current study revealed that low dental caries status in male and female both. Relationship between DMFT score and age groups was highly statistically significant. There was no significant difference in average DMFT score in females among the different academic levels. However, the decayed factor of the average DMFT score significantly decreased while other factors of DMFT score were non-significant.

Recommendations: Prevention is most important to control the dental caries, in updated dentistry must focus on prevention as compare to treatment. For this purpose, regular visits to the dentist to timely diagnose the oral problem at earlier stages. Firstly, it is essential to follow the dentist guidance regarding diet, oral hygiene and proper care of teeth from the dental caries.

Author's Contribution:

Concept & Design of Study: Rehana Kausar

Drafting: Suleman Atique

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Revisiting Critically: Rehana Kausar, Suleman Atique

Final Approval of version: Rehana Kausar

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

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Frequency of Hepatitis “B” Vaccination in Already Diagnosed “HCV” Positive Patients

Frequency of
Hepatitis “B”
Vaccination in
Diagnosed
“HCV”

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ABSTRACT

Objective: To determine the frequency of Hepatitis “B” vaccination in already diagnosed “HCV” positive patients

Study Design: Descriptive, cross-sectional.

Place and Duration of Study: This study was conducted at the Department of Medicine, DHQ Teaching Hospital Bannu, Khyber Pakhtunkhwa for a period of 6 months from Feb 2015 to Aug 2015.

Materials and Methods: Data was collected from 371 patients already diagnosed as HCV positive for more than 1 year, through a preset questionnaire, to note their vaccination status against HBV.

Results: Out of 371 HCV positive patients, 201 patients were males (54.2%) and 170 (45.8%) were females. Only 89 (23.99%) patients were vaccinated (49 males and 40 females) while the rest were either non-vaccinated (260 patients i.e. 70.08%, 140 males and 120 females) or partially vaccinated (22 patients i.e. 5.93%, 12 males and 10 females). So overall 282 (76.01%) HCV positive patients were lacking proper vaccination against HBV, and merely 89 patients were properly vaccinated against HBV.

Conclusion: The frequency of vaccination against HBV was very low in this high risk adult group patients (18-60 years) already infected with HCV. Only 89 (23.99%) patients were vaccinated, which is an alarming situation and need proper planning by health care providers.

Key Words: Hepatitis C virus (HCV), Vaccination status (vaccinated/non-vaccinated/partially vaccinated), Hepatitis B virus (HBV), Bannu.

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INTRODUCTION

Hepatitis C and B are major world health problem. It is estimated that 130–170 million people i.e. 3% of the world's population are living with chronic hepatitis C¹. Its prevalence is higher in some countries in Africa and Asia. In Pakistan, its prevalence is 4.8%¹. In Khyber Pakhtunkhwa (KPK) and FATA areas, it is reported even high (up to 6.93%)^{2,3}. No vaccine against hepatitis C is available. However, they can be readily vaccinated against Hepatitis B Virus (HBV) to prevent this added infection, with the currently available safe and effective vaccine, in proper 3 doses of standard schedule of 0,1,3 or 0,1,6 months.

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HBV is also endemic here. In Pakistan its prevalence is 2.4%⁴, while in KPK and FATA, it is up to 4.49%². To prevent HBV co-infection, it has been mentioned international guidelines that all HCV-positive patients should be vaccinated against hepatitis B and A to decrease further liver damage⁵.

Unfortunately, no local data is available regarding hepatitis B vaccination status in HCV positive patients. Also due to many reasons such as lack of awareness, limited resources, and no cost-free vaccination campaign for adults, the vaccination is not satisfactory in Khyber Pakhtunkhwa, even in high risk people.

Hepatitis C is an infectious disease affecting liver, caused by hepatitis C virus (HCV), previously called as "non-A non-B hepatitis". About 3–4 million people are infected per year, and more than 350,000 people die yearly from hepatitis C related diseases¹. SHepatitis C is primary cause of cirrhosis (27%) and Liver cancer (25%)⁶. There are 7 major genotypes of HCV, numbered from 1-7⁷. With the standard therapy having combination, 50–80% of people treated are cured¹. Genotype 2&3 are common in Pakistan who show sustained response to treatment in 70-80%⁶.

Hepatitis B (HBV) is a viral infection of the liver caused by Hepatitis B Virus (HBV)/ Dane particle, previously called as "Serum Hepatitis". The disease has caused epidemics in parts of Asia and Africa and it is endemic in China⁸. About a third of the world

population has been infected at one point in their lives including 350 million who are chronic carriers^{9, 10}. National and regional prevalence ranges from over 10% in Asia to under 0.5% in the United States and northern Europe. According to WHO, worldwide, an estimated 2 billion people are infected with the HBV, more than 240 million have chronic liver disease and 600000 people die every year due to acute or chronic consequences of hepatitis B⁹.

The HBV is 50 to 100 times more infectious than HIV⁹. 90% transmission is vertical and 10% horizontal¹¹. Hepatitis B carries high morbidity and mortality^{11,12}. Hepatitis B is also a prerequisite for Hepatitis D infection^{11,13}. Fortunately this infection is preventable with the vaccine, in proper 3 doses of standard schedule of 0,1,3 or 0,1,6 months. The complete vaccine series induces protective antibody levels in more than 95% cases⁹. WHO recommends that all children and adolescents younger than 18 years old and not previously vaccinated should receive the vaccine as part of global vaccination against HBV⁹.

The Center for Medicare and Medicaid Services (CMS) of United States has recommended that all chronic HCV patients should be vaccinated against hepatitis B and A⁵, but this is not in common practice. In 88,456 patients in Texas USA, overall vaccination rates of 21.9% for HBV and 20.7% for HAV were noted¹⁴. In another study in New York USA, of the 111 patients with chronic HCV, only 45 patients (40.5%) were vaccinated against HBV¹⁵. Keeping this in mind the following study was designed to see vaccination status in these high risk people in our community.

MATERIALS AND METHODS

Descriptive, cross sectional study conducted at the Department of Medicine, DHQ Teaching Hospital Bannu KPK from Feb 2015 to Aug 2015.

Sample Size: 371 HCV positive patients who were analyzed for HBV vaccination (taking 40.5%¹⁵ as frequency of true vaccination rate against HBV, keeping 5% margin of error and 95% confidence interval, using WHO sample size calculator).

There was consecutive, Non-probability Sampling.

Inclusion Criteria: All "HCV" positive patients (Anti-HCV Abs positive by ELISA, diagnosed for last one year, noted from clinical record), of Either gender, and aged above 18 and under 60 years.

Exclusion Criteria: Those patients with a history of previous Hepatitis "B" infection (who have cleared the virus either spontaneously or by treatment), patients with End-stage liver disease, patients terminally ill, and patients with dementia/mentally retarded were not included because, as they were either already infected, naturally immuned to HBV, would not benefit from future planned vaccination or would give recall bias. If included in the study, these would act as confounders to introduce bias in the study results.

Data Collecting Procedure: The study was conducted after approval from hospitals ethical and research committee/ board. All the patients who were HCV positive and 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 (used as a diagnostic tool) was taken from all the patients, regarding duration of HCV infection and hepatitis "B" vaccination status. A structured questionnaire was distributed among patients (study population), as data collection tool having all variables of interest.

All the patients were interviewed on the basis of questionnaire and they were categorized as Vaccinated, Partially vaccinated or Non-vaccinated for Hepatitis "B". All the information including name, age, gender, address, vaccination status were recorded in that pre-designed Proforma. Only a complete Proforma was subjected to analysis. Strict exclusion criteria was applied to control confounders and bias in the study results.

Statistical Analysis: Data obtained was entered into SPSS version 10 and analyzed in descriptive statistics. Mean + SD were calculated for numerical/ quantitative variables like age. Frequencies and percentages (%) were calculated for categorical/ qualitative variables such as gender, vaccination status. Vaccination status 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 371 patients with HCV positive were included in the study. Among them, 201 (54.18%) were male and 170 (45.82 %) were female, with male to female ratio of 1.18: 1.0.

Table No.1: Summarized descriptive statistics of study population (n=371)

Vaccination Status	Age Group									Total Patients
	18-25 years			26-55 years			56-60 years			
	M*	F	T	M	F	T	M	F	T	
Vaccinated	16	13	29	27	22	49	06	05	11	89
Non-vaccinated	50	43	93	68	59	127	22	18	40	260
Partially Vaccinated	03	03	06	07	06	13	02	01	03	22
Total Patients	69	59	128	102	87	189	30	24	54	371

*M= Male F= Female T= Total

Their age ranged between 18 and 60 years, and the mean age was 37.15 ± 14.009 years. 89 (23.99%) patients were completely vaccinated, while 282 (76.01%) patients were either non-vaccinated (260 patients i.e. 70.08%) or partially vaccinated (22 patients i.e. 5.93%), as per operational definition. Summarized Descriptive statistics of the study population are shown in table 1. The distribution of age, gender and combined age & gender are shown in tables 2, 3, 4 respectively.

Table No.2: Age distribution of study population (N=371):

Para-meters	Total No of patients	Min. (yrs)	Max. (yrs)	Mean	Std. Deviation
Age in years	371	18.00	60.00	37.15	14.009

Table No.3: Gender distribution of study population (n=371):

Gender	Frequency	Percentage
Female	170	45.8%
Male	201	54.2%
Total	371	100.0%

Table No.4: Age and gender-wise distribution (n=371):

Age Groups	Gender		Total
	Male	Female	
18 to 25 years	69	59	128
26 to 55 years	102	87	189
56 to 60 years	30	24	54
Total	201	170	371

The frequency of hepatitis B vaccination status is shown in table 5

Table No.5: Frequency of vaccination status of patients (n=371):

Vaccination status	Frequency	Percentage
Non-vaccinated	260	70.1%
Partially Vaccinated	22	5.9%
Vaccinated	89	24.0%
Total	371	100.0%

Out of 371 (n=371) HCV positive patients, 201 patients were males (54.2%) and 170 (45.8%) were females (table 3). Only 89 (23.99%) patients were vaccinated (49 males and 40 females) while the rest were either non-vaccinated (260 patients i.e. 70.08%, 140 males and 120 females) or partially vaccinated (22 patients i.e. 5.93%, 12 males and 10 females) (table 5). So overall 282 (76.01%) HCV positive patients were lacking proper vaccination against HBV, and merely 89 patients were properly vaccinated against HBV.

DISCUSSION

Hepatitis C is an infectious disease affecting primarily the liver. It is a world health problem. It is estimated that 130–170 million people i.e. 3% of the world's population are living with chronic hepatitis C¹. Those who develop liver cirrhosis or cancer may require liver transplant. Hepatitis C is the leading cause of liver transplantation and is primary cause of cirrhosis (27%) and Liver cancer (25%)⁶.

No vaccine against hepatitis C is available. Its spread and transmission can be decreased by adopting preventive measures.

Management of chronic HCV patients also include screening of these patients for HBV infection, and if not infected/prior immuned, then proper vaccination of these patients against HBV with standard vaccination schedule¹⁶ to prevent co-infection with HBV. This vaccination will protect against HBV as well as HDV infection.

This study is a preliminary study in this area. It presents a detailed survey of 371 HCV-patients, both out patients and in-door patients, who were aged 18-60 years, with mean age 37.15 ± 14.009 years, who were positive for anti-HCV positive by ELISA for >1year, noted from their clinical records, with compensated liver disease, according to inclusion criteria. Their vaccination status was inquired against HBV infection.

Out of 371, only 89 (23.99%) patients were vaccinated (49 males and 40 females) against HBV. This vaccination rate is slightly higher than the vaccination rate noted in a study in Texas¹⁴, where it was 21.9% (vs.23.99%). This is partially because of a large population included in that study as compared to this study (88,456 vs. 371). While this vaccination rate is lower than the vaccination rate noted in a study in New York USA¹⁵, where it was 40.5% (Vs 23.99), partially because of low sample size (111 Vs.371), high patients awareness and availability of cost free vaccination for adult population.

Out of 371, a large portion of 282 (76.01%) patients were lacking proper vaccination against HBV according to standard schedule, they were either non-vaccinated (260 patients i.e. 70.08%) or partially vaccinated (22 patients i.e. 5.93%), as per operational definition.

This was partially because of;

- Lack of awareness/ education and affordability problems due to low socioeconomic status on part of the patients,
- Lack of proper counseling educating and directing patients on part of health care providers, and
- Lack of support services as well as cost free vaccination programs for adult group population on part of the government.

CONCLUSION

This study has demonstrated that a large proportion of the HCV-positive patients lacked proper vaccination against HBV, where both the viruses have high prevalence, and HBV infection can occur to these patients (co-infection). Therefore, all those managing HCV-positive patients should also counsel and educate the patients, regarding preventive measures against both HCV/HBV infections, screen these patients for HBV infection, and if not co-infected, then properly vaccinate them against HBV, with standard schedule of vaccination, along with giving standard Treatment including recent antivirals for HCV.

Recommendations: In the view of the above study, we recommend:

- The guidelines that all HCV-positive patients should be screened and vaccinated for HBV, must be practiced.
- All the HCV free-treatment programs, which have already been started, should incorporate free vaccination against HBV as well.

Author's Contribution:

Concept & Design of Study: Raza Muhammad Khan
 Drafting: Asmatullah Khan
 Data Analysis: Sami ul Haq & Anwar Shah
 Revisiting Critically: Raza Muhammad 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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Association of Left Bundle Branch Block with Systolic Dysfunction of Left Ventricle

Muhammad Sarwar Khalid¹, Sabahat e Gull¹, Muhammad Umar Iqbal¹ and Mazar ul Haq²

ABSTRACT

Objective: The study was conducted to know the association of left bundle branch block with systolic dysfunction of left ventricle in our population because it carries poor prognosis.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at the Cardiology department of Bahawal Victoria Hospital, Bahawalpur from July 2016 to January 2017.

Materials and Methods: The study included 93 patients with both genders between ages 40-70 years. Those having the previous history of ischemic heart disease and cardiomyopathies were excluded. In all patients, severity of systolic dysfunction of left ventricle was assessed by echocardiography.

Results: Age of the patient's ranges between 58.48 ± 8.58 years. Out of the 93 patients, males and females were 72 (77.42%) and 21 (22.58%) with ratio of 3.4:1. Range of BMI was 28.09 ± 4.59 kg/m². Systolic dysfunction of left ventricle was found in 41 (44.09%) patients, whereas 52 (55.91%) patients were found to have normal function.

Conclusion: This study shows a strong association of systolic dysfunction of left ventricle with left bundle branch block.

Key Words: left bundle branch block, systolic dysfunction of left ventricle, cardiomyopathy

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INTRODUCTION

Conduction delay resulting in slowing or block age of electrical impulses travelling through left bundle branch of left ventricle is the hallmark of Left Bundle Branch Block (LBBB). As a result right ventricle is stimulated first and left ventricular contraction occurs slightly later the left ventricle. This resulting LBBB causes intra and inter ventricular asynchrony leading to in effective contraction of left ventricle. The resulting impairment of systolic function of left ventricle due to asynchronous contraction in LBBB is well established fact.

LBBB is found in many cardiovascular conditions including hypertension, cardiomyopathies, valvular heart diseases and ischemic heart disease¹. Patients with LBBB show reduced survival with increased cardiovascular morbidity and mortality². Patients with LBBB showed higher than expected advanced atrioventricular blocks and mortality rates. Similarly coronary artery disease in these patients shows more

aggressive disease with severe and diffusely involvement of coronary arteries, more systolic dysfunction, more mortality rates and less survival rates³. Some studies found the frequency of systolic dysfunction of left ventricle up to 60% patients with LBBB⁴. In addition to cardiomyopathies the LBBB had prognostic effects of systolic dysfunction of left ventricle are also found in subjects without any known heart disease⁵.

As the systolic dysfunction of left ventricle with LBBB carries poor prognosis and higher mortality⁶, its recognition and early intervention is compulsory. The study was performed to find the association of LBBB and impairment of left ventricular systolic function in our local population. Changing trends of coronary artery disease have been consistently observed in our population including younger age at presentation. Moreover, a majority of patients presenting to us with LBBB have some degree of systolic dysfunction of left ventricle. So we expect an even higher frequency of systolic dysfunction of left ventricle in this subset of patients than reported previously. Also the locally available literature on this was very scarce, so our study will help to assess the severity of the problem for management in our local population and also add up the data in the existing literature..

MATERIALS AND METHODS

The study comprises of 93 patients, which is cross sectional descriptive study and performed at Department of Cardiology, Bahawal Victoria Hospital, Bahawalpur from 19 July 2016 to 18 January 2017.

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Using Non-probability, Consecutive, sampling after approval from the ethical review committee, patients with LBBB on ECG and undergoing echocardiography were included in the study. Informed written consent was also received before study. All data was recorded on a predesigned proforma. Patients with history of previous cardiac catheterization, coronary artery bypass surgery, cardiomyopathies, hepatic and kidney diseases were excluded from study. In all patients, echocardiography was done by the consultant cardiologist to assess the LV systolic function. On echocardiography left ventricular systolic dysfunction taken when fraction was less than 40%.

SPSS version 21.0 was used to perform the statistical analysis. Quantitative variables like age, height, weight, duration of LBBB and BMI were used to calculate the Mean and standard deviation. Qualitative variables like gender, ischemic heart disease, smoking, hypertension, diabetes mellitus, and systolic dysfunction of left ventricle were used to assess the Frequency and percentage. Stratifications were used to control the effect modifiers like age, gender, BMI, ischemic heart disease, smoking, hypertension and diabetes mellitus. Significant P value was considered when ≤ 0.05 after applying post-stratification Chi square to see their effects on the systolic dysfunction of left ventricle.

RESULTS

Most of patients were above the age of 60 years with range of 58.48 ± 8.58 years. Table (I) Ratio of males 72 (77.42%) and females 21 (22.58%) was 3.4:1 (Figure I). Mean duration of LBBB was 63.59 ± 15.68 hours (Figure II). Frequency of patients with status of confounding variables like ischemic heart disease, smoking, hypertension, diabetes mellitus and BMI has shown in Table 2. Mean height was 161.44 ± 11.87 cm. Mean weight was 85.34 ± 7.12 kg resulting in mean BMI of 28.09 ± 4.59 kg/m².

Table No.1: Age of patients (n=93).

