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Editorial

Editorial

Mental Health–A Taboo No More

Mohsin Masud Jan
Editor

Obsessive Compulsive Disorder (OCD) is not a fatal mental condition but it is said to be highly disabling.

Obsessions are unwanted thoughts, images and/or feelings that come again and again in a person's mind. The nature of these thoughts is such that they cause fear, shame, and/or intense anxiety. Most of the time, even though they may try very hard, people who have OCD are unable to get rid of their obsessions. The thoughts vary from person to person. Some people have repeated thoughts about getting sick or being contaminated by germs. Others get images of hurting a loved one. Others are frightened and ashamed of negative thoughts they may have about religion or their brain may get stuck with the idea that everything must line up "just right." Some people get obsessed that they may lose something important. Whatever the content of the obsession, the important thing is that they are unwanted and are severe enough to cause intense anxiety and discomfort.

Compulsions are strong urges to act or think in a way to reduce or undo the discomfort that is caused by the obsession. Compulsions like obsessions also vary from person to person. A person who has obsessions about being contaminated with germs or being unclean may spend hours in the shower, use strong cleaning products or a whole bar of soap at one time, wash their hands excessively to the point of making them bleed all in an attempt to get rid of the obsession. Another person may refuse to shake hands with anyone or touch household items. Some people may spend hours checking and rechecking stoves, or locks. Others may feel they have to place things in a specific pattern and if they do not do that, they fear something catastrophic may happen.

Some compulsions are mental and involve reciting prayers or a word or phrase repeatedly. At times, people with OCD can spend several hours trying to finish one prayer because each time they say it, they fear that they have not die it properly.

Although both obsessions and compulsions are a part of OCD, most people with the disorder have both.

It is important to keep in mind that obsessions and compulsions are very different from everyday worries, superstitions or cautious habits that many people have. People who have OCD spenda lot of time on their obsessions and compulsions, e.g. at least one to several hours a day and in addition, these symptoms interfere, to a major extent, with their day-to-day life, including their relationships.

The early signs of OCD will vary according to the nature of the obsessions and compulsions. When the onset is in childhood, parents are often able to observe the compulsions. A child may erase their homework repeatedly to the extent of tearing the paper in order to do the work "perfectly". They may stay up till late at night checking and rechecking the door and window locks of their house. Often, younger children will ask their parents the same question repeatedly seeking reassurance again and again. However, as children get order they will often start hiding their obsessions or compulsions because they become aware that they are not normal. Children when talking about it will sometimes say that they think they are dumb or stupid to do this but they cannot help it.

In adults the onset can be gradual. It may start with doubts about losing something important leading to some checking or some amount of washing because the person doubts that he or she has washed thoroughly enough. It may begin with an attempt to avoid places or situations or things that causes the person anxiety. It may start with a needle prick and the fear that one has got some lethal disease. With time, these fears and rituals grow to become OCD.

Genetic factors do play a part and we see a higher prevalence of the disorder in children and first-degree relatives of people who have OCD, these factors are not the only cause. Several studies suggest that people who develop OCD have some abnormalities in specific areas of the brain. Other studies point to changes in certain neurotransmitters in the brain. Some temperamental factors such as, low self-esteem or a tendency towards guilt or shame can also make a person more vulnerable to OCD as is a history of physical and sexual abuse in childhood or other stressful or traumatic events.

Sometimes because the obsessions and compulsions are so unreasonable and excessive, many people start thinking of themselves as "crazy", this stops them from talking about their condition. Educating themselves about this disorder will empower them to deal with it. They will also realize that they are not alone and there are many others who also suffer like them. This is important because many times people who have OCD feel very alone.

Whether they manage their condition themselves or with the help of mental health professionals, the crucial thing is that they know that there are treatments available for this disorder and they must not give up. Families can also play a very important role in helping these patients.

Behaviour therapy helps patients deal with and manage the anxiety arising from their obsessions as well as to reduce or eliminate compulsive rituals. This sort of treatment requires a lot of trust and cooperation on the part of the patient, as it is something they themselves do with the guidance and support of a trained professional.

The other form of treatment is with medications. These medications specifically affect the chemicals in the brain, which are thought to contribute towards obsessions and compulsions. Many times, both forms of treatment are used in combination to get the best result.

Original Article

Febrile illness with Thrombocytopenia

Acute Febrile illness with Thrombocytopenia, Common Etiologies in Khyber Pakhtunkhwa

Ziauddin[1], Inayat Ullah[1], Muhammad Kashif[1], Rehman ud Din[2] and Shah Zeb[2]

ABSTRACT

Objective: To know the common causes of febrile illness with thrombocytopenia in Khyber Pakhtunkhwa province.
Study Design: Retrospective study.
Place and Duration of Study: This study was conducted at two Major Tertiary Care Hospitals of Khyber Pakhtunkhwa from January 2018 and October 2018.
Materials and Methods: Demographics, clinical features and laboratory findings were recorded on pre-designed performa.
Results: Common conditions causing febrile thrombocytopenia included Malaria (60.00%), Dengue fever (20.50%) and sepsis(9.80%). Enteric fever (3.50%) and Leptospirosis (2.60%) were found less commonly responsible.
Conclusion: Infection is the leading cause of fever with thrombocytopenia.
Key Words: Fever, Thrombocytopenia.

Citation of article: Ziauddin, Inayatullah, Kashif M, Din R, Zeb S. Acute Febrile illness with Thrombocytopenia, Common Etiologies in Khyber Pakhtunkhwa. Med Forum 2019;30(3):2-5.

INTRODUCTION

Fever is a common manifestation of illness and is recognized as a cardinal feature of disease.1 It is defined as an elevation of core body temperature above the normal circadian range. This is due to a change in the thermoregulatory center located within the anterior hypothalamus.

A morning temperature of >37.2 degree centigrade (98.4 degree F) or an evening temperature of >37.7 degree centigrade (99.9 deg F) would define fever.2 A normal platelet count ranges from 150,000 to 450,000 per micro liter of blood. Thrombocytopenia is defined as platelet count less than 150,000 per micro liter. This is due to decreased production such as leukemia, sepsis, vitamin B12 and folate deficiency, increased destruction (immune thrombocytopenic purpura (ITP), thrombotic thrombocytopenic purpura (TTP),hemolytic uremic syndrome (HUS), disseminated intravascular coagulation (DIC), paroxysmal nocturnal hemoglobinuria (PNH) and systemic lupus erythematosus (SLE) and increased sequestration in spleen such as hypersplenism.[3-8] Acute fever with thrombocytopenia is called febrile thrombocytopenia.

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It is a common clinical problem faced by physician in medical units especially during the monsoon and perimonsoon period. Infection being the commonest cause of febrile thrombocytopenia such malaria, dengue, typhoid fever, leptospirosis and septicemia. Less common causes include rickettsial fever, borreliosis, rodent-borne viruses such as flanta and lassa fever, HIV.3,9

This study is intended to know the underlying etiology of febrile thrombocytopenia in our population.

METIRIALS AND MATHODS

This retrospective study was conducted in the department of Medicine, Lady reading hospital Peshawar and Mardan medical complex Mardan. Medical records of patients admitted between January 2018 and October 2018 with fever and thrombocytopenia (Platelet count <150,000 ×109/L) were reviewed.

Patients less than 18 years of age and those having afebrile thrombocytopenia, congenital thrombo-cytopenia and chronic liver disease were excluded from the study. Demographic characteristics including age, gender, occupation, clinical and laboratory features were recorded on a pre- designed performa. Data entry and analysis was done through SPSS version 22. For numerical values age, mean ± SD was calculated while for categorical features like gender and clinical features, frequencies and percentages were calculated. Our research is according to declaration of Helsinki and was approved by Institutional ethical review board.

RESULTS

A total of 112 patients with febrile thrombocytopenia were included in the study. Out of these 112 patients, 72 patients (64.2%) were male and 40 (35.8%) were females as shown in figure 1.

Figure 1. Gender of Patients

Male to female ratio was 1.8 : 1. The age of the studied patients ranged from 18-80 years with mean age of 37±6 years. The cases included in our study were divided into three age groups. Febrile thrombocytopenia was commonly seen in patients below 40 year age. The maximum cases were found to be in the age group of 21-40 years accounting 65 cases (58.0%). It was demonstrated in 26 patients (23.2%) in the age group of 41-60 years while 21 cases (18.75%) were above 60 years age. We observed that majority of the patients (52 patients, 46%) were affected between May to September followed by first quarter of the year affecting 32 patients (29%). Malaria was found in 67 patients (60%) and was the leading cause of febrile thrombocytopenia (P.vivax and falciparum were most common). Dengue fever formed the second most common group (23 cases, 20.5%), followed by sepsis (11 cases and 9.8%), typhoid fever (04 cases and 3.5%) and leptospirosis (03 cases and 2.67%). Pulmonary tuberculosis, kala azar and congo fever constituted 02 (1.78%), 01(0.9%), 01(0.9%) respectively as shown in figure 2.

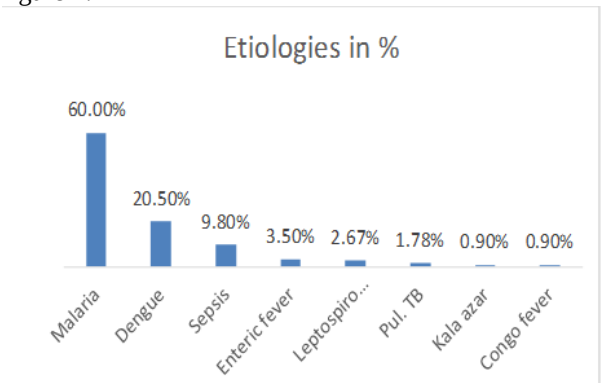

Figure No. 2.Etiologies of Febrile thrombocytopenia.

Fever was the most common presenting complaint noted in 70% patients. Other clinical features observed were headache (32%), joint pains (26%), vomiting (17%), cough and dyspnea (9%) . (Figure 3)

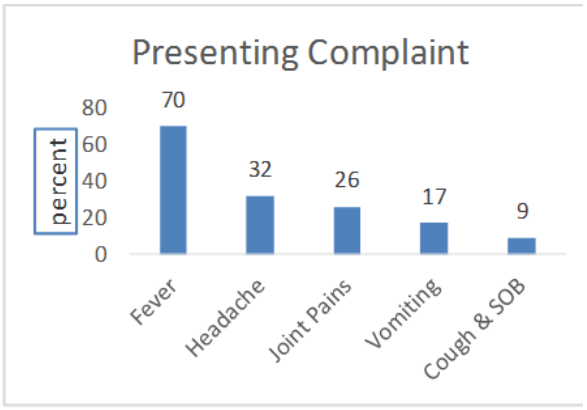

Figure No.3. Presenting Complaints of Patients with Febrile thrombocytopenia.

Our patients displayed different types of bleeding manifestations. Petechial hemorrhages were present in 42 patients (37.5%), hematuria in 13 patients (11.6%). Bleeding from the gums was seen in 9 patients (8.03%). Bleeding per rectum and menorrhagia was seen in one patient each (0.89%).

Maximum number of patients had platelet count between 50,000 to 100,000 cells per micro liter.

Table No.1: Platelet count of Patients.

Platelet count	Patients	Percent
Less than 20,000 (severe thrombocytopenia)	20	17.85
20,000-50,000 (moderate thrombocytopenia)	17	15.17
More than 50,000 (mild thrombocytopenia)	75	66.96

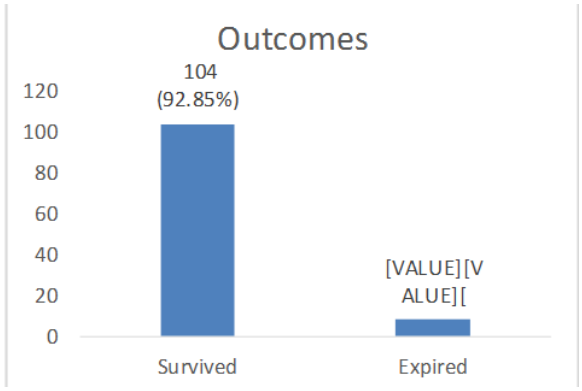

Figure No.4: Outcome of patients with Febrile thrombocytopenia.

In our study, leucopenia was seen in 33 patients (29.46%). Out of these, 15 were dengue cases followed by CCHF in 10 cases. Leukocytosis was seen in 40 cases (35.71%) and was mostly seen in cases of septicemia (23 cases, 20.5%). Abnormal renal function tests were reported in 20 cases with most number in septicemia (12 cases, 10.71%) followed by typhoid

fever (5 cases, 4.46%). In general, 104 patients (92.85%) had good recovery and 08 cases (7.15%) expired. (Figure 4).

DISCUSSION

Fever with thrombocytopenia is one the most challenging problem faced by all physicians of medical units. It is the paranormal presentation of common disease rather than rare disease. A retrospective study of 112 patients who had fever and thrombocytopenia was conducted in two tertiary level hospitals of Khyber Pakhtunkhwa(KPK).

In the present study, majority of patients with febrile thrombocytopenia were in the age group of 21 to 40 years constituting about 58%. We observed large number of cases in the month of June to September. It is due to the fact that malaria and dengue fever are highly widespread during this particular time period.

In our study, malaria was the commonest cause of febrile thrombocytopenia establishing 60% cases. Vivax malaria was seen in 40%, while 15% were those of falciparum malaria. Similar results were observed by Nair in his study in which out of 41 cases of malaria, 20 cases were those of vivax malaria, falciparum 13 cases and mixed infection was (falciparum plus vivax) seen in 08 cases.[10] Khan SJ and his colleagues conducted study at HMC Peshawar. They enrolled 228 adult patients of fever with thrombocytopenia over a period of 02 years. They observed that malaria was the commonest cause of febrile thrombocytopenia constituting 53% cases.[11]In an another study conducted by Srinivas at India, malaria was reported in 41 out of 100 cases being the leading cause of febrile thrombocytopenia and majority of these cases were reported from March to September.[12]

Pathophysiology of thrombocytopenia in malaria is multifactorial including immune mediated platelets destruction, splenic sequestration, decrease survival of platelets and depletion by DIC. We observed mild to moderate thrombocytopenia in malaria in 73% patients. This is comparable to Jadhav and Shaikh Study (85.5%).[13,14]

Shaikh and his co-workers in their research documented that 171 patients (85.5%) were having low platelet count, 141 patients (70.5%) had mild and 21 (10.5%) moderate and 09 (4.5%) had severe thrombo-cytopenia.[14] Jadhav et al from India in their study thrombocytopenia in malaria found that 78% of patients with vivax malaria had mild thrombocytopenia, a very similar finding to our study.[13]

Dengue fever was found to be the second most common cause of thrombocytopenia in our study, reportedly in 23 patients (20.5%). Dengue is the most important arthropod borne viral disease and a major health problem in tropics with increased mortality and morbidity. Thrombocytopenia is a constant feature and one of the diagnostic criteria of dengue hemorrhagic fever.[15]