Range of Age (Years)	Total	
	Patients	%age
40-50	19	20.43
51-60	31	33.33
61-70	43	46.24
Total	93	100.0

➤ **Mean $\pm$ SD = 58.48 ± 8.58**

Systolic dysfunction of left ventricle appeared in 41 (44.09%) patients, however normal systolic function was in 52 (55.91%). Figure 3.

Regarding age groups and genders on stratification, no significant difference in systolic function was noted Table 3 & 4. Similarly systolic dysfunction of left

ventricle and duration of LBBB showed no difference on stratification. Table 5

Table No.2: Confounding variables of Patients.

Variables of Patients		Frequency	%age
Diabetes Mellitus	Yes	39	41.94
	No	54	58.06
Hypertension	Yes	49	52.69
	No	44	47.31
Smoking	Yes	45	48.39
	No	48	51.61
BMI	≤ 30 kg/m ²	62	66.67
	> 30 kg/m ²	31	33.33
H/o ischemic heart disease	Yes	33	35.48
	No	60	64.52

Table No.3: Stratification according to age groups and Systolic Dysfunction of Left Ventricle.

Age (years)	systolic dysfunction of left ventricle		p-value
	Yes	No	
40-50	07 (36.84%)	12 (63.16%)	0.652
51-60	13 (41.94%)	18 (58.06%)	
61-70	21 (48.84%)	22 (51.16%)	

Table No.4: Stratification according to gender and Systolic Dysfunction of Left Ventricle.

Gender	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
Male	29 (40.28%)	43 (59.72%)	0.171
Female	12 (57.14%)	09 (42.86%)	

Table No.5: Stratification of duration of symptoms and Systolic dysfunction of Left Ventricle.

Duration of LBBB	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
24-72 hours	32 (42.11%)	44 (57.89%)	0.416
>72 hours	09 (52.94%)	08 (47.06%)	

Table No.6: Stratification of Diabetes Mellitus and Systolic dysfunction of Left Ventricle.

Diabetes Mellitus	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
Yes	19 (48.72%)	20 (51.28%)	0.445
No	22 (40.74%)	32 (59.26%)	

Similarly confounding variables were also stratified with systolic dysfunction of left ventricle as shown in Table 6, 7, 8, 9 & 10 respectively and p-value was found >0.05 which is statistically insignificant.

Table No.6: Stratification of Hypertension and Systolic dysfunction of Left Ventricle.

Hypertension	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
Yes	24 (48.98%)	25 (51.02%)	0.316
No	17 (38.64%)	27 (61.36%)	

Table No.8: Stratification of Smoking and Systolic dysfunction of Left Ventricle.

Smoker	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
Yes	23 (51.11%)	22 (48.89%)	0.186
No	18 (37.50%)	30 (62.50%)	

Table No.9: Stratification of BMI Systolic dysfunction of Left Ventricle.

BMI	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
≤30 kg/m ²	24 (38.78%)	38 (61.29%)	0.140
>30 kg/m ²	17 (54.84%)	14 (45.16%)	

Table No.10: Stratification of ischemic heart disease with Systolic dysfunction of Left Ventricle.

H/o ischemic heart disease	Systolic dysfunction of Left Ventricle		p-value
	Yes	No	
Yes	17 (51.52%)	16 (48.48%)	0.285
No	24 (40.0%)	36 (60.0%)	

DISCUSSION

Systolic dysfunction of left ventricle is found in a large number of persons with Left Bundle Block (LBBB) on their ECGs. In general population prevalence of LBBB varies a lot depending upon the population studied. Echocardiographic studies reported normal LV function only in 7% patients with LBBB and 32.5% normal LV function in patients without LBBB⁷. One old but important study conducted in 2004 comparing subjects with LBBB and normal ECGs showed significantly high rates of cardiomegaly and cardiac failure symptoms due LV systolic dysfunction⁸.

Many follow up studies have demonstrated that subjects with LBBB when compared to subjects with normal ECGs, behave adversely with increased morbidity and mortality, significant number having presented as sudden death⁹.

Studies suggest that persons with LBBB on ECG show higher death rate, even with healthy population¹⁰. However sicker population like those with coronary artery disease showed more mortality rates^{11, 12, 13}. Evidence suggest these patients have worse long term prognosis as compared to those without LBBB, likely due to higher incidence of hypertension, cardiomyopathy¹⁴, CAD, and valvular lesions in these patients. Even these conditions may be cause of LBBB. In many studies of heart failure patients, LBBB was found as independent marker of mortality on follow up¹⁵.

Conduction abnormalities are very common on ECGs of patients who present with cardiac failure, while 25% of these patients have LBBB¹⁶ which is irreversible with medications. However cardiac resynchronization therapy (CRT) may improve the ECG and heart failure, while effect on remodeling and prognosis is unknown^{17, 18}.

This study shows the frequency of systolic dysfunction of left ventricle in patients with left bundle branch block, because systolic function of left ventricle is the primary factor in deciding the long term survival in these patients. Most of the patients 43 (46.24%) were above 60 years of age, with mean age of 58.48 ± 8.58 years. Among study patients males were more common, 72 (77.42%) as compared to females 21 (22.58%) with ratio of 3.4:1. Left ventricular systolic dysfunction was found in 41 (44.09%) patients, whereas normal function of left ventricle was found in 52 (55.91%) patients. Similar results were shown in another study with frequency of systolic dysfunction of left ventricle up to 60% in persons having LBBB on ECG⁴. In this study of 50 patients with LBBB, 31 were males and 19 were females, with a mean age of 56.68±6.8 years and a control group of 50 patients without LBBB, 22 were males and 28 were females, with a mean age of 51.88±6.8 years.

The Framingham study comprising of more than of 5,209 subjects demonstrated an important association of left bundle branch block with hypertension, cardiomyopathies and ischemic heart disease¹⁹. After 10 years follow up of persons with LBBB, A significant high cardiovascular mortality and morbidity was noted on ten and eighteen years follow

This large study also highlighted that male patients with new onset LBBB has higher risk of cardiovascular complications, especially sudden death is 10 times more common than those without LBBB²⁰. In a study, Khalil et al proposed that isolated LBBB in young male population has benign prognosis while older patients show progressive myocardial diseases²¹. Similarly many studies demonstrated the very high prevalence of cardiac morbidities and mortalities in persons with LBBB on ECG.²²

In a coronary angiography based study⁸ 55 patients evaluated for narrowing's of coronary arteries and

hemodynamics. Findings were compared with those with similar age, sex but with normal ECGs. The significant and important finding in the study was the very high frequency of heart failure finding in patient with LBBB on their ECG as compared to normal ECGs. Results of this study clearly suggest that LBBB patients also have systolic dysfunction of left ventricle in addition to significant coronary artery disease.

These evidences clearly and strongly suggest to clinical physicians to consider LBBB as an offset of patients with increases risk of cardiac anomalies especially LV systolic dysfunction and heart failure. Therefore while treating the patients with LBBB on ECG, for heart failure, MI and other cardiac conditions, must keep these patients with regular follow up, because these patients have poor prognosis with increased cardiovascular morbidity and mortality as compared to those with ECG without LBBB²².

CONCLUSION

This study concluded that high frequency patients have the risk of heart failure resulting from systolic dysfunction of left ventricle in patients with ECG finding of left bundle branch block in our population. This can lead to poor prognosis with high morbidity and mortality and high economic Burdon due frequent hospitalization with heart failure. Therefore its recognition and early intervention is compulsory. So, we recommend that timely detection and treatment of Systolic dysfunction of left ventricle in these patients should be done community to reduce the morbidly and prolong the survival.

Author's Contribution:

Concept & Design of Study:	Muhammad Sarwar Khalid
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Revisiting Critically:	Muhammad Sarwar Khalid, Sabahat e Gull
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Maternal Factors Involved with Low Birth Weight (LBW) Newborns

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ABSTRACT

Objective: To find out the maternal factors involved with low birth weight (LBW) newborns.

Study Design: Cross sectional study.

Place and Duration of Study: This was a Multi-centric study conducted at three centers i.e. Department of Pediatrics Medicine, Bahawal Victoria Hospital Bahawalpur, Department of Pediatrics, Ghulam Muhammad Mahar Medical College Hospital, Sukkur, and Department of Pediatrics, Unit-II, Children Hospital Chandka Medical College / SMBBMU, Larkana from December 2018 to May 2019.

Materials and Methods: A total of 335 single alive LBW babies delivered, referred, or reported at study centers, were included. All mothers of newborns were aged 18 to 35 years. Newborn's data including gender and weight were recorded. Maternal data included age, gestational age, parity status, details of antenatal visits and any sort of complications. Mother's data such as pregnancy induced hypertension (PIH) (BP systolic more than 140mm of Hg and diastolic more than 90mm of Hg), anemia (hemoglobin less than 10mg/dl) during pregnancy or antepartum hemorrhage (APH) were also noted.

Results: There were 170 (50.7%) male and 175 (49.3%) female newborns. IUGR was reported in 193 (57.6%) newborns while there were 142 (42.4%) preterm newborns. Mean weight of the newborns was recorded as 2238 grams with a standard deviation of 327 grams. Majority of the newborns, 276 (82.4%) had birth weight between 2000 to 2500 grams, belonged to rural areas 197 (58.8%). Majority of the mothers, 261 (77.9%) were aged 20 to 29 years, 178 (53.1%) had regular antenatal visits (≥ 3 visits), 198 (59.1%) were multipara and 170 (50.7%) had anemia during pregnancy.

Conclusion: High frequency of maternal factors such as multiparity, anemia, low to medium socioeconomic status, rural area of residence, irregular medical check-ups and age from 20 to 30 years, were noted amongst mothers of LBW newborns.

Key Words: low birth weight, maternal factors, anemia, rural area.

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INTRODUCTION

Babies born with a weight less than 2500 grams are known as LBW. LBW is described to be one of the most important reasons for morbidity and mortality amongst newborns.¹

South Asia is the biggest contributor to prevalence of LBW newborns globally.² According to an estimate, 72% newborns are from Asia.³

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Major differences are found in different parts of the world regarding prevalence of LBW while there exists a variation even within same countries comparing urban and rural or socio-economic variations amongst different populations.⁴⁻⁶

Not much cumulative data about the prevalence of LBW in Pakistan exists, but studies done in different settings show a prevalence of 19 to 30%.⁷⁻⁹ Treatment of LBW babies is linked with high cost and puts pressure on baby care facilities. In terms of burden of LBW, the problem cannot be ignored specially in developing countries due to its importance in public health related problems.¹⁰⁻¹²

LBW is usually a result of preterm delivery (gestation of less than 37 weeks) or intra-uterine growth retardation (IUGR) or both.¹³ Newborns as preterm (less than 37 weeks) have high comparatively high rates of worse outcomes and are more susceptible to problems like infection that may need longer duration of hospitalizations and contribute to high cost to families as well as government/ hospitals/ administrations.^{1,14} Multiple factors like genetic, placental, fetal and maternal factors, and their interactions are involved in the etiology of LBW.¹⁵ Birth weight is known to be affected from factors like

fetal growth that is connected largely to nutritional aspects of the mother. Low socio-economic settings significantly increase the chances of deliveries resulting in LBW. Data shows that maternal factors such as nutritional status of the mother, anemia, age, parity status and antenatal visits, are known to affect birth weight of the babies.^{16,17} UNICEF documented that majority of LBW babies are delivered at informal settings where their weight is not measured routinely and this makes it mighty difficult to exactly estimate the scale of this problem.¹⁸ We planned this multi-central study to find out the maternal risk factors involved with LBW.

MATERIALS AND METHODS

This multi-centric, cross sectional study was conducted at 3 centers, from 15th December 2018 to 15th May 2019. The venue for this study were Department of Pediatrics Medicine, Bahawal Victoria Hospital Bahawalpur, Department of Pediatrics, Ghulam Muhammad Mahar Medical College Hospital, Sukkur, and Department of Pediatrics, Unit-II, Children Hospital Chandka Medical College / SMBBMU, Larkana.

Approval from ethical and research committees of the relevant institutes involved in the study were acquired. Verbal consent was taken from parents or guardians of all the study participants explaining them the aims and objectives of this study while secrecy of the data was ensured.

A total of 335 single alive LBW babies delivered or referred, and reported within 6 hours after delivery, during the study period were included. All mothers of newborns were aged 18 to 35 years. We excluded mothers who were less than 18 years of age, or mothers who reported > 5 deliveries (grand multi-para), mothers currently delivering twin babies, or delivering babies who had congenital malformations, chromosomal or any kind of genetic disorders. Similarly newborns of all these mothers as per exclusion criteria mentioned were also excluded from the study.

Gender and weight of the newborn were recorded. Maternal data included age, gestational age, parity status, details of antenatal visits and any sort of complications. Mother's data such as pregnancy induced hypertension (PIH) as BP systolic more than 140mm of Hg and diastolic more than 90mm of Hg, anemia (hemoglobin less than 10 g/dl) during pregnancy or antepartum hemorrhage were noted. Mother's medical record and charts were analyzed for recording maternal data.

SPSS version 21.0 was used for data handling and analysis. Frequency and percentages were calculated for qualitative variables while quantitative variables were presented as mean and standard deviation.

RESULTS

Out of a total of 335 newborns, there were 170(49.3%) male and 175 (50.7%) female. IUGR was reported in 193 (57.6%) newborns while there were 142 (42.4%) preterm newborns, out of which, 112 (78.9%) were small for gestational age (SGA) and 30 (21.1%) appropriate for gestational age (AGA). Mean weight of the newborns was recorded as 2238 grams with a standard deviation of 327 grams. Majority of the newborns, 276 (82.4%) had birth weight between 2000 to 2500 grams, 50 (14.9%) between 1500 to 1999 grams while remaining 9 (2.7%) had weight less than 1500 grams. There were 138 (41.2%) newborns who belonged to urban areas while 197 (58.8%) from rural areas. Socioeconomic status was noted as low (income less than Rs.20000 per month) in the families of 147 (43.9%), medium (> Rs. 20000 but less than Rs.35000 per month) in 124 (37.0%) and high (> Rs.35000 per month) status in 64 (19.1%).

Table No.1: Characteristics of LBW newborns

Characteristics of Newborns		Number (%)
Gender	Male	170 (49.3%)
	Female	175 (50.7%)
IUGR		193 (57.6%)
Preterm	SGA	112 (33.4%)
	AGA	30 (9.0%)
Birth Weight	< 1500 grams	9 (2.7%)
	1500 to 1999 grams	50 (14.9%)
	2000 to 2500 grams	276 (82.4%)

Table No.2: Maternal Characteristics of LBW Newborns

Characteristics of Newborns		Number (%)
Age	<20 years	112 (33.4%)
	20 to 29 years	30 (9.0%)
	30 to 35 years	9 (2.7%)
Parity	Primipara	137 (40.9%)
	Multipara	198 (59.1%)
Antenatal Visits	Regular	178 (53.1%)
	Irregular	157 (46.9%)
Area of Residence	Rural	197 (58.8%)
	Urban	138 (41.2%)
Socioeconomic status	Low	147 (43.9%)
	Medium	124 (37.0%)
	High	64 (19.1%)
Anemia		170 (50.7%)
PIH		61 (18.2%)
APH		53 (15.8%)

Majority of the mothers, 261 (77.9%) were aged 20 to 29 years, 50 (14.9%) between 30 to 35 years whereas 24 (7.2%) were less than 20 years of age. Most of the Maternal records revealed that 178 (53.1%) mothers had regular antenatal visits (≥ 3 visits) while 157 (46.9%) had irregular antenatal visits. It was noted that 137 (40.9%) mothers were primipara while remaining

198 (59.1%) were multipara. History of anemia during pregnancy was noted in 170 (50.7%), PIH reported in 61 (18.2%) and APH in 53 (15.8%).

DISCUSSION

Worldwide, incidence of LBW is rising despite having done interventions with an aim to address this issue. Globally, UNICEF recorded 22 million deaths amongst LBW infants in 2013 while they also noted that most of those died during the neonatal period.¹⁸ It is also an established fact that most of the LBW newborns hail from lower to middle income countries.³ Pakistan, being a developing country need studies which are aimed to analyze factors contributing to LBW and this multi-central study was done with the aim to note the maternal factors involved in LBW newborns.

In the current study, we noted low socioeconomic status in the families of 147 (43.9%) newborns, medium in 124 (37.0%) and high in 64 (19.1%). It is well known fact that majority of our population belong to middle or lower to middle class so this fact pronounced in our findings as 80.9% of the LBW newborns belonged to lower and middle socioeconomic status. As this study was conducted at government teaching hospitals where medical care is usually free, so most of the lower and middle class families are always reaching these healthcare facilities.

We noted that most of the mothers, 261 (77.9%) were aged 20 to 29 years, 50 (14.9%) between 30 to 35 years whereas 24 (7.2%) were less than 20 years of age. Our findings are very consistent to what was found in another local study from Karachi¹⁹ where 70% of the mothers of LBW newborns belonged to the age group 20 to 29 years. Although the mother's age group as 20 to 29 years does not raise the chances of LBW in newborns as has been found by multiple studies,^{15,20} but this age group of mothers seems most common amongst LBW babies. In terms of less number of mothers having less than 20 years of age, our results are comparable to a study conducted in India²¹ where the researchers noted that only 6.9% mothers had age less than 20 years. This was very similar to what we noted as 7.2%. Yilgran CS and colleagues²² also noted that only 3.4% mothers had age less than 20 years. In Pakistan, most of the marriages are conducted when the girls are in their 20s so the age group of 20 to 29 years is found commonly in various studies analysis newborns. In terms of parity, 137 (40.9%) mothers were primipara while remaining 198 (59.1%) were multipara in this study. Our results are quite consistent with those of Shams S¹⁹ who also found that 55.6% LBW newborn belonged to multipara mothers. Results found by Mondal B²³ from India also depicted similar findings where it was found that parity is a significant factor for LBW.

We found that 50.7% mothers were having anemia during pregnancy. Anemia has been found a strong

factor in the mothers of LBW newborns.^{19,24} Malnutrition and anemia is quite common in developing countries like Pakistan, and has been found to influence weight of the newborns. It is also observed that growth of the fetus is adversely affected with inadequate maternal nutrition.²⁵

We also noted that 46.9% mothers had irregular antenatal visits. Less antenatal check-ups have been associated with LBW newborns by multiple researchers^{19,26} and we also noted high number of mothers (46.9%) having irregular antenatal visits.