The etiology of thrombocytopenia in dengue is multifactorial. It is caused by decrease platelet production and immune mediated and splenic destruction of platelets. In addition, dengue infection also activate the intrinsic pathway of apoptosis, mitochondrial depletion and activation of caspase 3.[16,17]

In a study from Suneetha, 150 patients of acute febrile illness, were diagnosed with dengue(25%), enteric fever(14%), malaria(8%).[18] The study by Patil et al mentioned malaria in 54% cases followed by dengue(15%), enteric fever (6%) in total 100 studied patients.[19]

We observed thrombocytopenia in 9.8% of patients with sepsis. The mechanism of thrombocytopenia in sepsis has not been fully understood. However increased platelet destruction as a result of either overt or subclinical DIC has been postulated. Previously Lee et al reported 57% of thrombocytopenia in septicemia patients.[20] Crafter- Gvili et al reported an incidence of thrombocytopenia of 22.3% in patient with sepsis.[21]

Sepsis is a major risk for the development of thrombocytopenia. It is common in clinically ill patients admitted to the ICU with sepsis. These patients are more likely to develop acute kidney injury, major bleeding episodes and to receive more blood product transfusion.[9]

In general, patients having fever with thrombocytopenia had good recovery and mortality occurred in 08 patients (7.15%). 06 out of 08 expired patients were due to septicemia with multi-organ dysfunction including acute kidney injury and respiratory distress syndrome. Complicated malaria accounted for 02 cases of mortality. The study conducted by Lohitashwa et.al indicated sepsis as the most common cause of death (70%) followed by dengue.[12] The range of platelet count in the mortality cases was less than 10,000 /micro liter in one case followed by 30,000 to 50,000/micro liter in the remaining 07 cases.

CONCLUSION

Fever with thrombocytopenia is an important clinical problem. Infection is the commonest cause. Among infections, malaria was the leading etiology in Khyber Pakhtunkhwa. Health authorities should focus on the primary prevention.

Author's Contribution:

Concept & Design of Study:	Ziauddin
Drafting:	Inayat Ullah, Muhammad Kashif
Data Analysis:	Rehman ud Din, Shah Zeb
Revisiting Critically:	Inayat Ullah, Zainuddin
Final Approval of version:	Ziauddin

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

REFERENCES

1. Dinerarello CA, Wolf MS. Fever of unknown origin, Chapter-40. In: Mandell GL, Douglas RG, Bennett JE, editors. Principles and practices of infectious disease. 3rd ed. New York: J Wiley; 1990.p.468-479.
2. Woodward TE. The fever pattern as a diagnostic aid. In: Mackowiack PA, editor. Fever: basic mechanism and management, New York: Lippincott-Roven Publishers; 1997.p.215-35.
3. Konkle BA. Disorders of platelets and vessel wall. In: Fauci AS, Braunwald E, Kasper DL, et al. editors. Harrison's Principles of Internal Medicine. 17th ed. McGraw-Hill: New York, NY; 2008.p.718-23
4. Craig JIO, McClelland DBL, Watson HG. Thrombocytopenia. In: College NR, Walker BR, Ralston SH, editors. Davidson's Principles and Practice of Medicine. 21st ed. Churchill Livingstone Elsevier: Edinburgh; 2010:p.1003-4.
5. Bichile SK. Platelet disorder. In: Munjpal YP, editor. API Textbook of medicine. 9th ed. Jaypee Brothers: New Dehli; 2012:p.987-8.
6. Firkin F, Penington D, Chesterman C, Rush B. the hemorrhagic disorders. deGruchy's clinical Hematology in Medical Practice. 5th ed. Oxford University Press: Bombay; 1989:p.375-92.
7. Lee GR, Foerster J, Luckens J, Paraskevas F, Greer JP, Rodgers GM. Shirley Parker Levine-Thrombocytopenia: Pathophysiology and Classification. Wintrobe's Clinical Hematology. 10th ed. Lipincott Williams and Wilkins: Philadelphia;1999:p.1579-82.
8. Diz-Kucukkaya R, Chen J, Geddis A, Lopez JA. Thrombocytopenia. In: Kaushansky K, Lichtman MA, Beutler E, Kipps TJ, Selisohn U, Prchal JT, editors. William's hematology. 8th ed. New York 2011:p.1891-918.
9. Lee GR, Foersten J, Lukens J, Parakevas F, Greer JP, Rodgers GM. Shirley Parker Levine-Miscellaneous causes of thrombocytopenia. Wintrobe's Clinical Hematology. 10th ed. Lipincott Williams: Philadelphia; 1999.p. 1623-9.
10. Nair PS, Jain A, Khanduri U, Kumar V. A study of fever associative with thrombocytopenia. JAPI 2003-51:1173.
11. Khan SJ, Abbass Y, Marwat MA. Thrombo cytopenia as an indicator of malaria in adult population. Malar Res Treat 2012;405981
12. Lohitashwa SB, Vishwanath BM, Srinivas G. Clinical and Lab Profile of Fever with Thrombocytopenia. Abstract Free Paper Oral Presentation – APICON, 2008. Available at: http://www.Japi.org/march_2009/oral_presentatio.
13. Jadhav UM, Patkar VS, Kadam NN. Thrombocytopenia in malaria – correlation with type and severity of malaria. J Assoc Physicians Ind 2004; 52:615-8.
14. Shaikh QH, Ahmad SM, Abbasi A, Malik SA, Sahito AA, Munir SM. Thrombocytopenia in malaria. J Coll Physicians Surg Pak 2009; 19(11):708-10.
15. Jayashree K, Manasa GC, Pallavi P, manjunath GV. Evaluation of platelets as predictive parameters in dengue fever. Ind J Hematol Blood Transfus 2011;27(3):127-30.
16. Azeredo EL, Monteiro RQ, Pinto LM. Thrombocytopenia in dengue: interrelationship between virus and the imbalance between coagulation and fibrinolysis and inflammatory mediators. Vol 2015 article ID 313842, 16 pages http://dx.doi.org/10.1155/2015/313842.
17. Gansen N, Gunasekharan I, Padhi S. Platelet phagocytosis in peripheral blood during acute phase of dengue virus infection. J Curr Res Sci Med 2015;1:51-53.
18. Suneetha DK, Inbanathan J, Sahna E, Shashank MS. Common Etiology of Acute Fever with Thrombocytopenia in a Tertiary Care Hospital, Mysuru. Int J Sci Stud 2016;4(1):61-64
19. Patil P, Solanke P, Harshe G. to study the clinical evaluation and outcome of patients with febrile thrombocytopenia. Int, J Sci Res Publ 2014;4:2-3.
20. Lee KH, Hui KP, Tan WC. Thrombocytopenia in Sepsis: a predictor of mortality in the intensive care unit. Singapore Med J 1993;34(3):245-6.
21. Gafter-Gvili A, Mansur N, Bivas A, Zemer-Wassercug N, Bishara J, Leibovici L, et al. Thrombocytopenia in Staphylococcus aureus bacteremia: risk factors and prognostic importance. Mayo Clin Proc 2011;86:389–396.

Original Article

Obstructed Labour

Determine the Prevalence of Obstructed Labour also Examine the Causes, Mortality and Complications Associated to Obstructed Labour

Uzma Afridi[1], Maryam Shoaib[2] and Sakina Naeem[2]

ABSTRACT

Objective: To examine the frequency of obstructed labour in our hospital, also determine the complications, causes and mortality associated obstructed labour.