In terms of limitations to this study, we did not have the data about all newborns reported at our centers as that would have given us an idea about the prevalence of LBW in our settings. We also did not have any controls or normal weight babies to compare with LBW newborns of the current study which would have been highly helpful in indicating the exact factors and their content to LBW.

CONCLUSION

Maternal factors such as multiparity, anemia, low to medium socioeconomic status, rural area of residence, irregular medical check-ups and age from 20 to 30 years, were noted in high proportions amongst mothers of LBW newborns. Improvement is required for better antenatal care along with nutritional support.

Author's Contribution:

Concept & Design of Study:	Hafiz Muhammad Anwar ul Haq
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Data Analysis:	Asif Ali Khuhro
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Evaluating the Age Related Frequency of Borderline and Malignant Epithelial Ovarian Tumors at a Tertiary Care Hospital in Karachi

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ABSTRACT

Objective: Malignant ovarian tumors are one of the most lethal malignancies. The incidence of ovarian cancer is highest in Pakistan among all South Asian countries. It is 90% curable disease when diagnosed with stage I. Unfortunately, this disease is usually diagnosed in advanced stages, when it becomes symptomatic due to the abdominal dissemination of tumor.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Pathology, BMSI, JPMC, Karachi from January 2011 to December 2015.

Materials and Methods: The study material included 18 borderline and 84 consecutive samples of malignant epithelial ovarian tumors. The morphology was correlated with the age of the patients. The inclusion criteria were Properly fixed, paraffin embedded surgical pathological specimen with adequate tumor material.

Results: Nearly 267 histopathologically proven cases of epithelial ovarian tumors were received in above mentioned five years. Out of these tumors 18 (6.7%) cases were borderline and 84 (31.2%) were malignant. Mucinous borderline tumor was commonest borderline tumor (72.2%). Serous cystadenocarcinoma was the commonest malignant epithelial ovarian tumor (51%). Borderline ovarian tumors were seen between 21-40 years, whereas most malignant tumors were seen above 40 years. The observations and results of the study were elaborated with the assistance of tables, figures and photomicrographs.

Conclusion: Malignant tumors outnumbered the borderline ovarian tumors. The commonest borderline tumor was Mucinous borderline tumor. Among the malignant ovarian tumors, serous cystadenocarcinoma dominated the other types. Malignant ovarian tumors are more common above 40 years. Borderline tumors are commonly seen up to 30 years.

Key Words: Ovarian tumors, Serous cystadenocarcinoma, Borderline ovarian tumors, Tertiary Care Hospital.

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INTRODUCTION

Approximately 239, 000 cases of malignant ovarian tumors were recorded in 2012, accounting for nearly 4% of all new cases of cancer in women (2% overall). Ovarian cancer incidence rates are greater in middle- to low-income countries. In the year 2013, approximately 22,000 new cases were diagnosed and about 14,000 women died due to this disease in the United States¹.

Incidence rates are 11.7 per 100,000 in the UK, 8.0 per 100, 000 in the US, 5.2 per 100 000 in Brazil and 4.1 per 100,000 in China². Ovarian cancer is the 3rd most common malignancy in Pakistan³. The newly diagnosed case rate is 10.2 per 100,000 in a year, while in India it is 1.2 per 100,000 per year. The reason for high rates of ovarian cancers in Pakistan is still unknown. Probable risk factors are lifestyle and reproductive factors, but the most common cause is the genetic susceptibility⁽⁴⁾. More than four epithelial cell layers are the sign of malignancy and in case of borderline tumors the stromal micro-invasion up to 5 mm in any single focus and noninvasive peritoneal implants are acceptable⁽⁵⁾.

During the process of repair the ovarian surface epithelium invaginates into the underlying stroma. Which forms the inclusion cysts and finally cause the serous ovarian cancer. Endometrioid and clear cell carcinomas are associated with retrograde endometriosis, while mucinous and transitional (Brenner) tumors arise from transitional-type epithelial

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nests at the tubal-mesothelial junction by a process of metaplasia⁶.

The present study was designed to find out the frequency of different histological types of borderline and malignant epithelial ovarian tumors and to analyze the age distribution of these tumors.

MATERIALS AND METHODS

This study was conducted at the Department of Pathology, BMSI, JPMC, from Jan. 2011 to Dec. 2015.

Material

- Relevant clinical and lab data received in surgical pathology request forms
- Paraffin embedded blocks
- Clinical records
- Haematoxylin and eosin stained slides.

Method

- All relevant clinical information and the data were recorded on designing proforma.
- Hematoxylin and eosin staining was performed.
- All the slides were studied under light microscopy using a scanner (4x), low power (10x), and high power (40x) lenses and were also reviewed by supervisor.

Data was entered and analyzed using SPSS (Statistical Packages of social sciences) version 21. The Mean was computed from age. Frequency and percentage were calculated for the histological type of the tumors.

RESULTS

Table No.1: Distribution of Various Morphological Types of Ovarian Epithelial Tumors (n=267):

Benign Tumors	Borderline Tumors	Malignant Tumors
167 (62%)	18 (6.7%)	84 (31.2%)

Table No.2: Distribution of Various Morphological Types of Borderline and Malignant Epithelial Ovarian Tumors.

Morphological Types	Borderline Tumors (N=18) (6.7%)	Malignant Tumors (N=84) (31.2%)
Serous	4 (22.2%)	43 (51%)
Mucinous	13 (72.2%)	20 (23.8%)
Seromucinous	1 (5.5%)	
Endometroid adenocarcinoma		9 (10.71%)
Clear cell carcinoma		2 (2.38%)
Signet ring carcinoma		1 (1.19%)
Mixed Mullerian tumors		1 (1.19%)
Poorly differentiated tumors		6 (7.1%)
Undifferentiated tumor		2 (2.38%)

During the study period from January 2012 to December 2015, 267 consecutive cases of epithelial ovarian tumors were selected. Table 1: Shows the distributions of 267 ovarian surface epithelial tumors.

Table 2: Shows the distribution of various histological types including serous, mucinous, Endometroid, Poorly differentiated and other tumors.

Table No.3: Age Distribution and Mean Age of Borderline and Malignant Epithelial Ovarian Tumors:

Tumor Type	No of Cases	12-20 Years	21-30 Years	31-40 Years	41-50 Years	51-60 Years	>61 Years	Mean Age
Borderline Tumors	18	3 (16.6%)	4 (22.2%)	4 (22.2%)	3 (16.6%)	3 (16.6%)	1 (1.25%)	37 Years
Malignant Tumors	84	4 (4.7%)	11 (13%)	20 (23.8%)	30 (35.7%)	13 (15.4%)	6 (7.1%)	44 Years

Table 3: Shows distribution of ovarian tumors in different age groups. In Borderline tumors, the incidence age observed was 18 to 65 years..

DISCUSSION

The present study aimed at determining the frequency and distribution of borderline and malignant epithelial ovarian tumors in Jinnah Postgraduate Medical Center, Karachi a tertiary care hospital.

The total numbers of epithelial ovarian tumors were 267. The borderline tumors were found to be 6.7% out of all the epithelial ovarian tumors in the current study. Amongst these, 72.2% cases constituted mucinous borderline tumors and 22.2% cases were serous borderline tumors. A single case (5.5%) of seromucinous borderline tumor was found. These results were comparable to Danish et al (2012) who found 3.3% borderline tumors among all ovarian tumors and Sarkar et al (2015) reported 5.88% among all epithelial ovarian tumors. In contrary, an Egyptian study by Mostafa et al (2015) observed 12.9% Borderline tumors. The low percentage of borderline tumors in our population may be due to the late presentation of the disease because this is a nonsymptomatic disease in early stages.

In the current study borderline ovarian tumors were commonly seen in the 4th decade of life with 37 years mean age. Much higher mean age of presentation is observed by Sarkar et al (2015) who reported 43 years of presentation in his study.

Total number of malignant epithelial ovarian tumor cases was 84 which was 31.2% among all surface epithelial tumors and 4.1% of all malignant cases diagnosed during the above mentioned period. This figure was almost identical to a study conducted in Shaukat Khanum Memorial Cancer Hospital and Research Center (SKMCH & RC) Lahore by Bader (2015) and Bhurgri et al (2011) who found 3.9% and 4.0% respectively.

Serous cystadenocarcinoma was the commonest among all surface epithelial ovarian carcinomas, constituting

51%. Mucinous cystadenocarcinomas (23.8%) were the second most prevalent type of tumor, Endometrioid adenocarcinoma (10.71%) was the 3rd most commonly observed tumor. While, cases of poorly differentiated (7.1%), Clear cell carcinoma, undifferentiated tumors (2.38% each), Mixed müllerian carcinoma (1.19%), and Signet ring adenocarcinoma (1.19%) were also seen. These numbers correspond to Khan and Sultana (2010) who found 54% cases of serous cystadenocarcinoma and 22% mucinous cystadenocarcinoma and 10.6% cases of Endometrioid adenocarcinoma in their studies. This observation was almost in accordance to the results of a Korean study by Jung et al (2013) who described serous cystadenocarcinoma as the most common histological subtype accounting for 40.5%. The second most common epithelial origin malignancy was Mucinous cystadenocarcinoma (17.78%), 16.88% of Endometrial carcinoma, 18.33% Clear cell carcinoma, 1.88% Mixed Müllerian tumors and 0.91% undifferentiated carcinoma.

In an Indian study by Saini et al (2016) Serous cystadenocarcinoma (49.69%) was the commonest and endometrial adenocarcinomas 19.1% were found to be the second most common epithelial ovarian malignancy, Mucinous cystadenocarcinoma 10.42% and Clear cell 4.29%. The reasons for the slightly low percentage could be due to the environmental and genetic factors, keeping in view that cousin marriages are not seen in Indian culture.

According to Kurman et al (2011) WHO Classification of ovarian tumors, Mixed Müllerian tumors are included in Epithelial ovarian cancers and are composed of ovarian epithelial component and mesenchymal component comprising of skeletal muscle cartilage or bone.

The mean age for presentation of ovarian epithelial carcinoma was 44 years in this study and observed to be more common in the 5th decade of life corresponding to Leide et al (2002) who reported 46.6 years mean age. Jamal et al (2006) reported 46.5 years mean age of ovarian cancers in specimens received in Armed Forces Institute of Pathology. These results were also closer to the observed age of Bhurgri et al (2011) giving 45 years, mean age and 45.8 year according to Sharma et al (2014).

In contrast Khan and Sultana (2010) reported 51 years and Saini et al (2016) reported 55 years of mean age in their respective studies.

An International study by Feltmate et al (2014) described peak age of 75 to 79 years ranging from 50 to 75 years. Another study by Doufeks and Olatin (2014) described 63 years mean age and a lower incidence in the women under the age of fifty in the United Kingdom. Similar study also focused on the environmental and genetic factors as a possible reason for a decrease percentage of these tumors in Western countries. According to Mostafa et al (2015), higher

percentage of positive family history of ovarian malignancies is the major cause of increased incidence in early age in Pakistan.

CONCLUSION

The current study concluded that epithelial ovarian tumors are more common in our population. Borderline tumors were observed in younger age patients, mostly below forty years of age. The malignant tumors were more prevalent in 5th and 6th decades of life.

Author's Contribution:

Concept & Design of Study:	Shaista Gul
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Revisiting Critically:	Shaista Gul, Syed Muhammad Ishaque
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Dry Eye Disorder in Adult Patients Having Hyperthyroidism

Dry Eye with
Hyperthyroidism

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ABSTRACT

Objective: The aim of this study was to note the frequency of dry eye disorder in adult patients having hyperthyroidism.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Ophthalmology of Bahawal Victoria Hospital, Quaid-e-Azam Medical College, Bahawalpur from March 2016 to September 2016.

Materials and Methods: A total of 60 patients, aged 18 to 60 years, with hyperthyroidism were enrolled in this study. Fluorescein strips along with slit lamp and pen torch were used for the evaluation of dry eye disorder. The dry eye was further graded according to the severity level 1, 2, 3 and 4 with help of history, clinical findings and schirmer test.

Results: Amongst a total of 60 patients, 22 (36.7%) were male and 38 (63.3%) female. Overall mean age was noted to be 39.53 years with a standard deviation of 6.9 years and most of the patients, 28 (46.7%) were between 36-50 years. Overall out of 60 patients, dry eye disorder was found to be in 50 (83.3%) cases. When patients having dry eye disorder were compared with normal eyes, except duration of hyperthyroidism as more than 10 years (p value = 0.021), no significant difference was found with regards to gender (p value = 0.632), age (p value = 0.459), area of residence (p value = 0.624) or history of smoking (p value = 0.275).

Conclusion: Frequency of dry eye disorder in adult patients having hyperthyroidism was noted as high. Duration of hyperthyroidism seemed to promote dry eye disorder.

Key Words: Hyperthyroidism, tear break-up time, dry eye, schirmer test.

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INTRODUCTION

Tear film is known to be a layer that is responsible for nourishment, lubrications and protection of eye's external surface. One of the basic functions related to tear film is that it plays an important role in avoidance of dry eye symptoms.¹ Complete structure of ocular tear film is not fully understood and is described as complex. Tear film is formed of 3 layers. Mucin layer that is formed by specialized conjunctival and epithelial cells, and is connected with the corneal epithelium.² An aqueous layer that is formed by the main lacrimal gland and its accessories while its outer layer is formed of polar and non polar lipids derived from meibomian glands. The intact outer lipid layer stabilizes the tear film and avoids the aqueous layer to evaporate.

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Tear film's last outer layer is a lipid layer that is imperative for the stability. Time taken by tear film to get back to stability is gauged by the break-up of tear film right before and after the blink.³

Thyroid eye disease (TED) is known to be an autoimmune disorder that poses an important clinical as well as therapeutic challenge.⁵ TED has been estimated to occur in about half of the individuals having Graves disease.⁶ TED has also been observed with or without the presence of hyperthyroidism.⁷ Solid association between tear spread time and hyperthyroidism have been discussed in the past.⁸ It has been observed that thickness and timing related to tear film is dependent upon hyperthyroidism.⁹ Thyroid gland weighs about 10-20g when developed fully while thyroid arteries and a tiny artery known as thyroid ima are responsible for its blood supply.⁸ Thyroxine as T4 forms the major chunk of thyroid secretions as hormones from thyroid glands whereas other important hormone released by thyroid gland is T3. The thyroid gland is modulated with the assistance of thyroid axis of hypothalamus pituitary gland. Thyroid hormone binding globulin (TBG) is the main carrier for T4 and T3 while pre albumin and albumin are known to be attached with thyroxine.¹⁰

Hyperthyroidism is a condition where thyroid gland is producing too much thyroxine while it can fasten metabolism that is found to manifest weight loss as well as raising heartbeat, and causing anxiety and

sweating.¹¹ Clinical hyperthyroidism has been estimated to have an incidence of 0.5 to 2% amongst female while 1% amongst male. Subclinical hyperthyroidism has been accounted to affect about 3 to 14% of females while its prevalence in male has been noted as around 7%. Hyperthyroidism has been noted to occur more in female gender, increasing age as well as positive family history has also been labeled to be associated with it. The normal value of T3 is taken as 75 to 200 ng/dl while TSH 3 to 5.0 U/ml and T4 as 0.9 to 2.8 ng/dl.^{8,12} Patients with systemic disorders are commonly found to have dry eye while ocular changes along with symptoms like irritation, pain and burning sensations are frequent in these patients.¹³ Disorders related to thyroid glands have been recognized to affect normal eye functions. Hyperthyroidism has been found to affect eyes and by decreasing normal tear break-up time (TBUT), it is thought to contribute to dryness of eye. Manufacturing of thyroxine is related to thyroid associated orbitopathy (TAO) which is usually depicted in Graves Thyrotoxicosis. Hyperthyroidism is detected quite early along with sign and symptoms related to graves disease.¹⁴ Not much work has been done to note the magnitude of dry eye disorder in patients suffering with hyperthyroidism while no work exist in our local population so this study was aimed to note the frequency of dry eye disorder in adult patients having hyperthyroidism.

MATERIALS AND METHODS

A total of 60 patients, aged 18 to 60 years, with hyperthyroidism were enrolled in this cross-sectional study, done at Department of Ophthalmology of Bahawal Victoria Hospital, Quaid e Azam Medical College, from March 2016 to September 2016. Patients having any autoimmune disease or other associated systemic or chronic disease were excluded from the current study.

Informed consent was taken from all the patients while approval from institutional Ethical and Research Committee was also sought. Fluorescein strips along with slit lamp and pen torch were used for the evaluation of dry eye disorder. Tear film break up time (TFBUT) was recorded in all the study participants. TFBUT is the interval between the last blink and the appearance of the 1st randomly distributed dry spot. TBUT of less than 10 seconds was taken as abnormal. The dry eye was further graded according to the level 1, 2, 3 and 4 with help of history, clinical findings and schirmer test.⁸

Demographic information like age, gender, area of residence, history of smoking, duration of hyperthyroidism and presence of dry eye were recorded on a predesigned proforma. Mean and standard deviation were calculated for quantitative variables like age and duration of hyperthyroidism while frequencies and percentages were calculated for qualitative

variables like gender, history of smoking and presence of dry eye disorder. Independent sample t test was applied to compare the means while chi square test was applied to qualitative variables considering p value as less than or equal to 0.05 as significant.

RESULTS

Amongst a total of 60 patients, 22 (36.7%) were male and 38 (63.3%) female. The male to female ratio turned out to be 1:1.72. There were 14 (23.3%) patients between 18-35 years, 28 (46.7%) between 36-50 years and 18 (30.0%) between 51-60 years. Overall mean age was noted to be 39.53 years with a standard deviation of 6.9 years. There were 40 (80.0%) patients who belonged to rural areas while remaining 20 (40.0%) were from urban areas.

Overall out of 60 patients, dry eye disorder was found to be in 50 (83.3%) cases (Figure No.1). In terms of right eye, 10 (16.7%) patients were found to have normal eye while 8 (13.3%) were having dry eye severity level 1, 25 (41.7%) dry eye severity level 2, 13 (21.7%) dry eye severity level 3 and 4 (6.7%) had dry eye severity level 4. Similar findings were noted in the left eye as well (Table No.1).

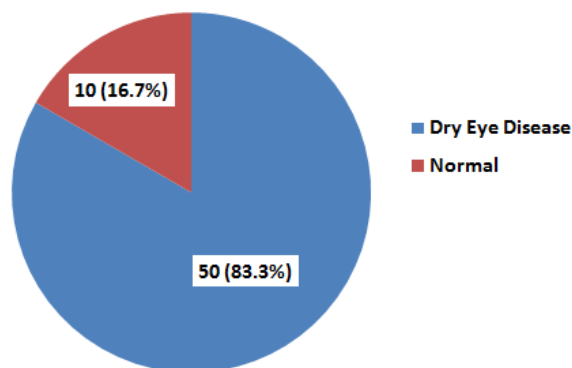


Figure No.1: Distribution of Dry Eye Disorder Amongst Patients with Hyperthyroidism (n=60)

Table No.1: Severity of Dry Eye Amongst the Study Cases

Dry Eye Severity	Right Eye (n=60)	Left Eye (n=60)
Normal	10 (16.7%)	10 (16.7%)
Severity Level 1	8 (13.3%)	8 (13.3%)
Severity Level 2	25 (41.7%)	25 (41.7%)
Severity Level 3	13 (21.7%)	13 (21.7%)
Severity Level 4	4 (6.7%)	4 (6.7%)

When patients having dry eye disorder were compared with normal eyes, no significant difference was found with regards to gender (p value = 0.632), age (p value = 0.459), area of residence (p value = 0.624) or history of smoking (p value = 0.275) but duration of hyperthyroidism as more than or equal to 10 years was turned out to be a significant factor (p value = 0.021) as

30 (60.0%) of the cases with more than 10 years of disease duration of hyperthyroidism were having dry eyes in comparison to only 2 (20.0%) with normal eyes (Table No.2).

Table No.2: Relation of Dry Eye Disorder with study variables Amongst Study Cases

Study Variable	Normal (n=10)	Dry Eye Disorder (n=50)	P Value
Gender			
Male	3 (30.0%)	19 (38.0%)	0.632
Female	7 (70.0%)	31 (62.0%)	
Age (Mean $\pm$ SD)	38.07 $\pm$ 7.4	39.85 $\pm$ 6.8	0.459
Area of Residence			
Urban	4 (40.0%)	16 (32.0%)	0.624
Rural	6 (60.0%)	34 (68.0%)	
History of Smoking			
Yes	1 (10.0%)	13 (26.0%)	0.275
No	9 (90.0%)	37 (74.0%)	
Duration of Hyperthyroidism			
≥ 10 years	2 (20.0%)	30 (60.0%)	0.021
< 10 years	8 (80.0%)	20 (40.0%)	

DISCUSSION

Compromised functions related to tear film amongst patients of hyperthyroidism has been a topic of interest in the recent years. It has also been noted that patients having hyperthyroidism are found to possess less TBUT.¹⁵ Schirmer value < 6 mm along with dry eye disorder has been found to be commonly prevalent in patients with hyperthyroidism.¹⁶ Bulging of eyes is another harmful characteristic along with enlarged width of palpebral fissure that has been found to result in evaporation of the tear film and contributes to osmolarity increase of tear film. Decrease in TBUT is thought to be because of hyperosmolarity due to bulging of the eyes.¹⁷ In individuals with hyperthyroidism who have less TBUP and found with severe dry eye disorder, thyroxine hormone has been found to have better effects seeking normalization of TBUT.¹⁸ In such patients, artificial tears and environmental modifications are endorsed by researchers around the world.¹⁹

In the current study, 22 (36.7%) patients were male and 38 (63.3%) female. The male to female ratio turned out to be 1:1.72. There were 14 (23.3%) patients between 18-35 years, 28 (46.7%) between 36-50 years and 18 (30.0%) between 51-60 years. Our findings were pretty consistent to what previous literature has established as hyperthyroidism is found to occur more in female gender and increasing age have also been labeled to be associated with it.^{8,12}

In the present study, we noted that overall, 42 (70.0%) patients were having moderate to severely decreased

TBUT. In 2018, Zubair M et al from Department of Ophthalmology, The University of Lahore Teaching Hospital, Lahore⁸ noted similar results where they found that majority of the patients with hyperthyroidism were suffering with severely decreased TBUT.

It has been studied in the past that in patients having hyperthyroidism, decrease in TBUT contributes and increases to dryness of eyes. In patients having hyperthyroidism, conjunctival tissues biopsy have been found to prove that majority of the individuals were having orbitopathy.²⁰ A study assessing the tear film dynamics, done by Tomlinson A et al, found that decrease in TBUT was noted in ptosis patients having myasthenia graves which means that the dry eye in those patients having hyperthyroidism does not result only because of bulging of eyes.²¹

Cigarette smoking has been found associated with dry eye disorder.^{22,23} We could not note any significant association of history of smoking with dry eye disorder which may be attributed to overall small sample size and less number of males in the present work. In the current study, duration of hyperthyroidism as more than or equal to 10 years was turned out to be a significant factor (p value = 0.021) as 30 (60.0%) of the cases with more than 10 years of disease duration of hyperthyroidism were having dry eyes in comparison to only 2 (20.0%) with normal eyes. TED has been observed with the presence of hyperthyroidism.⁷ Solid association between tear spread time and hyperthyroidism have been discussed in the past and more the duration of hyperthyroidism, further it may impact the overall functions of the eyes.⁸

In Pakistan, not much work has been done to estimate the numbers affected with thyroid eye disorders but in UK,²⁴ it was estimated that around 400,000 persons have eye disorders related to thyroid function abnormalities. David MC and colleagues²⁵ noted that thyroid eye disorder related to Graves disorder with lesser TBUT and expressed thyroid eye disorder as an enormously horrible and disturbing state. In light of the results of this study, more studies having bigger sample size involving multiple population sets should be planned to estimate the number of patients with hyperthyroidism and suffering with dry eye disorder.

CONCLUSION

Frequency of dry eye disorder in adult patients having hyperthyroidism was noted as high. Duration of hyperthyroidism seemed to promote dry eye disorder. Special attention should be given to those patients who present with dry eye disorder having hyperthyroidism.

Author's Contribution:

Concept & Design of Study: Nadia Nazir
 Drafting: Zulfiqar Ali
 Data Analysis: Ejaz Latif

Revisiting Critically: Nadia Nazir, Zulfiqar Ali
 Final Approval of version: Nadia Nazir

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

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Recurrence Rate of Pterygium Between Amniotic Membrane versus Stem Cell Graft following Pterygium Excision

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Recurrence of Pterygium after different treatment modality

ABSTRACT

Objective: To find out and compare the recurrence rate of pterygium using amniotic membrane versus stem cell graft techniques following the excision of pterygium.

Study Design: A single open label, randomized control trial.

Place and Duration of the Study: This study was conducted at the Department of Ophthalmology, Bahawal Victoria Hospital, Bahawalpur, from July 2016 to June 2017.

Materials and Methods: We enrolled a total of 80 patients of both gender, aged more than 18 years, having grade 2-3 of pterygium causing discomfort, impairment of vision or disfigurement, undergoing pterygium excision. Group A contained 40 patients and pterygium excision was done using amniotic membrane grafting (AMG) whereas Group B had 40 patients where stem cell graft (SCG) was performed. Mean and standard deviations were calculated for continuous variables while frequency and percentages were estimated for quantitative variables. Chi square test was applied and p value ≤ 0.05 was considered as significant.

Results: There were 44 (55.0%) male and 36 (45.0%) female. Mean age was recorded as 40.73 years with a standard deviation of 8.6 years. In terms of grafting edema, 1 (2.5%) patient was observed in Group A while there were 5 (12.5%) patients having grafting edema in Group B (p value = 0.090). Hemorrhage was reported in 5 (12.5%) patients of Group A as compared to 2 (5.0%) in Group B (p value = 0.235). Pterygium recurrence was noted in 6 (15.0%) patients of Group A in comparison to 2 (5.0%) in Group B (p value = 0.136).

Conclusion: Although in terms of complications and recurrence, no major statistical difference was found in between the two studied group, SCG was associated with less recurrence rate following pterygium excision.

Key Words: Pterygium excision, amniotic membrane graft, stem cell graft, recurrence

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INTRODUCTION

Pterygium is described to be a fibrovascular conjunctival tissue that is known to invade cornea.¹ Shape of pterygium is explained as 3 sided while it is more frequently lie nasally in comparison to temporally.² Ocular irritation, hyperemia as well as loss of vision are the commonest form of symptoms accompanying pterygium.³ It has been found that chronic inflammatory cells are present in pterygium samples which could mean that chronic inflammation may be considered as the contributor to pterygium occurrence.^{4,5}

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There seems to be some gender peculiarity in terms of pterygium as it is 2 times more common in male in comparison to female and increasing age has also been found with increase in its incidence.^{4,6} As pterygium can cause visual impairment, surgical methods have been found to be the mainstay of management since 1940.⁷ It has also been document widely that pterygium procedure is associated with high rates of recurrence.⁸ Inflammation can further invoke the activation of the reminder of pterygial body fibroblasts and could go on to become the invasive phenotype of this disease.⁹⁻¹¹

Bare sclera technique is considered to be the primary technique for the management of pterygium that has been linked with a recurrence rate as high as 37 to 90% so different kind of surgical methods are in practice currently.¹² As many treatment modalities exist for the management of pterygium¹³⁻¹⁶ but data is scarce specially in our setting regarding safety and efficacy of the procedures adopted. We planned this study to find out and compare the recurrence rate of pterygium using amniotic membrane versus stem cell graft techniques following the excision of pterygium.

MATERIALS AND METHODS

This Single open label, randomized control trial was conducted at the Department of Ophthalmology, Bahawal Victoria Hospital, Bahawalpur, from July 2016 to June 2017. Approval from the institute's ethical and research committee was taken for this study. Informed consent was sought from all the study participants.

By adopting non probability consecutive sampling technique, we enrolled a total of 80 patients of both gender, aged more than 18 years, having grade 2-3 of pterygium causing discomfort, impairment of vision or disfigurement, undergoing pterygium excision.¹⁷ Patients with diabetes mellitus and corneal diseases were excluded. Patients were divided in to 2 groups, Group A contained 40 patients and pterygium excision was done using AMG whereas Group B had 40 patients where SCG was performed.

Randomization was done by using paper slips lottery method and being a single open label trial, surgeon knew what type of procedure was going to be conducted amongst the study population. Sub-conjunctival anesthesia was used for both the procedures under study. Half cc injection xylocaine with 1:100,000 adrenaline was administered into lesion's head. The pterygium mass and overlying conjunctiva was excised.¹⁷

As AMG was performed in Group A, the membrane from human placenta was taken after hepatitis B, hepatitis C as well as HIV screening. It was then drenched in gentamycin and fluconazole for about an hour. Bare sclera with calipers was measured and a graft of the similar size was sutured with 10/0 nylon. In Group B, after excision of the pterygium, bare area was measured with calipers. Conjunctival stem cell autograft were acquired from superior limbus and then stitched to the bare area at the limbus.¹⁷

Topical steroid along with antibiotic drops were prescribed while eye pad was applied for duration of 72 hours. Drops were administered 4 times daily for duration of 1 month and then tapered off. In the post operative period, follow up was done up to 6-months, to see pterygium recurrence. Pterygium recurrence was defined as fibrovascular re-growth crossing limbus by 1 millimeter or more.

All the demographic and clinical data was recorded on a predesigned proforma. SPSS version 21 was used for data analysis. Mean and standard deviations were calculated for quantitative variables while frequency and percentages were estimated for qualitative variables like gender level-2 and level-3 pterygium, complications and recurrence of pterygium. Chi square test was applied to qualitative variables while independent sample t test was applied to quantitative variables and p value ≤ 0.05 was considered as significant.

RESULTS

Out of a total of 80 patients, there were 44 (55.0%) male and 36 (45.0%) female. Mean age was recorded as 40.73 years with a standard deviation of 8.6 years. Amongst all patients considered for this study, pterygium invasion outside limbus was ranged from 2 to 4mm. Thirty nine (48.8%) patients belonged to pterygium grade 2 while 41 (51.2%) were pterygium grade 3. The characteristics of two groups are compared in Table No.1.

Corneal epithelial defects were noted in almost every patient who took about a week to heal following operation. No corneal staining related to fluorescein was noted in any of the patients. In terms of grafting edema, 1 (2.5%) patient was observed in Group A while there were 5 (12.5%) patients having grafting edema in Group B (p value = 0.090). Hemorrhage was reported in 5 (12.5%) patients of Group A as compared to 2 (5.0%) in Group B (p value = 0.235). Pterygium recurrence was noted in 6 (15.0%) patients of Group A in comparison to 2 (5.0%) in Group B (p value = 0.136) as shown in Table No.2.

Table No.1: Characteristics of Cases with regards to Studied Groups

Characteristics	Group A (n=40)	Group B (n=40)	P Value
Gender			
Male	24 (60.0%)	20 (50.0%)	0.369
Female	16 (40.0%)	20 (50.0%)	
Age in years (mean±SD)	38.42±6.8	41.27±7.4	0.077
Pterygium Grading			
Grade 2	18 (45.0%)	21 (52.5%)	0.502
Grade 3	22 (55.0%)	19 (47.5%)	

Table No.2: Post-operative complications

Post-operative complications	Group A (n=40)	Group B (n=40)	P Value
Pterygium Recurrence	6 (15.0%)	2 (5.0%)	0.136
Grafting Edema	1 (2.5%)	5 (12.5%)	0.090
Hemorrhage	5 (12.5%)	2 (5.0%)	0.235

DISCUSSION

It is an established fact that pterygium is a degenerative and multifactorial entity. Historically, pterygium excision has been accompanied high rates of complication while its recurrence is more dangerous in nature. Trauma along with underlying inflammatory processes have been thought to be the underlying causes of pterygium recurrence.^{18,19} In the present

study, out of a total of 80 patients, there were 44 (55.0%) male and 36 (45.0%) female. Mean age was recorded as 40.73 years with a standard deviation of 8.6 years. Thirty nine (48.8%) patients belonged to pterygium grade 2 while 41 (51.2%) were pterygium grade 3. Corneal epithelial defects were noted in almost every patient which took about a week to heal following operation. No corneal staining related to fluorescein was noted in any of the patients. In terms of grafting edema, 1 (2.5%) patient was observed in Group A while there were 5 (12.5%) patients having grafting edema in Group B (p value = 0.090). Hemorrhage was reported in 5 (12.5%) patients of Group A as compared to 2 (5.0%) in Group B (p value = 0.235). Pterygium recurrence was noted in 6 (15.0%) patients of Group A in comparison to 2 (5.0%) in Group B (p value = 0.136). Our results are very well aligned with other local data published recently¹⁷ where a total of 60 cases with pterygium were selected. Mean of the patients was 42 years while majority of the patients (63.3%) were male. In 30 patients, AMG was done and other 30 were performed SCG. The recurrence rate in that study was noted to be 10% following AMG while only 3% in patients with SCG. The current work is also consistent with other studies published previously.¹⁸⁻²⁰

A study done by Nakamura and colleagues²¹ to find out AMG for the treatment of pterygium noted no recurrence in comparison to 15% recurrence rate which we found with AMG. In the present study, only few patients were reported with complications while both the procedures were associated with an overall rate of complications. Our results are also consistent to what others have found earlier.²²

In comparison to bare sclera method, conjunctival autografts considered to be more demanding technically while competency as well as technique and experience of surgeon performing the procedure are some of the other factors influencing the outcome but conjunctival grafts are known to be associated with better outcomes.²³⁻²⁵ With stem cell graft, we noted a recurrence rate of pterygium as 5% which is very identical to the work of Mahdy MA et al²⁶ who got 4.7% recurrence of pterygium following a SCG with pterygium excision.

Overall, we noted less recurrence rate of pterygium with SCG in comparison to AMG but the difference between the two could not achieve statistical significance while other complications were also comparable between the two groups.

CONCLUSION

Although in terms of complications and recurrence, no major statistical difference was found in between the two studied group, stem cell graft was associated with less recurrence rate following pterygium excision.

Author's Contribution:

Concept & Design of Study:	Zulfiqar Ali
Drafting:	Nadia Nazir
Data Analysis:	Tariq Mehmood Arain
Revisiting Critically:	Zulfiqar Ali, Nadia Nazir
Final Approval of version:	Zulfiqar Ali

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To Evaluate the Frequency, Gender and Age-Related Distribution of Papillary Urothelial Carcinoma

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ABSTRACT

Objective: To evaluate the frequency, gender and age-related distribution of papillary urothelial carcinoma.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Pathology, Basic Medical Science Institutes, Jinnah Postgraduates Medical Center Karachi from January 2009 to December 2016.

Materials and Methods: Total numbers of 247 cases of papillary urothelial carcinoma were reviewed and morphological diagnosis done on H&E; information regarding gender and age were recorded from archives. The data analyzed by SPSS version 21.

Results: Frequency of papillary urothelial carcinoma was 6.8%. Out of 247 cases 85.42% in male and 14.57% in female with male: female ratio of 5.8:1. Relatively more common in 5th & 6th decade's i-e 59% as compared to other age groups. Mean and median age of papillary urothelial carcinoma was 57.62 and 65 years noted.

Conclusion: Frequency of urothelial carcinoma was 6.8%. Amongst 247 cases 211 were in male gender and 36 cases in female sex with M: F ratio of 5.8:1. While according to age 85, 60, 57, 24, 17 and 04 cases were in 5th, 6th, 4th, > 7th, 3rd and less than 3rd decades, minimum and maximum age was 22 and 90 years respectively.

Key Words: papillary urothelial carcinoma, Frequency, Age, Decades, Gender, Male, Female

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INTRODUCTION

The urinary bladder malignancy has the highest ratio of fatality in urogenital cancer¹. Globally it is the 2nd commonest urogenital neoplasm, showing major cause of morbidity and mortality². Western countries data shows that it was the 4th and 8th most common malignancy in male and female gender respectively^{3,4}. Worldwide incidence of urinary malignancy is more common in male than female sex, with higher male to female ratio^{5,6}.