Study Design: Descriptive / cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynecology Bolan Medical Complex Hospital, Quetta from January 2017 to June 2017.

Materials and Methods: A total of 82 confirmed cases of obstructed labour were included. Patient's ages were ranging from 16 to 45 years. Patient's detailed history including socio-economic status, booking status, parity were examined after taking informed consent. Causes, complications associated to obstructed labour were examined. Mortality was recorded.

Results: Twenty two patients were ages between 16 to 24 years, 43 patients were ages 25 to 34 years, 17 patients were ages above 34 years. Sixty five (79.27%) patients had rural residency. Nine (10.98%) patients were booked while 89.02% patients were un-booked. Forty six (56.10%) patients were primiparous, 31 (37.80%) patients were multigravida with parity 2 to 4 and 5 patients with parity >5. Most common cause of obstructed labour was noted as cephalopelvic disproportion in 52 (63.41%) patients and most frequent complication of obstructed labour was maternal pyrexia in 29 (35.37%). Mortality occurred in 3 (3.66%) patients.

Conclusion: Incidence of obstructed labour was most common in age group 25 to 34 years and mostly patients had rural residency. Early and accurate diagnosis and early treatment can reduce the rate of maternal and perinatal mortality and morbidity due to obstructed labour.

Key Words: Obstructed labour, Maternal mortality, Uterine rupture, C-Section, Postpartum hemorrhage.

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INTRODUCTION

Maternal health is the basic right of all women and includes the phases of pregnancy, delivery and puerperium. The provision of health services for contraception, antenatal, intrapartum and postnatal care are the pillars of maternal health.[1] In developing countries like ours, pregnancy complications are very high and one woman dies due to complications related to delivery of baby every minute worldwide.[2]

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Obstructed labour is defined as 'labour when the presenting part of fetus fails to enter the birth canal, despite efficient uterine contractions.[3] According to World Health Organization, obstructed labour is an obstetrical emergency.[4] It's common cause being cephalopelvic disproportion, which differences in the proportion of fetal head and maternal pelvis, malposition and malpresentation being few other causes.

Obstructed labour is responsible for 8% of maternal mortality in developing countries like Pakistan.[5] Thirty nine percent of hospitalization of obstetric patients is attributed to obstructed labour.[6] It is an important cause of maternal and perinatal mortality[7] with maternal mortality rate ranging between 1-13% and perinatal mortality rate between 74-92%.[8] About half of the maternal deaths are attributed to obstructed labour in a direct or indirect way. Out of the 210 million women who become pregnant annually worldwide, 500,000 die because of complications of pregnancy/delivery and obstructed labour is an important cause.[9,10]

Obstructed labour is responsible for a number of complications in mother as well as fetus. Maternal

complications include uterine rupture, septicemia, postpartum hemorrhage, secondary infertility, fistulas and skeletal and neurological disorders.[11] The fetal complications include perinatal mortality, cerebral palsy and developmental disabilities.[12]

MATERIALS AND METHODS

This cross-sectional study was carried out at Department of Obstetrics & Gynecology Bolan Medical Complex Hospital, Quetta from 1st January 2017 to 30th June 2017. A total of 82 patients of obstructed labour with age ranges from 16 to 45 years were included. Pregnant patients with prolonged labor, patients with no obstructed labor were excluded from this study. Patient's detailed history including age, socio-economic status, booking status, parity were examined after taking informed consent. Causes, complications associated to obstructed labor were examined. Mortality was recorded. State of fetus was also recorded. APGAR score, early neonatal death was recorded. C-section was performed in all cases. All the data was analyzed by SPSS 19.

RESULTS

There were 22 (26.83%) patient's ages between 16 to 24 years, 43 (52.44%) patients ages 25 to 34 years, 17 (20.73%) patients ages above 34 years. Sixty five (79.27%) patients had rural residency while 17 (20.73%) had urban residency. 9 (10.98%) patients were booked while 73 (89.02%) patients were un-booked. Forty six (56.10%) patients were primiparous, 31 (37.80%) patients were multigravida with parity 2 to 4 and 5 patients with parity >5 (Table 1). Causes of obstructed labor were noted as cephalopelvic disproportion, malposition, malpresentation, fetal congenital anomaly and unidentified in 52 (63.41%), 15 (18.29%), 12 (14.63%), 2 (2.44%) and 1 (1.22%) patients respectively (Table 2).

Table No.1: Demographic information of the patients

Variable	No.	%
Age (years)		
16 -24	22	26.83
25 -34	43	52.44
> 34	17	20.73
Residency		
Urban	17	20.73
Rural	65	79.27
Primigravida	46	56.10
Multigravida	36	43.90
Booked	9	10.98
Un-booked	73	89.02

Complications followed by obstructed labor was recorded as Maternal pyrexia in 29 (35.37%) patients, uterine rupture found in 19 (23.17%) patients, wound sepsis found in 11 (13.41%) patients, urinary tract infection was found in 8 (9.76%) patients, postpartum haemorrhage found in 7 (8.54%) patients, abdominal distension in 5 (6.10%) patients, 2 (2.44%) patients had bladder injury and 1 (1.22%) patients had ligament hsematoma (Table 3). Maternal mortality was observed in 3 (3.66%) patients and all were uterine rupture. Perinatal mortality was seen in 29 (35.37%). (Table 4).

Table No.2: Causes associated to obstructed labor

Variable	No.	%
Age (years)		
16 -24	22	26.83
25 -34	43	52.44
> 34	17	20.73
Residency		
Urban	17	20.73
Rural	65	79.27
Primigravida	46	56.10
Multigravida	36	43.90
Booked	9	10.98
Un-booked	73	89.02

Table No.3: Complications followed by obstructed labor

Variable	No.	%
Age (years)		
16 -24	22	26.83
25 -34	43	52.44
> 34	17	20.73
Residency		
Urban	17	20.73
Rural	65	79.27
Primigravida	46	56.10
Multigravida	36	43.90
Booked	9	10.98
Un-booked	73	89.02

Table No.4: Maternal and perinatal mortality associated to obstructed labor

Variable	No.	%
Age (years)		
16 -24	22	26.83
25 -34	43	52.44
> 34	17	20.73
Residency		
Urban	17	20.73
Rural	65	79.27
Primigravida	46	56.10
Multigravida	36	43.90
Booked	9	10.98
Un-booked	73	89.02

DISCUSSION

Obstructed labor is an important cause of maternal mortality in underdeveloped and developing countries, and has many short and long term complications. Reduction in the mortalities resulting from

complications of obstructed labor will be considered an indication for the improvement and upgradation of obstetric care system and financial status of a country.

In the present study the incidence of obstructed labor was 2.00%. A study conducted by Rizvi et al[13] and Mondal et al[14] regarding obstructed labor reported incidence of obstructed labor was 1.7 and 1.6%. Some other studies demonstrated the incidence of obstructed labor was 3.6% and 4.5%.[15,16] All these studies including our study shows high rate of obstructed labor and there is a need of better treatment and to provide awareness of this malignant disorder.

In this study most of the patients were in the age group 25 to 34 years. Some other studies regarding obstructed labor demonstrated the same results to our study in which the most common age group was 20 to 35 years.[17,18] In our study mostly patients had rural area residency and these results were similar to some other studies in which 75 to 90% of patients were belong to rural areas.[19,20]

In our study 9 (10.98%) patients were booked while 73 (89.02%) patients were un-booked. These results were similar to another study in which 88% cases were unbooked.[21] In this study we found that the most common cause of obstructed labor was CPD 63.41%, these results were close to some other studies in which the CPD cause was rated 65 to 70%.[20,22] Malposition, malpresentation, fetal congenital anomaly and unidentified in 52 (63.41%), 15 (18.29%), 12 (14.63%), 2 (2.44%) and 1 (1.22%) patients respectively. A study conducted in India reported malposition in 22.9% cases.[23] Mondal et al[14] reported malpresentation 18.2% cases.