In US up to 71,000 new cancer cases with 14,000 deaths were recorded in 2009. The incidences were 19.5 with 7.9 mortality per 1, 00,000 populations in European countries. Iranian data of 2008 showed that urinary bladder neoplasm was 13.03 and 3.32 per 1, 00,000 populations in male and female gender⁷.

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Globally urinary bladder neoplasm were higher in Western Europe, North America, Australia, Netherland, Belgium, Poland, Iraq, Egypt and lower in Far Eastern and Asian countries^{8,5,7,9,10}. Approximately urinary bladder malignancies are considered 7% and 2% of new malignant lesion in male and female cancers respectively⁷.

Shoukat Khanum Collective Cancer Registry¹¹ 1994-2013 data shows that urinary bladder cancer was the 10th with 3.05% common malignancy in both sex of adult age and 7th with 5.42% in adult male gender. Urinary bladder neoplasm's are rare before 40 years and commonly presentation occurs above 70 years of age⁵.

Risk factors for urinary bladder malignancy were tobacco smoking accounts for 48% to 60% and 31% to 32% causes new cases in male and female gender respectively. Other risk factors are male gender, older age, naswar, aromatic amines, pelvic irradiation for other malignancies, and aromatic amines, pelvic irradiation for other malignancies, and physical trauma by stones, chronic infections either by instrumentation, schistosomiasis or human papilloma viruses, high quantity of coffee and alcohol consumption^{12,8,5,7}.

Occupational exposure that is rubber, dyes, carpenters, varnishes, petroleum worker and hair dresser were reported as a precursor of urinary bladder cancer¹³⁻¹⁶.

Whereas high quantity of fluid intake, fruits, fiber diet, and vegetable uses are associated with a decrease incidence of urinary bladder neoplasm's^{4,17}.

MATERIALS AND METHODS

The study was performed at the department of Pathology Basic Medical Sciences Institute, Jinnah Postgraduate Medical Center Karachi from 1st January 2009 to 31st December 2016. A total of 247 of Papillary Urothelial Carcinoma cases were included in this study. These patients were operated at Urology department of JPMC Karachi.

All specimens in the form of TURBT and Cystectomy were included, whereas poorly fixed and inadequate tissue, bladder tumor other than Papillary Urothelial Carcinoma and metastatic tumors were excluded. Formalin fixed, paraffin embedded blocks, surgical pathology, clinical records and Hematoxylin & Eosin slides were used.

The relevant clinical information and others data were collected. Section were taken and stained with H&E. All slides were studied under light microscope using scanner (4x), low power (10x) followed by high power (40x). The data was analyzed by using Statistical Package for Social Sciences (SPSS) version 21.

RESULTS

Table No 1; Frequency of papillary urothelial carcinoma between 2009 to 2016

Years	Total no of malignancy from all sites	Number of urothelial carcinoma	Percentage %
2009	590	27	4.57
2010	648	36	5.55
2011	550	32	5.81
2012	510	25	4.90
2013	428	35	8.17
2014	323	26	8.04
2015	272	38	13.97
2016	304	28	9.21
Total	3625	247	6.81

Table; 1 showed total numbers of malignant biopsies from all sites received in the department of pathology during the mentioned time period. Total malignant lesions were 3625 and the urothelial carcinomas were 247 cases. Frequency of urothelial carcinoma was 6.81% over a period of eight years.

Table No.2: Distribution of papillary urothelial carcinoma according to gender (n=247)

Gender	Number of urothelial carcinoma	Percentage %	M:F
Male	211	85.42	5.8:1
Female	36	14.57	
Total	247	100	

Table 2, elaborate the distribution of papillary urothelial carcinomas according to gender. Out of 247 cases, male were 85.42% & 14.57% cases were of female sex.

This data showed male: female ratio of 5.8:1.

Table No.3: Distribution of papillary urothelial carcinoma according to various age groups (n= 247)

Age [years]	Number of urothelial carcinoma	Percentage	Cumulative index
20 to 30	04	01.61	04
31 to 40	17	06.88	21
41 to 50	57	23.07	78
51 to 60	85	34.41	163
61 to 70	60	24.29	223
More than 71	24	09.71	247
Total	247	100	

Table 3; demonstrates the distribution of malignant urothelial lesions from 2009 to 2016 in various age groups. Amongst 247 cases, majority i-e 85 (34.41%) cases were found between 51 to 60 years of ages, followed by 60 (24.29%) & 57 (23.07%) cases in 61 to 70 & 41 to 50 years respectively.

The mean age was 57.62 years, median age was 65 years. The minimum age was 22 years while maximum age was 90 years noted.

DISCUSSION

Our eight years data of PUC diagnosed on H&E showed the frequency of 6.8%. This figure was comparable to the studies who reported 7.6%, 5.4%, 5.43% and 4.6% by AFIP Cancer Registry (1992-2001), Khan et al (1997)¹⁸, Shaukat Khanum Collective Registry¹¹ (1994-2013) and American Cancer Registry (2007-2012) respectively. These variations could be due to sample size difference and time duration of sample collection.

An interesting observation was a progressively increased frequency every year. This could be due to the reason that the low socioeconomic community that reports to our center is becoming more aware of health issues.

In present study of 247 cases of PUC showed male predominance i-e 85.5% cases & 14.5% cases in female gender, with male: female ratio of 5.8:1. Globally various male: female ratio were noted i-e 1.1:1 in Eastern Africa, 2.1:1 in South Africa, 5:1 in North Africa and 5.1:1 in Southern Europe reported by Salehi et al (2011)⁷, Scelo (2007), Yavari (2009), Pakistani study of Badar et al (2009) 5:1²⁰, (Puente et al 2003) noted male: female ratio of 4:1 in United State, 6.7:1 in Spain and 7:1 in Italy.

Our figures were comparable to Indian study by Biswas et al (2013)⁴ who reported 86% of male, 14 % of female sex and male: female ratio of 6:1. Korean study

by Choi et al (2007)¹ noted male: female ratio of 6.5:1. Japanese study by Liu et al (2013)² showed 77% & 23% in male and female gender. Chinese study by Zhang et al (2012)¹⁹ showed male: female ratio of 5:1. A Pakistani study by Mansoor et al (2011)³ reported 88% & 22% in male and female sex with male: female ratio of 8:1. These variations could be due to less females reporting to hospital, ignorance, illiteracy and preference to male gender for diagnosis and treatment in our population.

In this study PUC were presented at various age ranges i-e 22 to 90 years which were the minimum and maximum age of presentation. The median age was 65 years and mean age was 57.62 years noted. The similarity was observed in Korean study by Choi et al (2007)¹ who reported the age ranges from 26 to 87 years with the mean age of 62 years. Indian study by Biswas et al (2013)⁴ reported median age of 65-70 years. Iranian study by Salehi et al (2011)⁷ showed mean age was 65 years. Japanese study by Liu et al (2013)² showed age ranges from 18 to 88 years with mean age of 61.4 years. Pakistani study by Mansoor et al (2011)³ was claimed that the median age was 62 years.

In our study the majority of PUC cases were presented in 51 to 60 years of age i-e 34.4% followed by 24.3% cases in 61 to 70 years of age, collectively 58.7% cases in 51 to 70 years of age. These were comparable with the Chinese study by Zhang et al (2012)¹⁹ showed 72.2% cases in >55 years of age while 27.8% cases in <55 years of age. Indian study by Biswas et al (2013)⁴ who reported 63% cases of PUC were observed in 5th to 7th decades of life. These variations could be due to environmental and genetics' factors.

In present study the PUC were presented in various age groups, mostly of cases in chronological sequences 34.4%, 24.3 & 23.1% were observed in 51 to 60, 61 to 70 & 41 to 50 years of ages and collectively 82% cases were found from 5th to 7th decades of life. These were comparable with Indian study by Biswas et al (2013)⁴ who reported 35.2%, 72.2% & 18.2% in age groups 60 to 69, 50 to 59 & 40 to 49 years and collectively 81% cases were reported in 4th to 7th decades of life. Chinese study by Zhang et al (2012)¹⁹ from 658 cases of PUC showed that majority of them were noted between 5th to 7th decades of life. Iranian study by Salehi et al (2011)⁷ reported that majority of patients with PUC presented in 5th to 7th decades of life.

Tripathi et al (2002)¹² noted that the relative risks of PUC were increased from 1.0 to 1.65 in 5th and 6th decades of life.

According to age our study showed that the ratio of PUC was gradually raised as age group increased in year's i-e 06.88% in 3rd decades, 23% in 4th decades and in 5th decades 34.5% cases.

Our observation also showed that the ratio of PUC was decreased as age advanced i-e 34.5% in 5th, 24.3 % in 6th & 09.7% cases in 7th and above decades. These figures were comparable with United State SEER²¹⁻²² study by Lynch (1998-2000) showed 14% cases in 5th, 26.8% in 6th & 32.6% cases in 7th decades of life. Kumar (2012)²³ also reported that 38.3% in 6th, 20% in 7th & 11.6% in 8th decades of life. Altinari (2011)²⁴ who showed 89.5% cases in 6th decades and 86% cases 7th decade in of life. These variations may be due to difference in sample size.

CONCLUSION

During eight years period 3625 malignant cases from all sites were recorded out of which 247 cases were registered as PUC and the frequency was 6.81%. More common in male with the rate of 85.5% and 14.5% cases in female with male: female ratio of 5.8:1. The most common age group was 5th to 6th decade's i-e 59% as compared to other age groups.

Wide scale awareness through health education to the community, patients, physicians and counseling programs may help to ensure early presentation in the initial stage of the disease, in order to improve clinical outcomes with less morbidity and mortality.

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Outcome of Closure of Transient Ileostomy at Tertiary Care Hospital

Outcome of
Closure of
Transient
Ileostomy

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ABSTRACT

Objective: The purpose of our study is to find out the complications of reversal of ileostomy after interval of 3 to 5 months so that patients be called for ileostomy closure at proper time to benefit them with least complications.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at Surgical Department, PMCH Nawabshah from November 2016 to October 2018.

Materials and Methods: The patients included in this study were of previously operated for multiple diseases in elective as well as in emergency. After passing from 3 to 5 years duration, they were called on in OPD for admission and planned for reversal of ileostomy after getting proper investigations and doing appropriate preoperative preparation. Postoperatively, they were assessed for the outcome of its closure for a week in hospital and later on follow-ups.

Results: total 50 patients were included in this study. 27(54%) were male and 23(46%) were female. They were previously operated for various pathologies such as typhoid ileal perforation, tuberculous strictures, trauma to small or large bowel, sigmoid volvulus, cecal perforation and fecal fistulas. In our study, the complications rate was least as compared to others. Only 4(8%) patients developed fecal fistula, 5(19%) wound infection, 2(4%) intra-abdominal abscess, 1(2%) Subcutaneous hematoma, 3(6%) postoperative diarrhea, 2(4%) urinary retention. No expiry was recorded in our study after reversal of temporary ileostomy.

Conclusion: in summary, it is concluded that in our study the outcome of ileostomy closure was the best due to appropriate timing established for closure, proper end to end anastomosis and prevention of patient from prolonged paralytic ileus.

Key Words: Ileostomy, Cecal perforation, Wound infection, Postoperative Diarrhoea.

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INTRODUCTION

The term "Stoma" is taken from Greek word which means "mouth/opening". It is an artificial opening created into a hollow organ on the surface of body. The formation of stoma is a common surgical procedure in order to reduce the postoperative risk factor. The global literature shows higher morbidity and mortality rates in stoma closure. The first ever stoma in surgical history was made by a French surgeon Piliore in 1776 A.D.^{1,2} In GIT surgery, stomas made are of two types viz ileostomy and colostomy. These are permanent and temporary from either end of the bowel or the side of the bowel.

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Temporary stomas are formed in order to divert the contents prior to obstructed/diseased portion of the gut. This is later on restored in its previous position. The most common temporary stoma formed is the defunctioning ileostomy and closure involves the freeing of all layers of bowel from surrounding structures and anastomosis of proximal and distal limbs is made to restore bowel anatomy. The defect is repaired by closure of musculoaponeurotic layer.³ The reversal of ileostomy is associated with various risk factors including leakage of anastomosis, obstruction, infected wound, wound dehiscence and the appearance of incisional hernia.⁴ The transient ileostomy is done for multiple surgeries with risk of failure of procedures. Though ileostomy cannot prevent leakage itself, a temporary ileostomy can decrease the enhancement of clinical features due to leakage and covert major complications to minor ones treatable conservatively. Temporary ileostomies are reversed after 2 or more months of stoma formation after radical surgery.^{5,6} To maintain ileostomy is a very difficult task. It can cause multiple complications that are wound infection, leakage of anastomosis, necrosis, small bowel obstruction, retraction, incisional hernia, fistula, stenosis, peristomal infection, high output stoma, parastomal hernia, prolapsed, dehydration, electrolyte

imbalance, malnutrition or skin problems in the surroundings of stomas. The surgical complications are paralytic ileus, obstruction and herniation. The common complications are wound infection (9%) and leakage of anastomosis (5%). It enormously affects the daily work of life, quality of life and can also cause the psychological complications like lower self esteem and depression. Patients are advised to visit hospital routinely. These adverse effects can only be prevented to reverse ileostomy early.^{7,8} The rationale of our study is to find out the complications of closure of transient ileostomy.

MATERIALS AND METHODS

This is a cross sectional study of 50 patients done at PMC Hospital Nawabshah from November 2016 to October 2018. The patients, who were included in this study, got admission from outpatient and emergency department of this hospital. The time of ileostomy formation was minimum 2 months to maximum 5 months. They were operated for different diseases including small and large bowel ones. They were investigated for routine tests. Specific radiological investigations like Ultrasound of Abdomen and loop gram was done in order to find out any other pathology and see the patency of the entire gut. After clearance of loopogram, all patients were put on list after their preoperative preparation. They were shifted in Operation Theater. They operated under general anesthesia. Prophylactic antibiotic was given. Small bowel was mobilizes after excision of skin edges. Hand-swen anastomosis was done with Vikryl2/0 with a short small bowel resection. Ileostomy was reversed, drain was kept and wound was closed layer by layer. Patients were assessed for postoperative outcomes.

RESULTS

Total patients included in this study were 50. Out of 50, 27(54%) were male and 23(46%) were female. They were previously operated for different diseases. 19(38%) were operated for typhoid ileal perforation, 10(20%) for Tuberculous ileal perforation and stricture, 7(14%) for traumatic multiple ileal perforations, 8(16%) for traumatic colonic perforations, 3(6%) for sigmoid volvulus, 2(4%) for re-operation after formation of fecal fistula after primary repair of ileal perforation and 1(2%) was of Cecal perforation (Table 1).

All patients were kept NPO for 3 to 5 days and then orally allowed. Following complications were noted postoperatively among our patients. Only 4(8%) patients developed fecal fistula, 5(10%) wound infection, 2(4%) intra-abdominal abscess, 1(2%) Subcutaneous hematoma, 3(6%) postoperative diarrhea, 2(4%) urinary retention. No expiry was recorded in our study after reversal of temporary ileostomy (Table 2).

Table No. 1: Previously Operated For Different Diseases

S.No	Disease	No of Patients	Percentage
1	Typhoid ileal perforation	19	38%
2	Tuberculous ileal stricture and perforation	10	20%
3	Traumatic ileal perforations	7	14%
4	Traumatic colonic perforations	8	16%
5	Sigmoid volvulus	3	6%
6	Cecal perforation	2	4%
7	Fecal fistula	1	2%
Total		50	100%

Table No. 2: Complications

S.No	Complications	No of patients	Percentage
1	Fecal fistula	4	8%
2	Wound infection	2	4%
3	Intra abdominal abscess	2	4%
4	Subcutaneous hematoma	1	2%
5	Postoperative diarrhea	3	6%
6	Paralytic ileus	5	10%
Total		17	34%

DISCUSSION

Transient stoma formation either ileostomy or colostomy is an essential part of surgical practice while performing the small bowel or large bowel emergency as well as elective procedures. Now days it is being used quite common in developing countries. The morbidity closure complication rate ranges from 2.4 to 48.2%.⁹

There are three main techniques by which loop ileostomy can be closed. These are enterostomy suture, resection and hand sewn anastomosis. This closure is associated with incidence of morbidity which varies according to conditions.¹⁰ A literature survey of 20th century showed the morbidity rate of 29.4% whereas in our study it was 34%. Bozzetti et al calculated a literature review of more than three thousand patients. He concluded the morbidity rate of 27.5% that is also very near to our rate of complications.¹¹

Leakage of anastomosis occurs due to multiple risk factors like sex, tumor leakage, irradiation and others also. Therefore it is necessary that timing of stoma closure should be done keeping in view these risk factors. Kaidar-Person et al evaluated 26 studies and found wound infections of 0-18.3% where as in our study it was only 4%. Leakage of anastomosis was 0-8% . similar was also observed in our study.¹²

Perez et al reported that the prevalence of complications commonly depends upon the time interval between ileostomy formation and its closure. He concluded that

the duration should be more than 8.5 weeks postoperatively. Bakx et al suggested closure 8 days postoperatively. Danielsen et al conducted trial study and concluded that safe stoma closure is 8 to 13 days postoperatively. In our study, it is observed that ileostomy closure should be done after 3 to months to get good results.¹³ A study regrets the early closure of ileostomy and concludes that because of risk of development of dense and inflammatory adhesions that were seen at the time of surgical procedure of ileostomy reversal. This study prohibits to close loop ileostomy in short duration. In our study, it is rectified as our ileostomy closure was done from 3rd to 5th months and got good results. In this study, wound infection was found to be 4.2% (1 case). Similar was observed in our study.

The overall complication rate of closure varies from 3% and 38.5% whereas in our study, the rate is 34% only with lowest risk complications. The closure of ileostomy has a low mortality. Some studies suggest reversal as daycase procedure decreasing the reduction in hospital stay and cost of hospitalization.¹⁴ There are certain methods to lessen the rate of complications after ileostomy closure. Distal limb irrigation and purse string skin closure decrease wound related complications. However, conventional linear closure of skin is said to be safe and effective to avoid prolonged healing duration.¹⁵

CONCLUSION

In summary, our study evaluated the outcomes of closure of ileostomy and found that formation of ileostomy and later on its closure within a passage of time is safe, life saving and least complicated procedure in surgical emergency as well as elective practice.