In our study the most frequent complication was maternal pyrexia and found in 35.37%. Another study reported maternal pyrexia in 39.3%.[17] Uterine rupture found in 19 (23.17%) patients, wound sepsis found in 11 (13.41%) patients, urinary tract infection was found in 8 (9.76%) patients, postpartum haemorrhage found in 7 (8.54%) patients, Abdominal distension in 5 (6.10%) patients, 2 (2.44%) patients had bladder injury and 1 (1.22%) patients had ligament haematoma. These results was bit similar to some other studies in which uterine rupture recorded in 25% patients[24] and some other studies shows similarity regarding wound sepsis and PPH was 12.8% and 8.2% respectively.[17,25]

In our study the maternal mortality rate was 3.66% and perinatal mortality rate was 39.37%. All the maternal mortality was occurred due to uterine rupture. These results were similar to another study in hich uterine rupture was the main cause of maternal mortality.[26]

CONCLUSION

Obstructed labor is one of the most common causes of mortality and morbidity in maternal and perinatal. Incidence of obstructed labor was most common in age group 25 to 34 years and mostly patients had rural residency. Early and accurate diagnosis and early treatment can reduce the rate of maternal and perinatal mortality and morbidity due to obstructed labor.

Author's Contribution:

Concept & Design of Study:	Uzma Afridi
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Data Analysis:	Sakina Naeem
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Moss B, Jennifer L, Harris KM. Impact of maternal and paternal preconception health on birth outcomes using prospective couples' data in Add health. Arch Gynecol Obstet 2014; 1-12.
2. Safdar S, Inam SN, Omair A. Matrenal health care in rural areas of Pakistan. JPMA 2002; 52: 308.
3. Alkire L, Blake C. Obstructed labor and cesarean delivery: the cost and benefit of surgical intervention. Plos One 2012;7: e34595.
4. Dolea C, Abou Zahr C. Global burden of obstructed labor in year 2000. Evidence and information for policy, World Health Organization, Geneva, 2003.
5. Cron J. Lessons from the developing world. Obstructed labor and vesicovaginal fistula. Med Gen Med 2003; 5: 24.
6. Mekbib I, Kassaye E, Getachew A. The FIGO save the Mother's Initiative. The Ethiopia Sweden Collaboration. Int J obstetr Gynecol 2008;81: 93-102.
7. Beekle AT, Mecabe C. Awareness and determinants of family planning practice in Jimma, Ethiopia. Intl Nurs Rev 2006; 53: 269-76.
8. Hofmeyr GJ, Say L, Gulmezoglu AM. WHO systematic review of maternal mortality and morbidity; the prevalence of uterine rupture. BJOG 2005; 112: 1221-8.
9. McCarthy M. Whats going on in World Health Organization? Lancet 2002; 360: 1108-10.
10. Dolea C, Abouzahar C. Global burden of obstructed labor in the year 2000. World Health Organization Geneva Switzerland 2003;p 17.
11. Wall LL. Obstetric fistula is a neglected tropical disease. PLos Neglected Trop Dis 2012;6(8): e1769.
12. Bayou G, Berhan Y. perinatal mortality and associated risk factors: a case control study. Ethio J Health Sci 2012; 22(3): 153-62.
13. Rizvi SM, Gandotra N. Maternofetal outcome in obstructed labor in atertiary care hospital. IJRCOG 2015; 4(5): 1410-3.

14. Mondal S, Chaudhuri A, Kamilya G. Fetomaternal outcome in obstructed labor in a periphery tertiary care hospital. Med J Dr DY Patil Univ 2013; 6(2): 146-50.
15. Sheikh SR, Memon KN, Usman . Obstructed labor; risk factors and outcome among women delivered in atertiary care hospital. Professional Med J 2015; 22(5): 615-20.
16. Ara A. Outcome of obstructed labor. JPMI 2010; 18(3): 512-6.
17. Fantu S, Segni H, Alemseged F. Incidence,causes and outcome of obstructed labor in Jimma University Specialized Hospital. Ethio J Healh Sci 2010; 20(3): 145-50.
18. Khooharo y, Majeed T, Khawaja MA, Majeed N, Malik MN. Even in 21st century still obstructed labor remains life threatening condition. Annals 2012; 18(3): 279-83.
19. Mathews Z. Maternal mortality and poverty. DFID resource centre for sexual and reproductive health 2002.
20. Tabasum R. Maternal morbidity in obstructed labor retrospective descriptive study. Med Channel 2006; 12(2): 32-5.
21. Ukke GG, Gudayu TW, Gurara MK, Amanta NW, Shimbre MS. Fetomaternal outcomes in obstructed labor in Suhul General Hospital, North Ethiopia. Int J Nurs Midwifery 2017; 9(6): 77-84.
22. Dafaiiah SE, Ambago J, El Agib F. Obstructed labor in a teaching hospital in Sudan. Saudi Med J 2003; 24: 1102-4.
23. Chuni N, Obstructed labor in Eastern Nepal. Singapore J obstet Gynecol 2008; 38: 1-7.
24. Kabakyenga JK, Östergren PO, Emmelin M, Kyomuhendo P, Pettersson OK. The pathway of obstructed labour as perceived by communities in south-western Uganda: a grounded theory study. Global Health Action 2011;4(1):8528-38.
25. Daffallah SE, Ambago J, E1-Agib F. Obstructed labour in a teaching hospital in Sudan. Saudi Med J 2003;24:1102-4.
26. Cron J. Lessons from the developing world: obstructed labor and the vesico-vaginal fistula. Medscape Gen Med 2016;5(3):14.

Original Article

Vitamin D Levels in Type II Diabetic Patients

Bashir Ahmed Shaikh, Aneel Kumar, Zahid Ali Shaikh, Javeriya Mariam, Aftab Hussain Shah and Kamlesh Kumar

ABSTRACT

Objective: To determine the frequency of vitamin D deficiency in type-II diabetes at Chandka Medical College, Hospital Larkana.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Medicine, Medical Unit-2, Chandka Medical College Hospital, SMBBMU, Larkana from July to December 2018.

Materials and Methods: A total of 355 patients with type 2 diabetes mellitus were included in this study. Basic demographics were recorded. Blood samples were taken from the patients for assessment of vitamin D levels and were sent to laboratory.

Results: The average age of the patients was 44.66±10.85 years. There were 196(55.21%) male and 159(44.79%) female. The vitamin D deficiency in type-II diabetic patients was observed in 175 (49.3%).

Conclusion: This study revealed that vitamin D deficiency was high in patients with type 2 diabetes mellitus. It is advisable that supplementation of vitamin D in deficient type 2 diabetes mellitus patients may give better glycemic control.

Conclusion: This study revealed that vitamin D deficiency was high in patients with type 2 diabetes mellitus. It is advisable that supplementation of vitamin D in deficient type 2 diabetes mellitus patients may give better glycemic control.

Key Words: Type 2 diabetes mellitus, Vitamin D deficiency, Glycaemic control.

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INTRODUCTION

The increasing prevalence of type 2 diabetes mellitus is taking a great toll of health resources. This has laid a number of research studies related to factors in an attempt to ameliorate its burden. Worldwide incidence of diabetes has risen from 108 million in 1980 to 442 million in 2014 with nearly 6 million Americans suffer from type 2 diabetes.[1]

Vitamin D deficiency is associated with type II diabetes, elevated lipids, cardiovascular disease and hypertension.[2-7]A very few studies unable to describe any improvement in glycemic control or indices of insulin sensitivity during vitamin D supplementation.[8-11]. CVD cardiovascular disease is the major contributor to mortality in diabetic population.[12]

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At the same time, there's evidence that Vitamin D increase insulin sensitivity. Moreover, a data from a pilot study examining vitamin D deficiency in diabetic patients of two groups in 2006 showed 63% of T2DM patients has vitamin D deficiency.[13]Bayani reported that vitamin D deficiency was observed in 64% according to Caspian journal of internal Medicine in T2DM patients.[14] Diabetes Mellitus is an established risk factor for coronary artery disease where the enhanced pro-inflammatory and prothrombotic status could render even more important than the athero-protective effects of Vitamin D. This will help in risk stratification and ultimately pave the way for early correction of deficiencies and prevention of CVD morbidity and mortality in diabetic patients.

Furthermore by knowing the vitamin D level we can also depict the significant health disparities among our population with the rest of the world despite abundant sunshine. This study aimed to determine the frequency of vitamin D deficiency in type-II diabetic patients.

MATERIALS AND METHODS

A cross-sectional study was done in statistically calculated sample (n=355) at department of medicine, medical unit-2 Chandka Medical College Hospital SMBBMU, Larkana from July to December 2018. Patients were enrolled who fulfilled the inclusion criteria (age 18 to 65 years of both genders having type

2 diabetes mellitus with duration of 10 or more years). Patients had chronic renal failure, liver cirrhosis, malabsorption syndrome i-e celiac disease, sprue, cystic fibrosis & IBD, taking steroids or vitamin D supplements and insulin resistance disease were excluded.Written informed consent obtained from all the patients after explanation of study protocol. Basic demographics were recorded i-e smoking, patient's height, weight and BMI.

Blood samples were taken from the patients for assessment of vitamin D levels and was sent to laboratory for reports. The test was done free of cost and the results were classified normal (vitamin D level ≥30ng/ml), deficient (vitamin D level <30ng/ml).

Data was analyzed using SPSS software version 21. Description statistics like frequencies and percentages calculated for gender, smoking, obesity (BMI>27.5) and vitamin d levels. Mean ± SD (standard deviation) calculated for age, weight, height, BMI. Stratification was done with regards to age, gender, smoking, and obesity and duration of DM to see the effect of these on outcome by applying chi-square test with P value <0.05 as significant.

RESULTS

Table No.1: Study Characteristics of Patients

Variables	Mean	Std. Deviation	95% Confidence Interval for Mean	
			Lower Bound	Upper Bound
Age (Years)	44.66	10.85	43.53	45.79
Duration of DM	13.93	2.47	13.67	14.19
Weight (kg)	71.39	15.98	69.72	73.06
Height (cm)	161.21	9.33	160.24	162.19
BMI (kg/m^2)	27.45	5.70	26.8	28.05
Vitamin D level	30.16	7.26	29.4	30.92

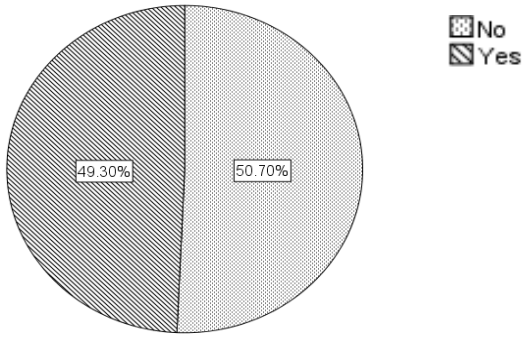

Figure No.1: Vitamin D Deficiency in T2DM patients (n-355)

The mean age of 355 patients was 44.66±10.85 years and mean duration of diabetes was 13.93±2.47 years. There were 196(55.21%) males and 159(44.79%) females. Out of 355, 92 (25.92%) were obese, 118(32.24%) smokers, 155 (43.7%) rural and 200 (56.3%) were urban patients. (Table-1).

Vitamin D deficiency in type-II diabetes was observed in 175 (49.3%). (Figure-1). The vitamin d deficiency was not found significantly associated with any of the study variables. (Table-2).

Table No.2: Status of Vitamin D Deficiency in Study Variables

	Vitamin D Deficiency		P-Value
	Yes	No	
Age Groups (yrs)			0.097
≤30	18(50%)	18(50%)	
31- 40	54(45%)	66(55%)	
41- 50	56(62.9%)	33(37.1%)	
51- 60	32(46.4%)	37(53.6%)	
>60	15(36.5%)	26(63.4%)	
Gender			0.730
Male	95(48.5%)	101(51.5%)	
Female	80(50.3%)	79(49.7%)	
Smoker			0.276
Yes	63(53.4%)	55(46.6%)	
No	112(47.3%)	125(52.7%)	
Obesity			0.377
Yes	49(53.3%)	43(46.7%)	
No	126(47.9%)	137(52.1%)	
Duration 0f DM			0.892
≤ 15 Years	138(49.1%)	143(50.9%)	
>15 Years	37(50%)	37(50%)	

DISCUSSION

Diabetes mellitus is one in all the foremost common chronic sicknesses within
the world. Dynamical life designs and dietary habits has accelerated its prevalence. This increase is extremely evident in South Asia wherever it's assumed epidemic proportions. The amount of diabetic patients is anticipated to succeed in 370 million by the year 2030.[15] Each environmental and genetic factors play a job within the development of DM. In most cases the presence of sort two DM is said to some unhealthy style of modus vivendi practices. Such factors will typically be changed. One in all the foremost necessary of those modifiable factors is fat. Vitamin D deficiency is additionally one such different modifiable issue that is being involved within the development and management of diabetes.[16] Studies have shown that Vitamin D deficiency is directly proportional to internal secretion resistance and CVD risk in obese adolescents.[17] Low level of Vitamin D are also seen in metabolic syndrome.[18] Traditional Vitamin D levels are associated with low risk of development of type II DM and low Vitamin D levels are found to be related to the higher risk of developing type II DM.[19] Vitamin D deficiency could be a worldwide

epidemic. consistent with UN agency statistics, around one billion individuals area unit littered with Vitamin D deficiency throughout the planet. Though the most supply of Vitamin D is daylight, in most of the people, vitamin d level has been found to be low in countries settled in extremes of the hemispheres and additionally in tropical countries.[20] The male dominance was reportable in different studies. Shera et al, investigated the prevalence of sort two DM within the metropolitan and metropolitan zones of Baluchistan, Pakistan.[21,33] They recruited 1404 males and females. The general prevalence in each urban and rural regions was 13.46% and it absolutely was 14.71% in males and 12.89% in females. Basit et al, 2000 reportable the prevalence of DM from Pakistan.[22,33] They recruited 2032 (670 males and 1362 females) and found the general prevalence of diabetes together with antecedently and freshly diagnosed diabetes was 7.2%, however, the prevalence was 11.9% in males and 4.9% in females.[33]