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

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Preoperative Optimization and Outcome of Diabetic Patient Undergoing Major/Minor Surgeries at Tertiary Care Hospital

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ABSTRACT

Objective: The aim of our study is to see the effect of controlled diabetes done preoperatively as well as postoperatively done so that the fear of complications in minds of diabetic patients should be removed.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at Surgical department, PMCH Nawabshah from June 2016 to June 2018.

Materials and Methods: This study included patients suffering from Diabetes Mellitus and also diagnosed diabetes after admission in surgical wards. They were admitted electively through OPD and blood sugar along with HbA1c was obtained in order to commence the treatment of D.M. The patients were shifted from oral anti-hyperglycemic drugs to insulin used subcutaneously or intravenous. Only the patients with controlled diabetes were operated and outcome was assessed.

Results: This is a study of 110 patients. Of 110, 85 (77.27%) were already diagnosed diabetic patients under oral therapy and 25(22.72%) were labeled as diabetic during preoperative preparation of the patients. They were operated for different surgical procedures for multiple elective cases diseases like inguinal hernia, Ventral hernias, Goiter, hemorrhoids, chronic fissure in ano, low type fistula in ano, laparoscopic/open cholecystectomy and for colonic masses. Postoperatively, the blood sugar level of all patients were accurately assessed and monitored and outcomes were observed. 20 (18.18%) patients developed infected wounds, 10(9.09%) went into Paralytic Ileus, 3(2.72%) presented with subcutaneous Hematoma, 1 (0.9%) was readmitted with burst abdomen and 1 (0.9%) developed sepsis. All were treated accordingly and no expiry was seen.

Conclusion: In summary, it can be concluded that the control of Diabetes Mellitus prevents patients from developing postoperative fatal complications.

Key Words: Diabetes Mellitus, Ventral Hernia, Cholecystectomy, Paralytic Ileus, Infected Wounds

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INTRODUCTION

Now days, Diabetes mellitus prevalence is among 30.3 million people in America. According to an estimation, 25% diabetic patients undergo surgery. Diabetes poses patients to postoperative complications like wound infection, M.I, acute renal failure, ileus and prolonged hospital stay. Diabetic persons are 1.5 times more vulnerable to develop wound infections postoperatively

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whose cost is estimated from seven to eight thousand dollars.^{1,2} The pathophysiology of hyperglycemia and its direct effect on surgical results is complex. The response of body to surgical stress results in decreased insulin, increased glucose and osmotic diuresis. These can result in preoperative ketoacidosis/hyperosmolar syndrome. There occurs the release of stress hormones like epinephrine, cortisol, nor epinephrine, glucagon, and growth hormone. The increased concentration of glucose in blood badly affects leucocytes function and impairs healing of wound.³

Diabetic patients operated for major surgeries are vulnerable to complications of surgery as compared to non diabetic ones. Major procedures require strong management of diabetes mellitus pre operatively. Patients are not put on oral anti diabetic therapy.⁴ The surgical trauma is itself stress that disturbs the body's metabolic system causing alterations in glucose level which eventually produces disruption in normal function of endothelium, sepsis postoperatively, poor

wound healing and ischemia of cerebrum. The disturbed metabolism can also lead to diabetic ketoacidosis and hyperglycemic hyperosmolar syndrome at the time of surgery or postoperatively. The prognosis is grossly affected in these conditions.⁵ Moreover, the anesthesia, drugs, and stress related vagal overlay cause dehydration due to nausea and vomiting. These all along with osmotic diuresis can lead to acute renal failure owing to ischemia. Severe hypokalemia can pose middle aged or old age diabetic patients to an arrhythmia.^{6,7} Therefore it is necessary to pay careful attention to metabolic changes of Diabetic patients who undergo minor to major surgical procedures. Elective surgery must be postponed till the diabetes is not under control. They are admitted in hospital 1 to 2 days before surgery. Even emergency surgery can be delayed if the condition of the patient allows.⁸

The actual treatment suggested should always be based on diabetes classification, nature and extent of the surgery and the experience of the surgeon. Preoperatively, electrolyte imbalance, hyperosmolar state and ketoacidosis should be closely monitored. Daily monitoring should be done. The management in surgical patients for major surgeries always requires insulin therapy with glucose and potassium infusion. Type 2 diabetes for minor procedures are managed on the daily diet, glucose control, type of procedure and expertise.⁹ Regarding the insulin therapy, patients on long acting insulin should be switched to intermediate acting insulin 48 hours before surgery. Intravenous insulin/glucose/potassium should be started prior to surgery. During surgery, blood glucose should be monitored hourly and immediately after surgery. When patient is allowed orally, insulin infusion should be stopped and routine insulin treatment should be started subcutaneously.¹⁰

For major elective surgery, patients are admitted 2-3 days before procedure. Insulin infusion is started to control the glucose level. Preoperative assessment should include physical examination, serum electrolytes, creatinine and urine ketones. In case of diabetic complications, they are treated accordingly before surgery.¹¹ The rationale of our study is to manage metabolic control through monitoring, replacement of fluid and protein and appropriate use of insulin so that diabetic complications of surgery should be prevented from economic burden and psychological trauma to patients.

MATERIALS AND METHODS

All the patients were taken from surgical OPD and emergency department of PMCH Nawabshah. Total 110 were included in this study that was operated for minor to major surgical diseases. Detailed history and thorough clinical examination was done to prepare the patient for surgery. Duration of diabetes and its control

was also asked from the patient. Examination of eye, kidney and nervous system was done specifically to find out any complication of Diabetes Mellitus. All routine investigations were done particularly HbA1c to see the control of the disease. The blood glucose level was fixed from 80 to 180 mg/dl in pre operative period. The level of HbA1c was kept 5 or less than 5 for surgery to be done. All patients were treated accordingly keeping in view the status of blood sugar level and timing of surgery. Patients on oral therapy was switched off and shifted to insulin. Diet control was started. Insulin 70/30 or Insulin Regular subcutaneous was started and glucose level was closely monitored 1/4/6 hourly. Critically ill patients were kept on insulin infusion. Per-operatively, insulin infusion was started, continued postoperatively and shifted to subcutaneous insulin when patient was allowed orally. On the day of discharge, patient was advised on oral therapy.

RESULTS

This study was done for 2 years. It included 110 patients and lasted from June 2016 to June 2018. All the patients were admitted in surgical department of PMCH Nawabshah. Of 110, 85 (77.27%) were known cases of Diabetes Mellitus and 25(22.72%) were diagnosed after screening in surgical wards.

These patients were operated for different surgical procedures for multiple diseases. Of all, 25 (22.72%) were operated for inguinal hernia with Darning Repair, 25(22.72%) for Ventral hernias, 13(11.81%) for Goiter, 20(18.18%) for hemorrhoids, chronic fissure in ano, low type fistula in ano, 20(18.18%) for laparoscopic/open cholecystectomy and 7(16.36%) patients were operated for colonic masses (Table No.1). Postoperatively, the blood sugar level of all patients were acutely assessed and monitored and outcomes were observed. 20 (18.18%) patients developed infected wounds, 10(9.09%) went into Paralytic Ileus, 3(2.72%) presented with subcutaneous Hematoma, 1 (0.9%) was readmitted with burst abdomen and 1 (0.9%) developed sepsis. All were treated accordingly and no expiry was seen (Table No.2).

Table No. 1: Diagnosis

S.No	Diagnosis	Patients included	% of patients
1	Inguinal hernia	25	22.72%
2	Ventral hernias	25	22.72%
3	Lap/open Cholecystectomy	20	18.18%
4	Anal surgery	20	18.18%
5	Goiter	13	11.81%
6	Colonic Masses	7	16.36%
Total		110	100%

Table No.2: Complications

S.No	Complications	Patients affected	% of patients
1	Infected wounds	20	18.18%
2	Paralytic ileus	10	9.09%
3	Hematoma	3	2.72%
4	Burst abdomen	1	0.9%
5	Sepsis	1	0.9%
Total		35	31.79%

DISCUSSION

Hyperglycemia either due to D.M or Stress is the major risk factor causing postoperative disturbances in multiple systems of the body. There is authentic evidence that postoperative outcomes can be modified if hyperglycemia is controlled before surgical admission.¹²

The prevalence of diabetes is increasing rapidly. Recently, International Diabetes Federation unveils that the number of diabetic patients throughout world is 425 million that is 1 in 11 adults in proportion. This number is estimated to increase to 700 million by 20145. Type 2 D.M is common among these people. Patients with D.M have longer hospital stay, increased complication rate, postoperative close monitoring, increased ventilation and higher mortality rate. In our study, only 10(9.09%) persons had prolonged hospital stay due to development of paralytic ileus. The mortality rate in our study was negligible.¹³

The prevalence of D.M in USA is 9.3% of total population. Of them, 27% were undiagnosed. In our study, 77.27% were known cases and 22.72% were undiagnosed. WHO estimations are that 347 million people are suffering from D.M in the globe. From 2010 to 2030, 69% increase in Diabetic patients will be in developing countries and 20% increase in developed countries.¹⁴ Recent study found that the ratio of HbA1c <6.5% or >9.0% are associated with increased mortality in year in case of type 2 D.M. Therefore, pre operative optimization of diabetic patient is essential to prevent complications. Non optimized patients commonly develop neurological complications somnolence, unconsciousness and seizures leading to death. Studies suggest that hypoglycemia increases complications and expiry ratio of critically ill patients.¹⁵ Studies have shown that complications in surgical wounds are common in uncontrolled diabetes. This is also shown in our study in which infected wound is the commonest complication. 18.18% persons developed infected wound. The results are similar in controlled diabetic and undiabetic patients.¹⁶

Several studies have proved the relation between elevated HbA1c and postoperative adverse outcomes. Other studies have also detected inter relation between elevated pre-operative blood sugar level and death ratio. In our study, this inter relation is also proved with extreme control of blood glucose level pre operatively

and postoperatively.¹⁷ Statz et al and other studies reported greater risk for acute renal failure and postoperative infections. They suggest that hyperglycemia causes surgical site infection and delay in wound healing. In our study, SSI is also the major complication because of fluctuation in glucose level in blood postoperatively owing to surgical trauma and natural response of body to that stress. Obese diabetic patients are at increased risk of cardiovascular accidents during or after surgery. In our study, no such incident was noted.^{18,19}

CONCLUSION

To sum up, it is found that preoperative optimization of diabetic patient for either minor or major surgeries produces good results with least complications and surely protects persons from life threatening outcomes.

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Prevalence of Hepatitis B and Hepatitis C in Patient with Maintenance of Hemodialysis in Sindh

Prevalence of
Hep. B & C in
Patient with
Hemodialysis

Lubna Ghazi¹, Kulsoom Mansoor², Anita Haroon³, Zurqa Khalid⁴, Fareha Kashan Theba⁴ and Madeeha Zafar⁵

ABSTRACT

Objective: To determine the prevalence of HBV and HCV infections in hemodialysis patients living in the province of Sindh.

Study Design: Observational study

Place and Duration of Study: This study was conducted at the multiple district level centers hospital Karachi from January 2017 to December 2018.

Materials and Methods: 251 patients with hemodialysis were enrolled to study. Patients who were on maintenance haemodialysis treatment for more than 6 months, 3 times a week, for 4 hours per session, with the dialysis dose being mediated by ionic conductivity $Kt/V > 1.5$, and with an age between 18-80 years were included in study.

Results: Out of 251 patients, 52.6% were male and 47.4% were female. The mean age of patient was 51.47 ± 12.81 years. Mean hemodialysis duration was 6.51 ± 6.96 years. 13.1% were presented with upper GI bleeding, 10.4% with hepatic encephalopathy, 7.2% with malena and 15.5% with ascites. We found 12.4% patients with hepatitis B and 22.3% with hepatitis C. significant association of hepatitis B and hepatitis C with age group and gender.

Conclusion: This study has shown that the patients on maintenance hemodialysis have a high prevalence of HCV and HBV infection and a due to exposure of several different risk factors such as improper handling of the needles, careless behaviour towards the importance of vaccination against the virus and using multiple centres for dialysis at a time.

Key Words: Hemodialysis, Hepatitis C virus, Hepatitis B virus

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INTRODUCTION

The prevalence of hepatitis B (HBV) and hepatitis C (HCV) has been rising among the residents of Sindh, Pakistan. "The World Health Organization has estimated that the HBV and HCV have become a global health issue which affects approximately 2 billion people across the globe¹. It is also estimated that the 3% of the total world population are living with hepatitis B and hepatitis C and approximately 350,000 individuals die due to HBV and HCV worldwide². Due to the high

rate of HBV and HCV infections, Pakistan is one of major worst afflicted countries. Pakistan has divided into four provinces, including Sindh, Punjab, Balochistan, and Khyber Pakhtoon Khwah (KPK)³. The condition of hemodialysis has been found one of the major risk factors in the prevalence of hepatitis B and hepatitis C."

Hemodialysis is an artificial way of maintaining hemostasis in the body in patients with sudden onset acute renal failure and in those who developed severely impaired renal functions and became end stage⁴. "It has been found that most of the patients who are experiencing dialysis for a long period of time and has high vulnerability to several different complications. One of the major adverse effect is the spreading of infection with hepatitis B and hepatitis C. Several different studies have been conducted across the globe regarding the risk factors and incidence of HBV and HCV infections and their response to treatment among the hemodialysis patient⁵. A prospective cross-section study at the dialysis unit of Sindh Institute of Urology in Pakistan showed that 124 patient out of 1220 patients were hepatitis positive while going through hemodialysis. It shows that the prevalence rate of hepatitis B was 10.2%⁶. On the other hand, a cross-sectional descriptive study at Kenya was conducted at Kenyatta national hospital and revealed that among 100

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patients who were undergoing through dialysis, hepatitis B was found in 8 patients and hepatitis C was found in 5 patients⁷. In Arab countries, the prevalence of hepatitis B and hepatitis C was 71% in Kuwait, 23.7% in Sudan, 83% in Egypt and 41% in Tunisia⁸. Despite of increasing prevalence of hepatitis B and C in Pakistan, the reduction of incidence rate of hepatitis B and C among hemodialysis patient has been neglected as not much recent data or literature is available concerning to the management of risk factors of hepatitis B and C among hemodialysis patient. Thus, the purpose of the study was to determine the prevalence of hepatitis B and hepatitis C among hemodialysis patient in” Sindh.

MATERIALS AND METHODS

This is an observational study of 251 patients of either gender with age above 18 years with who have undergone hemodialysis at multiple district level centers hospital Karachi. This study was conducted from January 2017 to December 2018. Patient demographics and clinical history was taken by the principal investigator. Patients who were on maintenance haemodialysis treatment i.e. for more than 6 months, 3 times a week, for the duration of 4 hours per session, with the dialysis dose being mediated by ionic conductivity $Kt/V > 1.5$, and with an age between 18-80 years were included in study. All patients were dialysed with highly permeable biocompatible membranes. Patients with age less than 18 years and with congenital coagulation disorder were excluded. Laboratory investigations have been done for the confirmation of hepatitis B and hepatitis C viral infection.

RESULTS

Table No.1: Demographic Variables. N=251

Table No.1: Demographic Variables: N= 251		
Variable	No. of Patients	Percentage
Gender		
• Male	132	52.6%
• Female	119	47.4%
Age (Means)	51.47±12.81 years	
Upper GI bleeding		
• Yes	33	13.11%
• No	218	86.90%
Hepatic Encephalopathy		
• Yes	26	10.40%
• No	255	89.60%
Malena		
• Yes	18	7.20%
• No	233	92.80%
Ascites		
• Yes	39	15.5%
• No	212	84.50%

Out of 251 patients 132(52.6%) were male and 119(47.4%) were female. The mean age of patient were 51.47 ± 12.81 years. Mean duration of hemodialysis was 6.51 ± 6.96 years. 33(13.1%) were presented with upper GI bleeding, 26(10.4%) with hepatic encephalopathy, 18(7.2%) with malena and 39(15.5%) with ascites in Table-1. We found 31(12.4%) patients with hepatitis B and 56(22.3%) with hepatitis C as presented in Chart 1.

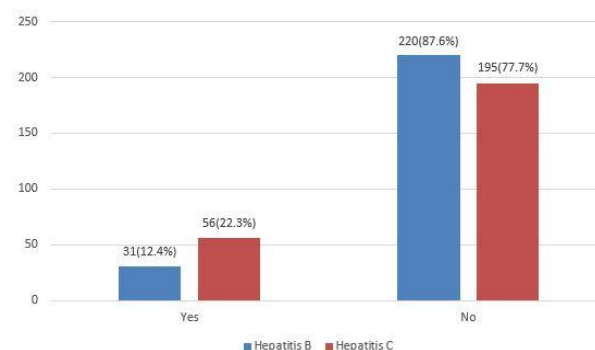


Chart No.1: Prevalence of Hepatitis B and Hepatitis C

DISCUSSION

The prevalence of HBV and HCV infection among hemodialysis patients in Sindh has been reported. 31 patients have been found to be associated with hepatitis B, while 56 patients were found to be associated with hepatitis C. “The results of the study showed that there is a significant association between HBV and HCV infections with the gender and age group. The results of the study showed that the prevalence of HBV and HCV is high among male hemodialysis patients comparatively to female gender in our study. At recent, the use of intravenous injections is the main mode of transmission of HBV and HCV in developing countries⁹. Several previous studies have concluded that the prevalence of hepatitis B and hepatitis C is associated with the risk factors such as sharing of single-use vials for blood transfusion, improper disinfection of dialysis machines and handling between the patients, improper sterile technique¹⁰. All of these risk factors have found to be associated with the increased prevalence of hepatitis B and hepatitis C among hemodialysis patients. In Bangladesh, approximately 14% of patients undergoing hemodialysis were serologically positive for hepatitis B and C infections shown in the report of 2010¹¹. In the present study, a similar prevalence of hepatitis B and hepatitis C infections among dialysis patients have been seen. The results of the study revealed that one-fourth of hemodialysis patients were associated with the infections of hepatitis B and hepatitis C. The patients were also not vaccinated against hepatitis B virus and thus identified as one of the most important factor for the spread of this infection among hemodialysis patients. A similar study has found that HBV and HCV infections can be prevented through active immunity¹².

This study found that the incidence rate of HBV and HCV infections can further be reduced through vaccinating the hemodialysis patients.

Prevalence of hepatitis B and hepatitis C virus among hemodialysis patients in different countries have been reported as UK 10.22%, Netherlands 3%, Japan 44.0%, USA 30.0%, Egypt 80.0%, and Taiwan 60.0%¹³. In this study, the prevalence rate of HBV and HCV has been evidenced by the positivity of anti-HCV, similar to the present study. The results of the present study also revealed that the hepatic encephalopathy is also a major complication that has been found to be associated with the increased prevalence of these viral infections. Hepatic encephalopathy is a spectrum of neuropsychiatric abnormalities found in patients with dysfunction of liver¹⁴. In addition, *Bacillus thuringiensis* has also been found as one of the major risk factors associated with HBV and HCV infection among hemodialysis patients¹⁵. It is associated with the duration on hemodialysis and units of blood transfused.

Studies have also shown that the number of years on hemodialysis is also a major risk for the higher rates of HBV and HCV infections^{16, 17}. The present study found similar results and indicated that the prevalence of HBV and HCV infections increases from 15% to 40% after 5 years on hemodialysis.

In the present study, it has also been shown that the positivity of hepatitis B virus and hepatitis C “virus was more in patients who are on hemodialysis over a longer period of time . Furthermore, the registry report from seven Asian countries revealed prevalence of hepatitis B virus and hepatitis C virus ranged from 1.3% to 14.6%¹⁸. The prevalence of HBV and HCV in the same region ranged from 0.7% to 18.1%. In these countries, the frequency or prevalence of HBV and HCV has been found significantly higher in hemodialysis patients as compared to PD patients. However, in New Zealand and Australia, the prevalence of HBV and HCV has showed reducing tendency. The findings of the study also revealed that the similar risk factors of hepatitis B and hepatitis C have also been identified in the hemodialysis patients¹⁹. It has been identified that the infection caused by hepatitis B and hepatitis C viruses is common among hemodialysis patients. These viral infections have also found to be to impact adversely on the prognosis of hemodialysis dependent patients. The use of disinfectant dialysis machines”, proper technique in handling the patients may help in reducing the prevalence of hepatitis B and C virus infections among them.^{20, 21}

CONCLUSION

Conclusively, this study has shown that the prevalence of hepatitis B and C has now become significant in the province of Sindh. It has also been identified that the hepatitis B and hepatitis C is associated with the risk

factors such as recurrent blood transfusions for the correction of low haemoglobin levels , improper disinfection of dialysis equipments and their handling between the patients, use of poor sterile technique in needling the patients and the lack of vaccination against the virus needs attention for the reduction in its prevalence among hemodialysis patients and also its complications that results in putting the extra burden on their health and also effects their quality of life.

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Examine the Outcomes of Close Mitral Commissurotomy and Compare the Findings with Balloon Mitral Valvotomy in Patients with Mitral Stenosis

Salman Khalid, Khawaja Adnan Younis, Tanvir Ahmed Bhatti and Muhammad Waqas Javed

ABSTRACT

Objective: To examine the results of closed mitral valvotomy with balloon mitral commissurotomy in patients with rheumatic non calcific mitral stenosis.

Study Design: Comparative/observational study.

Place and Duration of Study: This study was conducted at the Department of Cardiology, Mayo Hospital, Lahore from January 2018 to June 2018.

Materials and Methods: Eighty two patients of both genders with ages 10 to 60 years were enrolled. Patients were categorized into two groups, Group A included 41 patients and treated with closed mitral valvotomy, Group B included 41 patients and treated with balloon mitral commissurotomy. Functional outcomes were examined of both techniques and compared the results. Follow-up was taken at 1 week and at six months after surgical treatment and results were compared.

Results: There were 14 (34.15%) patients were males and 27 (65.85%) were females in group A while in Group B, 20 (48.78%) patients were males and 51.22% were females. Residual atrial septal defect was found in 4 patients at 6 months after balloon mitral commissurotomy. Severe mitral regurgitation was found in 2 patients of closed mitral valvotomy while 6 patients had severe MR of balloon mitral commissurotomy. Urgent mitral valve replacement was performed in 3 patients of balloon mitral commissurotomy. There were 1 mortality found in Group A while 2 in Group B.

Conclusion: Closed mitral valvotomy resulted better outcome as compared to balloon mitral commissurotomy. Closed mitral valvotomy technique had low procedural cost as compared to balloon mitral commissurotomy.

Key Words: Balloon mitral commissurotomy, Closed mitral, Rheumatic noncalcific mitral stenosis

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INTRODUCTION

Worldwide, balloon mitral commissurotomy and closed mitral valvotomy are the most effective treatment modalities used for the treatment of rheumatic mitral stenosis. Now a days balloon mitral valvuloplasty is gaining popularity due to less procedural complications but till now the procedure of choice for rheumatic mitral stenosis is still under consideration. Many of studies illustrated that closed mitral valvotomy is safe and effective with low rate of complications.¹⁻³

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Expert use of procedure with metal dilator can be very effective with low risk of complications. Balloon mitral valvotomy is considered safer technique for pulmonary valve stenosis. Several previous studies reported that balloon mitral commissurotomy as the modality of choice in patients with mitral stenosis.⁴ Many of studies regarding treatment of mitral stenosis demonstrated the immediate and short term outcomes of both techniques⁵⁻⁷, with very low rate of severe complications.⁸ Balloon mitral commissurotomy consider as suitable for the patients with mitral valve disorder with low risk of morbidity and mortality. Multiple randomized trials illustrated that both open and closed mitral surgical procedures showed no significant difference regarding clinical echocardiography, hospital stay, mortality and morbidity associated to surgical techniques to PMV.⁹⁻¹¹ PMV in elderly patients and surgical management of these patients has a high risk of morbidity and mortality.¹²

There is a few studies conducted regarding assessment of outcome of closed mitral valvotomy and balloon mitral commissurotomy in patients with rheumatic

mitral stenosis.¹³⁻¹⁵ This study was carried out to examine the functional outcomes of closed mitral valvotomy and balloon mitral commissurotomy in patients with mitral stenosis.

MATERIALS AND METHODS

This comparative/observational study was carried out at Department of Cardiology, Mayo Hospital, Lahore from 1st January 2018 to 30th June 2018. A total of 82 patients of both genders were included. Patient's ages were ranging from 10 to 60 years. Patients detailed medical history including sex, age, previous valvotomy history closed or balloon, NYHA classification, atrial fibrillation, echocardiography, end diastolic, mean diastolic gradient, Associated tricuspid, aortic and mitral regurgitation were recorded preoperatively. All the patients were divided into two groups, Group A included 41 patients and treated with closed mitral valvotomy, Group B included 41 patients and treated with balloon mitral commissurotomy. Left atrial size, functional status, transmitral end diastolic gradient and mean diastolic gradient and mitral valve area were examined. Follow-up was taken at 1 week and at six months after surgical treatment and results were compared. All the statistical data was analyzed by SPSS 20. Pvalue <0.05 was significantly considered.

RESULTS

There were 14 (34.15%) male patients and 27 (65.85%) female patients with mean age 29.15 ± 11.25 years in group A while in group B, 20 (48.78%) patients were males and 51.22% were females with mean age 27.45 ± 12.64 years. NYHA classification was recorded in Group A as 1, 24, 15 and 1 patients in class I,II,III and IV respectively and in Group B there were 1, 23, 16 and 1 patients according to NYHA classification. Atrial fibrillation in Group A was noted in 9 patients and in Group B in 12 patients. Pre-operative Mean MVA in Group A was $0.72 \pm 0.24 \text{ cm}^2$ ranging from 0.47 to 1.2 and in Group B it was $0.82 \pm 0.16 \text{ cm}^2$. Mean end diastolic pressure gradient in Group A and Group B was recorded as 6.02 ± 3.85 and 8.35 ± 4.54 respectively. Mean diastolic pressure gradient in Group A and Group B was 17.42 ± 5.38 and 18.52 ± 6.43 . Mitral regurgitation was noted as absent, trivial, mild, moderate and severe in 21, 10, 9, 1 and 0 in Group A while 20, 12, 9 and 0 in Group B (Table 1).

At 1 week after treatment mean mitral valve area in Group A and Group B was recorded as 1.76 ± 0.28 and $1.68 \pm 0.72 \text{ cm}^2$ respectively. Severe mitral regurgitation was found in 2 patients of closed mitral valvotomy while 6 patients had severe mean gradient of balloon mitral valvotomy. End diastolic pressure gradient (DPG) and mean diastolic pressure gradient in Group A and Group B was noted as 2.57 ± 0.38 and 2.86 ± 1.45 and 5.35 ± 0.85 and 6.46 ± 0.76 respectively. Atrial septal defects found in 29 patients of balloon mitral

valvotomy. NYHA classification was recorded in Group A as 38, 2, 1 and 0 patients in class I,II,III and IV respectively and in Group B there were 37, 2, 1 and 1 patients according to NYHA classification. Atrial fibrillation was found in 5 patients and 4 patients in group A and group B. Urgent mitral valve replacement was performed in 3 patients of balloon mitral valvotomy. There were 1 mortality found in Group A while 2 in Group B (Table 2).

At 6 months follow-up the mean mitral valve area in Group A and Group B was noted as 1.72 ± 0.24 and $1.61 \pm 0.65 \text{ cm}^2$. End diastolic pressure gradient and mean DPG in Group A and Group B was noted as 2.32 ± 0.29 and 2.76 ± 1.30 and 5.25 ± 0.56 and 5.39 ± 0.85 respectively. Atrial fibrillation found in 2 patients in Group A and 1 in Group B. According to NYHA classification I,II,III and IV was recorded as 36, 2, 2, 0 patients in Group A and 33, 5, 1 and 0 patients in Group B respectively. Septal defects found in 4 patients in Group B (Table 3).

Table No.1: Preoperative details of all the patients

Variable	Group A (n=41) CMC	Group B (n=41) BMV
Age Mean	29.15 ± 11.25	27.45 ± 12.64
Gender		
Male	14 (34.15%)	20 (48.78%)
Female	27 (65.85%)	21 (51.22%)
NYHA classification		
I,II,III and IV	1, 24, 15 & 1	1, 23, 16 & 1
Atrial fibrillation	9	12
Mean MVA (cm ²)	0.72 ± 0.24	0.82 ± 0.16
Mean end DPG mm/hg	6.02 ± 3.85	8.35 ± 4.54
Mean DPG mm/hg	17.42 ± 5.38	18.52 ± 6.43
Mitral regurgitation		
Absent	21	20
Trivial	10	12
Mild	9	9
Moderate	1	0
Severe	0	0

Table No.2: At 1 week postoperative findings

NYHA classification	Group A (n=41) CMC	Group B (n=41) BMV
I,II,III and IV	38, 2, 1 & 0	37, 2, 1 & 1
Atrial fibrillation	5	4
Mean MVA cm ²	1.76 ± 0.28	1.68 ± 0.72
Mean end DPG mm/hg	2.57 ± 0.38	2.86 ± 1.45
Mean DPG mm/hg	5.35 ± 0.85	6.46 ± 0.76
severe Mitral Regurgitation	2	6
Atrial septal defects	0	29
Urgent mitral valve replacement	0	3
Mortality	1	2

P>0.05

Table No.3: At 6 months follow-up

	Group A (n=41) CMC	Group B (n=41) BMV
NYHA classification		
I,II,III and IV	36,2,2,0	33,5,1,0
Atrial fibrillation	2	1
Mean MVAc _m 2	1.72 ± 0.24	1.61 ± 0.65
Mean end DPG mm/hg	2.32 ± 0.29	2.76 ± 1.30
Mean DPG mm/hg	5.25 ± 0.56	5.39±0.85
Atrial septal defects	0	4

P-value >0.05

DISCUSSION

Many of studies conducted to compare the results of closed mitral valvotomy and balloon mitral commissurotomy. A study conducted by Baig et al demonstrated that closed mitral valvotomy shows better outcome as compared to balloon mitral valvuloplasty.¹⁶ Another study regarding surgical management of mitral stenosis reported that closed mitral valvotomy showed better results before the onset of atrial fibrillation and congestive cardiac failure, and that all patients should have anti-coagulation.¹⁷

In the present study, 41 patients were treated with closed surgical valvotomy and 14 (34.15%) patients were males and 27 (65.85%) were females with mean age 29.15±11.25 years and 41 patients were treated with balloon mitral valvuloplasty in which 20 (48.78%) patients were males and 51.22% were females with mean age 27.45±12.64 years. A study conducted by Krishnakant¹⁸ reported that number of female patients was high as compared to males with mean age 30.16±10.5 years in closed mitral group and 28.98±11.62 years in balloon mitral valvuloplasty treated patients. In our study we found at 1 week after surgical treatment mean mitral valve area in Group A and Group B was recorded as 1.76±0.28 and 1.68±0.72 cm² respectively. Severe mitral regurgitation was found in 2 patients of closed mitral valvotomy while 6 patients had severe MR of balloon mitral commissurotomy. End diastolic pressure gradient and mean DPG in Group A and Group B was noted as 2.57±0.38 and 2.86±1.45 and 5.35±0.85 and 6.46±0.76 respectively. These results were comparable to some other studies in which functional status, restenosis, mitral valve area diastolic pressure was shows no significant difference.^{17,18} In our study there was no significant difference found with respect to mitral valve area, diastolic and NYHA classification at 6 months and 1 week postoperatively. A study conducted regarding surgical management of mitral stenosis demonstrated that there was no statistical significant difference found regarding outcomes of closed mitral valvotomy compared to balloon mitral valvuloplasty.¹⁹ One the study reported that balloon mitral valvuloplasty showed better results as compared to closed mitral valvotomy.²⁰ Turi and colleagues²¹

found sustained improvement in a young population (mean age, 27 years) with a mean echo score of 7 and no difference in early or intermediate results between balloon valvuloplasty and closed or open commissurotomy. Two dimensional echocardiography was used for assessment of mitral valve area, left atrial size, end diastolic gradient and mean diastolic gradient in this study. In our study At 6 months follow-up the mean mitral valve area in Group A and Group B was noted as 1.72±0.24 and 1.61±0.65 cm². End diastolic pressure gradient and mean DPG in Group A and Group B was noted as 2.32±0.29 and 2.76±1.30 and 5.25±0.56 and 5.39±0.85 respectively. Atrial fibrillation found in 2 patients in Group A and 1 in Group B. According to NYHA classification I,II,III and IV was recorded as 36,2,2,0 patients in Group A and 33,5,1 and 0 patients in Group B respectively. Septal defects found in 4 patients in Group B. another study shows no significant difference at 6 months follow-up after closed mitral valvotomy. and balloon mitral valvuloplasty.²²

CONCLUSION

It is concluded that closed mitral stenosis technique for mitral stenosis is safe and effective for female patients. Moreover closed mitral valvotomy and balloon mitral commissurotomy both techniques shows better outcomes with no significant difference and less rate of complications. In some patients closed mitral valvotomy showed better outcomes as compared to balloon mitral commissurotomy.

Author's Contribution:

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Determine the Prevalence of High Thrombolysis in Myocardial Infarction (TIMI) Risk Scores and Complications Associated to High TIMI Score in Patients Presented with Acute ST Elevation Myocardial Infarction

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ABSTRACT

Objective: To determine the prevalence of high thrombolysis in myocardial Infarction (TIMI) risk score and complications associated to high TIMI risk score among patients presented with acute ST elevation myocardial infarction.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Cardiology, Mayo Hospital, Lahore from January 2018 to December 2018.

Materials and Methods: A total of 290 patients of both genders with ages 35 to 80 years presented with acute myocardial infarction were included. Patients detailed medical history including age, sex and residence were recorded. Thrombolysis in myocardial infarction (TIMI) risk score was calculated for each patient. Follow-up was taken during the hospital stay and after discharge. Complications were recorded on follow-up

Results: From all the patients high TIMI score was found in 34.48% patients. There were 70% males and 30% females with mean age 54.25 ± 12.65 years. High TIMI score 100 (34.48%) patients had score above 8 and 190 (65.52%) had score less than 8. Complications were ventricular fibrillation, VT, AF, heart block, cardiogenic shock and pulmonary edema in 17%, 13%, 2%, 7%, 24% and 24% patients respectively. 15% patients were died during hospital stay. 28% patients had post-infarct angina, 9% patients had stroke and 28% patients treated revascularization.

Conclusion: Frequency of high TIMI score is high in our setting and we patients with increase score had high risk of complications and mortality.

Key Words: Myocardial infarction, Acute ST Elevation, Frequency, Complications, Mortality

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INTRODUCTION

Globally, ST elevation myocardial infarction (STEMI) is one of the most common life threatening malignant heart disorder with high rate of morbidity and mortality. In developing countries the incidence rate of myocardial infarction is high as compared to developed countries.^{1,2} According to the previous studies conducted in Pakistan reported 1 out of 5 patients with ages 40 and above had coronary artery disease.³

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There is a high burden of heart diseases in developing countries and this contributes the high rate of mortality due to cardiovascular diseases.

In STEMI patients the most commonly risk is thrombolysis in myocardial infarction risk score.⁴⁻⁶ TIMI risk score in STEMI patients is stratified as high risk score above 8. The patients with TIMI score above 8 considered as high TIMI risk score and these patients have a high risk of morbidity and mortality.^{7,8} Many of studies illustrated that the patients with high TIMI risk score above 8 had high rate of complications. Patients with ST-elevation acute myocardial infarction (STEMI), for whom early therapeutic options are well defined, risk stratification has a great impact on late and early treatment modality decision making.⁹ High TIMI risk score is directly associated to high rate of complications and deaths in patients with ST elevation myocardial infarction during hospital stay and at 1 year after high TIMI risk score evaluated.^{10,11}

Present study was conducted aimed to examine the prevalence of high TIMI risk score and complications associated to this malignant disorder in patients presented with acute ST elevation myocardial infarction.

MATERIALS AND METHODS

This study was conducted at Department of Cardiology, Mayo Hospital, Lahore from 1st January 2018 to 31st December 2018. A total of 290 patients of both genders with ages 35 to 80 years presented with acute myocardial infarction were included. Patients detailed medical history including age, sex and residence were recorded. Patients with history of previous myocardial infarction, patients with surgery of coronary artery bypass, patients with renal failure and not interested patients were excluded. All the patients were clinically diagnosed to examine the frequency of high TIMI score. Complications were recorded during hospital stay till the discharge time. Mortality associated to high TIMI risk score was examined. The data was analyzed using SPSS-20.