Vitamin D deficiency has received special attention recently because of its high incidence and its implication within the genesis of multiple chronic sicknesses. The high prevalence of vitamin d deficiency in our study population underlines the very fact that vitamin d deficiency is a lot of common in chronic diseases like DM. Our study showed that vitamin d was inadequate during a massive population of patients with sort two diabetes. In our study the frequency of vitamin d deficiency in type-II diabetes was ascertained in 49.3% and was considerably high in below and equal to fifty years of patients as compare to higher than fifty years of patients. These findings are supported by variety of studies. Shahzad et al, found vitamin d deficiency in 92% patients of diabetes.[23] Iqbal et al, found vitamin d deficiency in 30.6% patients of diabetes with smart management and in 58.7% patients with poor management.[24] Alhumaidi et al, found vitamin d deficiency in 76.6% diabetic patients and in 58.1% non-diabetic patients.[25] Sheth and coworkers, during a case control study among diabetics in Asian nation ascertained vitamin d deficiency in 91.4% and 93.0% of T2DM cases and control subjects respectively.[26,34] During a cross sectional Iranian study by Taheri and colleagues, the prevalence of vitamin d deficiency was 83.3% in diabetic patients and 75.6% in healthy subjects.[27,34] Another cross sectional study among rural and urban adult Indians, Harinarayan et al, additionally ascertained a 44% and 62% for rural and urban men respectively and 70% and 75% deficiency for rural and urban women respectively.[28,34] Age is a very important factor and lower levels of vitamin d has been noted with advancing age.[29,32] On the contrary, we have a tendency to found that vitamin d levels increase with advancing age, and age was found to be an independent predictor for vitamin d levels in our study. Studies in an Iranian population have shown that correlation exists between BMI and vitamin d levels.[30,32] On the contrary, a study by Lagunova et al, in 2126 subjects with metabolic syndrome or diabetes has established an inverse relation -ship between vitamin d levels and BMI; those with high BMI had lower vitamin d levels.[31,32] No positive correlation between these two variables was noticed in our study to support or negate the aforementioned data. However our findings show that BMI was a confounder that determines vitamin d concentrations in this population.

CONCLUSION

This study revealed that vitamin D deficiency was high in patients with type 2 diabetes mellitus. It is advisable that supplementation of vitamin D in deficient type 2 diabetes mellitus patients may give better glycemic control.

AUTHOR'S CONTRIBUTION

Concept & Design of Study:	Bashir Ahmed Shaikh
Drafting:	Aneel Kumar, Zahid Ali Shaikh
Data Analysis:	Javeriya Mariam, Aftab Hussain Shah, Kamlesh Kumar
Revisiting Critically:	Bashir Ahmed Shaikh, Aneel Kumar
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Rogacev KS, Ulrich C, Blömer L, Hornof F, Oster K, Ziegelin M, et al. Monocyte heterogeneity in obesity and subclinical atherosclerosis. Eur Heart J 2010;31(3):369-76.
2. Pittas AG, Dawson-Hughes B, Li T, Van Dam RM, Willett WC, Manson JE, et al. Vitamin D and calcium intake in relation to type 2 diabetes in women. Diabet Care 2006;29(3):650-6.
3. Cigolini M, Iagulli MP, Miconi V, Galiotto M, Lombardi S, Targher G. Serum 25-hydroxyvitamin D3 concentrations and prevalence of cardio-vascular disease among type 2 diabetic patients. Diabet Care 2006;29(3):722-4.
4. Forman JP, Giovannucci E, Holmes MD. Plasma 25-hydroxy vitamin D levels and risk of incident hypertension. Hypertension 2007;49:1063–9.
5. Dobnig H, Pilz S, Scharnagl H. Independent association of low serum 25-hydroxyvitamin d and 1, 25-dihydroxyvitamin d levels with all-cause and cardiovascular mortality. Arch Int Med 2008;168: 1340–9.
6. Wang TJ, Pencina MJ, Booth SL. Vitamin D deficiency and risk of cardiovascular disease. Circulation 2008;117:503–11.
7. Giovannucci E, Liu Y, Hollis BW, Rimm EB. 25-hydroxyvitamin D and risk of myocardial infarction in men: a prospective study. Arch Int Med 2008;168:1174–80.

8. Sugden JA, Davies JI, Witham MD, Morris AD, Struthers AD. Vitamin D improves endothelial function in patients with type 2 diabetes mellitus and low vitamin D levels. Diabet Med 2008; 25:320–5.
9. Jorde R, Figenschau Y. Supplementation with cholecalciferoldoes not improve glycaemic control in diabetic subjects with normal serum 25-hydroxy vitamin D levels. Eur J Nutr 2009;48:349–54.
10. Pittas AG, Harris SS, Stark PC, Dawson-Hughes B. The effects of calcium and vitamin D supplementation on bloodglucose and markers of inflammation in nondiabetic adults. Diabet Care 2007;30:980–6.
11. VonHurst PR, Stonehouse W, Coad J. Vitamin Dsupple mentation reduces insulin resistance in South Asian women living in New Zealand who are insulin resistant and vitamin D deficient—a randomised, placebo-controlled trial. Br J Nutr 2010;103:549–55.
12. Zittermann A, Schleithoff SS, Koerfer R. Putting cardiovascular disease and vitamin D insufficiency into perspective. Br J Nutr 2005;94:483–92.
13. Sheth JJ, Shah A, Sheth FJ, Trivedi S, Lele M, et al. Does vitamin D play a significant role in type 2 diabetes? BMC Endocr Disord 2015; 15:5.
14. Bayani MA, Akbari R, Banasaz B, Saeedi F. Status of Vitamin-D in diabetic patients. Caspian J Int Med 2014;5(1):40.
15. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care 2004;27:1047-53.
16. Alhumaidi M, Agha A, Dewish M. Vitamin D deficiency in patients with type-2 diabetes mellitus in southern region of Saudi Arabia. Maedica 2013;8(3):231-6.
17. Reis AF, Hauache OM, Velho G. Vitamin D endocrine system and the genetic susceptibility to diabetes, obesity and vascular disease. A review of evidence. Diabetes Metab 2005;31(4 Pt 1):318-25.
18. Michos ED. Vitamin D deficiency and the risk of incident Type 2 diabetes. Future Cardiol 2009;5(1): 15-8.
19. Pittas AG, Lau J, Hu FB, Dawson-Hughes B. The role of vitamin D and calcium intype 2 diabetes. A systematic review andmeta-analysis. J Clin Endocrinol Metab 2007;92(6):2017–29.
20. Thuesen B, Husemoen L, Fenger M, Jakobsen J, Schwarz P, Toft U, et al. Determinants of vitamin D status in a general population of Danish adults. Bone 2012;50(3):605–10.
21. Shera AS, Rafique G, Khwaja IA, Baqai S, Khan IA, King H. Pakistan National Diabetes Survey prevalence of glucose intolerance and associated factors in North West at Frontier Province (NWFP) of Pakistan. J Pak Med Assoc 1999;49:206-11.
22. Basit A, Hydrie MZ, Ahmed K, Hakeem R. Prevalence of diabetes, impaired fasting glucose and associated risk factors in a rural area of Baluchistan province according to new ADA criteria. J Pak Med Assoc 2002;52:357-60.
23. Shahzad A, Sahto AA, Memon AA. Type 2 Diabetics; Frequency Of Vitamin D Deficiency. Prof Med J 2017;24(1):31-5.
24. Iqbal K, Islam N, Mehboobali N, Asghar A, Iqbal MP. Association of vitamin D deficiency with poor glycaemic control in diabetic patients. J Pak Med Assoc 2016;66(12):1562-5.
25. Sheth JJ, Shah A, Sheth FJ, Trivedi S, Lele M, Shah N, et al. Does vitamin D play a significant role in type 2 diabetes? BMC Endocrine Disorders 2015;15:5.
26. Taheri E, Saedisomeolia A, Djalali M, Qorbani M, MadaniCivi M. The relationship between serum 25-hydroxy vitamin D concentration and obesity in type 2 diabetic patients and healthy subjects. J Diabet Metabolic Dis 2012;11(1):16.
27. Harinarayan CV, Ramalakshmi T, Prasad UV, Sudhakar D, Srinivasarao PV, et al. High prevalence of low dietary calcium, high phytate consumption, and vitamin D deficiency in healthy south Indians. Am J Clin Nutr. 2007;85(4):1062–7.
28. Scragg R, Sowers MF, Bell C. Serum 25-hydroxyvitamin D, diabetes and ethnicity in the third National Health and Nutrition Examination Survey. Diabetes Care 2004;27:2813–8.
29. Baradaran A, Behradmanesh S, Nasri H. Association of body mass index and serum vitamin D level in healthy Iranian adolescents. Endokrynol Pol 2012;63:29–33.
30. .Khashayar P, Meybodi HR, Soltani A, Taheri E, Homami MR, Heshmat R, et al. Association between vitamin D levels and BMI values in an Iranian population. Clin Lab 2014;60:383–9.
31. Lagunova Z, Porojnicu AC, Lindberg F, Hexeberg S, Moan J. The dependency of vitamin D status on body mass index, gender, age and season. Anticancer Res 2009;29:3713–20.
32. Palazhy, S., Viswanathan, V. &Muruganathan, A. Int J Diabetes Dev Ctries 2017;37: 69.
33. Meo SA, Zia I, Bukhari IA, Arain SA. Type 2 diabetes mellitus in Pakistan: Current prevalence and future forecast. JPMA 2016:66(12);1637-42.
34. Fondjo LA, Owiredu WKBA, Sakyi SA, Laing EF, Adotey-Kwofie MA, Antoh EO, et al. (2017) Vitamin D status and its association with insulin resistance among type 2 diabetics: A case control study in Ghana. PloS One 12(4): e0175388.
35. Witham MD, Dove FJ, Dryburgh M, Sugden JA, Morris AD, Struthers AD. The effect of different doses of vitamin D3 on markers of vascular health in patients with type 2 diabetes: a randomised controlled trial. Diabetologia 2010;53(10):2112-9.