RESULTS

From all the 290 patients, high TIMI score was found in 34.48% patients. Among them, 70% were males and 30% were females with mean age 54.25 ± 12.65 years. According to the high TIMI score 100 (34.48%) patients had score above 8 and 190 (65.52%) had score less than 8 (Table 1).

Table No.1: Frequency of high TIMI score among all patients

TIMI Score	No.	%
≤8	190	65.52
>8	100	34.48

Table No.2: Complications recorded during hospital stay and at discharge and at 7th day after discharge (n=100)

TIMI score	No.	%
Mean age (years)	54.25±12.65	
Gender		
Male	70	70.0
Female	30	30.0
Complications		
ventricular fibrillation	17	17
VT	13	13
Atrial fibrillation	2	2.0
Complete heart block	7	7.0
Cardiogenic shock	24	24.0
Pulmonary edema	24	24.0
Post infarct angina	28	28.0
Stroke	9	9.0
Revascularization	28	28.0

Out of all the patients who had high TIMI score we found ventricular fibrillation in 17 (17%) patients, 13 (13%) patients had VT, atrial fibrillation was found in 2 (2%) patients, complete heart block was found in 7% patients, 24 (24%) patients had cardiogenic shock, pulmonary edema was found in 24 (24%) patients, 28% patients had post infarct angina, 9% patients had stroke and 28% patients need revascularization (Table 2). Fifteen (15%) patients were died during the hospital stay and in which 3 patients had TIMI score 9-10 and 12 patients had TIMI score 11-12 (Table 3).

Table No.3: Mortality associated to high TIMI score

Variable	No.	%
Mortality		
Yes	15	15.0
No	85	85.0
Correlation with TIMI score		
9 to 10	3	3.0
11 to 12	13	13.0

DISCUSSION

Acute ST elevation myocardial infarction is one of the most common cardiovascular disease found all over the world.¹² In South Asian countries the frequency of high TIMI score in patients with acute myocardial infarction was high as illustrated in many previous studies and mortality rate is accounted 10 to 20% in those patients who had increase TIMI risk score.¹³⁻¹⁵ Many of studies was conducted aimed to examine the frequency of high TIMI score in acute myocardial infarct patients. The present study was also conducted to examine the prevalence of high TIMI score in STEMI patients. In our study total 290 patients with ST elevation myocardial infarction were included to examine the high TIMI risk score. Out of 290 patients we found 100 (34.48%) patients had TIMI score above 8 and 190 (65.52%) patients had score less than 8. These results were correlates to some previous studies in which the frequency of high TIMI score was reported 30 to 40%.^{16,17}

In present study, from all the high TIMI score patients majority of patients were males 70% followed by females 30% with mean age 54.25 ± 12.65 years. A study conducted in Pakistan showed similarity regarding male patient's population in which male patients were high in number 64.5% as compared to females 31.84% with mean age 56.71 ± 10.00 years.¹⁸ In our study we found ventricular fibrillation in 17 (17%) patients, 13 (13%) patients had VT, atrial fibrillation was found in 2 (2%) patients, complete heart block was found in 7% patients. These results were comparable to some previous studies.^{19,20}

In the current study 24 (24%) patients had cardiogenic shock, pulmonary edema was found in 24 (24%) patients, 28% patients had post infarct angina, 9% patients had stroke and 28% patients need

revascularization. A study conducted by Iltaf et al¹⁸ reported 24% patients had cardiogenic shock, 27.3% patients had pulmonary edema and 24.8% patients need revascularization.

In present study, 15 (15%) patients were died during the hospital stay and in which 3 patients had TIMI score 9-10 and 12 patients had TIMI score 11-12. We observed that the increase of TIMI score was highly correlates with morbidity and mortality. These results showed similarity to many other studies in which patients with high TIMI score found to had high rate of complications and mortality.²¹

CONCLUSION

Acute ST elevation myocardial infarction is most commonly found cardiovascular disorder. We concluded from this study that frequency of high TIMI score is high in our setting and patients with increased score had high risk of complications and mortality.

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Comparison Between Honey and Alginate Dressings at the Skin Graft Donor Site

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ABSTRACT

Objective: Purpose of this study is to propose a more economical and effective skin graft donor site dressing to be used in our unit.

Study Design: Interventional: Quasi-experimental study.

Place and Duration of Study: This study was conducted at the Department of Plastic, Reconstructive and Hand surgery, Liaquat National Hospital, Karachi from August 2006 to February 2007.

Materials and Methods: A total of sixty (60) patients were included in this study. All patients are admitted patients who underwent skin grafting by air dermatome with same thickness. Half of them were dressed with Calcium alginate and half with honey impregnated gauzes.

Results: Mean Healing time in Group 'A' (Calcium Alginate) was 10.67 days and 11.1 days in Group 'B' (Honey impregnated gauze). Less pain was observed in Group 'B' than Group 'A' on day 2 and 3. Only one patient in Group B had infection. The average cost of treatment in group B was far less than group A and this is statistically significant.

Conclusion: Honey is a safe dressing for donor sites of SSG. It is particularly advantageous as it is cost effective, easy to apply and remove, and significantly reduces donor site pain especially in the first few days.

Key Words: Skin graft, donor site dressing, Calcium alginate and Honey

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INTRODUCTION

Split thickness skin graft (SSG) is a widely used technique for coverage of skin defects. Its wide use of applications makes it valuable not only for plastic and reconstructive surgeons but also to other surgical specialties. The technique evolved from use in the back alleys of India in Pre-Christian time to become one of the most valuable clinical tools in modern surgery¹.

The donor area itself can be considered a clean open wound that will heal spontaneously. Care of the SSG donor site and the solutions to the problems concerning this region have been discussed for many years and several studies been performed for a favorable outcome². But the optimal treatment of the SSG donor site remains an unresolved issue³.

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The goal of management of split-thickness skin graft donor sites is to promote the healing process and to reduce the pain⁴. An ideal donor site dressing is one that prevents dehydration and wound infection while also achieving rapid and painless healing of the donor site⁵.

In our unit the most frequent SSG donor site dressing is "Calcium Alginate", since it has proven value in treating moderate to heavily exuding wounds and also benefits later stages of wound healing⁶. During the healing of SSG donor sites, Infection, delay in healing, fluid and electrolyte imbalances, scar formation and the pain are the major problems¹. In addition to calcium alginate^{3,7} there are many different materials found in the literature like Opsite⁸, Polyvinylchloride film⁸, simple tulle gauze⁸, honey^{7,9,10}, egg membrane¹¹, Amniotic membrane¹², Chitosan membrane, Acticoat (new silver-coated dressing) and many others. Honey is considered an economical dressing because of its wide availability. It reduces pain and infection, increase granulations and epithelization and rapid healing with minimal scarring.

Moreover, it is hypertonic and decreases edema formation and contributes to nourishment of wound due to its high sugar content. No studies have been done to compare its usage in donor site of SSG dressing as compared to alginate dressings and the study aims to investigate its effectiveness versus alginate in terms of healing etc.

MATERIALS AND METHODS

Interventional: Quasi-experimental conducted at the Department of Plastic, Reconstructive and Hand surgery, Liaquat National Hospital, Karachi, Pakistan for six and half months (29-08-2006 to 12-02-2007).

Sample Size: Total number of patients were 60, divided into two groups.

Sample Technique: Non-probability, purposive sampling.

Sample Selection: Inclusion criteria:

- All patients of either sex with acute or chronic wounds admitted through OPD or emergency department, Liaquat National Hospital, require skin grafting by Dermatome.

Exclusion criteria:

- Skin graft taken with Watson knife.
- Hemoglobin < 10 gm/dl.
- Children < 12 years

Data Collection Procedure: After taking the informed consent, all patients of either sex with acute or chronic wounds admitted through OPD or emergency in Plastic surgery department, Liaquat National Hospital, who require skin grafting by Dermatome are included in our study.

After taking complete history, clinical examination and basic laboratory work up which includes Complete blood count (CBC), Urea, creatinine and electrolytes (UCE), Blood sugars, ECG and Chest X-ray. There will be 60 patients divided randomly in two groups of 30 (Group A = Calcium alginate, Group B = Honey impregnated gauze) by using envelop draw method. The honey used in this study was unprocessed, obtained by the same source (Langnese honey). The microbiological cultures were done before using honey and it showed no organism to grow. The thickness of the dermatome (Zimmer's) will be same for all patients i.e., 0.08 inches. All the donor areas were shaved in the theatre just before the procedure. After draping and painting (Povidone Iodine solution only) the donor area was made tense and skin was stretched by the assistant. Lubrication was done with solution of Normal saline and Pyodine scrub. Grafts were then taken by Zimmer's dermatome at the angle of 45. Total surface area of the wound will be measured in Operation Theatre at the time of skin grafting (by the centimeter scale). After harvesting graft, the initial blood at the donor area was cleaned and then directly applied Calcium Alginate (Kalginate, USA) or Honey Impregnated gauzes. Above this thick padding of Gamjee (Burn gauze) and then Crepe bandages applied on the donor area. All wounds are seen and photograph is taken at 10th and 14th day by the digital camera (free of cost) and only one patient's wound were followed for 20 days. Total number of days till complete healing will be recorded in each patient and group.

Degree of pain will be assessed by visual analogue scale on 24 hours, 48 hours, 5th day, 10th day and 14th day.

The cost of each dressing till complete healing are recorded.

All patients are seen by the same doctor in the hospital and in OPD.

All relevant information including age, gender, associated medical disorder, wound healing, pain score, presence or absence of infection and cost of treatment are recorded on Proforma.

All patients receive the same post-op analgesia: (Inj Nalbuphine 5 mg I/V q6H for 1st day and Tab Panadol (Paracetamol 500 mg) 2 TDS, Cap Celbex (Celecoxib, selective COX-II inhibitor) 100mg BD from 2nd to 5th day) and if patient require more than the above regime than Inj Nalbuphine 5 mg I/V SOS, which is also noted. All patients receive the same post-op Antibiotics regime: Inj Augmentin (Amoxicillin+Clavulanic acid) 1.2 gm I/V q8H for the 1st 48 hours and the Tab Augmentin 625 mg TDS for 5 days.

Data Analysis Procedure: The data was entered and analyze by SPSS version 14.0. Frequency and percentage were computed for categorical variable like sex, co morbid and infection for group A (Calcium Alginate) and group B (Honey Impregnated Gauze). Mean and standard deviation were computed for quantitative variables like age, hemoglobin, wound area (cm²), healing time (days). Pain score (vas), cost of treatment for both groups.

Student t test was applied to compare mean significant difference between groups for age, hemoglobin, wound area (cm²), healing time (days). Pain score (vas), cost of treatment. $P \leq 0.05$ was considered level of significant.

RESULTS

The average age of the patients was found 36.96 ± 15.9 (Ranging from 15 to 78) years. Out of 60 patients, 49 (81.7%) were males and 11 (18.3%) females in this study with 4.5:1 female to male ratio.

In group A, the average age of the patients was found 36.87 ± 16.83 while in group B, the average age was found 37.10 ± 15.16 , the mean difference was not statistical significant between the groups at $P = 0.95$. (table 1). The mean hemoglobin of the patients in group-A, 11.99 ± 1.2 and in group-B, 12.06 ± 1.47 the mean difference was not statistical significant between the groups at $P = 0.83$ (table 1). Regarding co morbid, out of 60 patients, 8 (13.33%) has diabetes mellitus, 5 (8.33%) hypertensive and 2 (3.33%) were tuberculosis patients.

Comparison of mean healing time in days between groups is also presented in table 2. In group A, the mean healing time was 10.67 ± 1.53 days and in group B mean healing time was 11.13 ± 2.3 days, there was no statistically significant difference between the groups. Comparison of mean healing times in days between

groups according to wound area was presented in table 2.

In both groups, Post op pain in first five days is evaluated as this is the most problematic period for the patients in terms of pain. In group B, less pain was observed on day 2 and day 3 ($P < 0.05$) as shown in table 3.



Figure No.1: GROUP "A" (Calcium Alginate) Split skin graft donor site (Thigh) 14th Post Op Day



FigureNo.2: Group "B" (Honey) Split skin graft donor site (Thigh) 14th Post Op Day

Table No.1: Comparison of age, hemoglobin, area between groups (Group A = Calcium Alginate; Group B = Honey Impregnated Gauze)

Variables	Group-A N=30	Group-B n=30	P- Value
Age (Years)	36.87±16.83	37.10±15.16	0.95
Hemoglobin (gm/dl)	11.99±1.2	12.06±1.47	0.83
Wound Area (cm ²)	163.95±106.18	214.97±139.45	0.12

Comparison of total cost of treatment between groups is presented in table 4. The average cost in group A was Rs: 1,689.7±1,355.3. While in group B cost of treatment was Rs: 441.73±292.11. Cost of dressing in

group B was significantly low than group A ($P = 0.0001$).

In group B, Only one patient had infection because of the presence of foul smelling discharge of wound, which is managed conservatively with only dressings. While in group-A No infection was observed.

Table No.2: Comparison of mean healing times (days) between groups according to wound area

Wound Area (cm ²)	Healing times (days)				P- Value
	Group-A		Group-B		
< 200	20	10.00±0.00	16	10.63±2.5	0.27
200 - 400	9	11.78±2.11	12	11.33±1.97	0.62
> 400	1	14.00±0.00	2	14.00±0.00	-

Table No.3: Day wise mean comparison pain (visual analogue scale) between groups

Pain (score) at different days	group-A N=30	group-B n=30	P-Value
Pain (day 1)	7.87±1.91	6.9±2.32	0.084
Pain (day 2)	6.13±1.57	4.8±2.58	0.019*
Pain (day 3)	4.8±1.61	3.67±2.34	0.033*
Pain (day 4)	3.47±1.61	2.77±1.91	0.133
Pain (day 5)	1.97±1.16	2.28±2.15	0.491

Table No.4: Comparison of mean total cost of dressing between groups according to wound area

Wound Area (cm ²)	Total cost of dressing (Pak Rupees)				P-Value
	Group-A		Group-B		
< 200	20	1,115±382	16	302±216.5	0.001
200 – 400	9	2,348±1073	12	556±278.2	0.001
> 400	1	7236±0.00	2	872±282	0.035

DISCUSSION

Split thickness skin grafting is one of the most common means of reconstructing for variety of defects or of multiple etiologies⁴.

The overall efficacy of various dressings is usually determined based on time to healing, associated pain, infection rates, and expense. Various methods have been proposed for the management of donor sites of split thickness skin grafts, but no conclusive evidence-based consensus regarding the optimal dressing choice has been reached¹⁵. The purpose of all these methods is to achieve rapid and smooth healing of the wound, with minimal donor site pain and nursing care². Cost efficiency should also be taken into consideration in selecting the type of dressing.

More recent evidence in the literature suggests that good hydration is the single most important external factor responsible for optimal wound healing¹⁶. Split-thickness skin graft donor site has often bigger problem for the patient than the original defect.

In the literature, there are reports about the success of honey in various types of wounds, especially burn wounds. Split-thickness skin graft donor sites are like partial thickness burn wounds. Honey's healing effects of burn wounds can also be expected on other types of wounds. Use of honey impregnated gauze is like semiopen dressing. As the honey impregnated gauze adheres to the wound, there will be no fluid accumulation beneath the dressing. There was no difficulty in removing honey impregnated gauzes, and these factors along with easy availability and cost effectiveness make honey suitable for the dressing of split-thickness skin graft donor site. Honey causes less pain and rapid healing at the skin graft donor site¹⁷.

In the literature honey has not been compared with Calcium Alginate in the dressing of split thickness skin graft donor site dressing but it is compared with saline soaked gauzes, paraffin gauzes and hydrocolloid dressings. Honey was found to be superior than saline soaked gauzes and paraffin gauzes in terms of epithelization time and decrease pain but found no difference when compared with hydrocolloid dressing⁹. Honey can be an alternative material for the split-thickness skin graft donor site treatment¹⁸.

Post op pain, especially in the first five days, is the real problem for most patients of the split skin graft donor site¹⁹. We also found less pain with honey than Calcium alginate in (4 out of 5) first five post op days especially on Day 2 and 3 are statistically significant as shown in table 3.

Calcium Alginate is compared by many other dressing material. Hydrocellular foam was found to be more comfortable than Calcium Alginate²⁰. Adhesive retention dressings are more comfortable than Alginate dressing in split thickness skin graft donor site.

Our mean healing time is also comparable to other international studies. Pannier et al in 2002 showed mean healing time for Calcium Alginate was 10 days and for paraffin gauze (Jelonet) was 11 days²¹. O'Donoghue et al in 2000 found mean healing time in Calcium Alginate group was 8.75 (range 7 to 14 days)²². Another study by Lawrence et al in 1992 found 72% of donor site wounds dressed with Calcium Alginate were healed at 10 days²³.

Only one patient in group B had infection that later managed by the dressings only and none of the patient in group A. This might be because of contamination of the honey or dressing material. This can easily be avoided by more aseptic measures using small new bottle of honey on every patient or make small sterile container of honey and then use one container for only one patient. We used unprocessed and undiluted imported honey (Langnese) easily available in the market was found to be sterile because no organism was isolated from it (Culture of honey before using was done by our microbiology lab).

According to Ho and Ying the infection rate was 2.9% in Calcium Alginate group. In another study by O'Donoghue et al only one patient out of 16 had infection in Calcium Alginate group.

Cost effectiveness is an important issue in the management of any type of wounds⁴. There is also a marked difference in the mean cost of dressings between two groups i.e. Rs.441/= for group A and Rs.1689/= for group B as shown in Table 4.

As a result, use of honey impregnated gauzes is superior to Calcium Alginate in terms of degree of pain and cost effectiveness in the dressing of split thickness skin graft donor site and hence it is a good alternative, especially in developing countries like ours, where cost is an important issue.

CONCLUSION

Honey is a safe dressing for donor sites of Split skin graft. It is particularly advantageous as it is cost effective, easy to apply and remove, and significantly reduces donor site pain especially in the first few days.

Author's Contribution:

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When appropriate, may be included.

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