Original Article

Vitamin D3 in Erectile Dysfunction

Role of Vitamin D3 in Erectile Dysfunction

Mahmood Ahmed Memon[1], Mumtaz Ali Chandio[2], Shah Muhammad Noonari[1], Pardeep Kkumar Maheshwari[3], Muhammad Shahid Bhatti[4] and Feroze Mahar[5]

ABSTRACT

Objective: To determine the role of vitamin d3 in erectile dysfunction in our hospital.
Study Design: Prospective / cross-sectional study
Place and Duration of Study: This study was conducted at the Social Security Kidney Centre Hospital of Karachi from July 2017 to August 2018.
Materials and Methods: The sample size of study was 84 taking prevalence to 64.2%. All patients with Age > 18 yrs, patients presenting with complains of erectile dysfunction in outpatient department were included. Patients with cardiovascular diseases, depression, antipsychotic drugs and bleeding disorders were excluded.
Results: Out of 84 patients presented with erectile dysfunction the mean age of patients was 34.8 ± 4.4 years. Most of group affected was from 25yrs to 35yrs n= 52(65%), and 35 to 45yrs n=28(35%) respectively. The patients mostly presented with mean vitamin D levels of 14.6ng/ml ± 4.82. While mostly the range of vitamin D was between 10ng/ml to 20ng/ml i-e; n=60 (75%), from >30ng/ml, n=15 (18.8%) and <10ng/ml n=5(6.3%).
Conclusion: Erectile dysfunction was found to have severe vitamin d deficiency with improvement in ED after vitamin d supplementation together with some lifestyle modification.
Key Words: Erectile dysfunction, vitamin D

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INTRODUCTION

Vitamin D is a steroid hormone responsible for calcium homeostasis and its metabolism by human skin from sunlight exposure mainly by ultraviolet-B (UVB) forming around 80% of total vitamin D[1-3]. vitamin D deficiency has been increasingly found in previous decades accounting from 64.2% to 97.3% in Pakistan however US reported 80%patients deficient. Different studies and meta-analysis have found its supplementation results in prevention of several diseases but also in reducing mortality[3, 4].

Modern era researchers have found diverse role of vitamin D due to its effect on nearly every cell of our body ranging from bone health to atherosclerotic heart diseases and even in erectile dysfunction[5-7] although erectile dysfunction has multifactorial causes including both neurological, drugs, psychological as well as vascular causes. Nearly half of them are due to vascular cause, with resulting endothelial dysfunction and subsequently vasodilation inhibition.

Globally incidence of erectile dysfunction is increasing from 150 million in 1999 to an expected 322 million till 2025[8]. In Pakistan its incidence reported from recent study in 2016 in healthy individuals was 55.7% with mild 14.8%, moderate erectile dysfunction 29.5% and 11.4% severe ED dysfunction[10]. Several factors although contribute like advancing age, atherosclerotic cardiovascular diseases, high altitude, smoking, low income etc. Another study in 2013 reported high incidence of around 97.3% ED in patients with diabetes in northern Pakistan, while 2016 study reported 64.2%[11,12]. The mechanism underlying is endothelial dysfunction with inhibition of nitrous oxide which is a potent vasodilator and is its impairment results in erectile dysfunction. Different studies have shown vitamin D deficiency in patients with erectile dysfunction as well as with other atherosclerotic cardiovascular diseases[4,13, 14]. Direct causal relationship has not been established however deficiency of vitamin D has been seen in patients with severe erectile dysfunction with levels <35ng/ml while levels above it were not found in erectile dysfunction[15].

The aim of our study was to determine the levels of vitamin D in patients presenting with erectile dysfunction as no local study has been in our setup,

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despite of having high percentage of erectile dysfunction present in our population as evident from recent studies[10-12].

MATERIALS AND METHODS

This prospective cross-sectional study was conducted in n=84 patients in Social Security Kidney Centre Hospital of Karachi from July 2017 to August 2018. Informed consent was taken from patients or next to kin after approval from ethical committee board. The sample size of study was calculated from prevalence to 64.2%. All patients with Age > 18 yrs., patients presenting with complains of erectile dysfunction in outpatient department were included. Patients with cardiovascular diseases, depression, antipsychotic drugs and bleeding disorders were excluded. Detailed clinical history and examination was done and after patients were diagnosed of having erectile dysfunction were classified into mild, mild to moderate, moderate and severe dysfunction on the basis of five-item version of International Index of erectile function questionnaire. This questionnaire inquires symptoms over the period of six months and score from 1 to 5 with questions comprising five points. Patient total scoring >17 are considered having no erectile dysfunction, patients with score of 17-21 considered as mild, from 12 to 16 mild to moderate, 8 to 11 moderate and 5 to considered severe ED dysfunction. The serum vitamin D levels of all patients ranging from mild to severe dysfunction were sent and values below 35ng/ml are considered to have deficiency of vitamin D.

Data was analyzed by statistical software package SPSS version 20.0. Continuous variable that is patient's age, vitamin D levels were expressed as mean±SD. Qualitative variables will be expressed as frequencies and percentages. Chi square was applied between serum vitamin D levels and severity of erectile dysfunction.

RESULTS

Out of 84 patients presented with erectile dysfunction the mean age of patients was 34.8 ± 4.4 years (table 1). Most of group affected was from 25yrs to 35yrs n= 52(65%), and 35 to 45yrs n=28(35%) respectively. (figure 1). The patients mostly presented with mean vitamin D levels of 14.6ng/ml ± 4.82. While mostly the range of vitamin D was between 10ng/ml to 20ng/ml i-e; n=60 (75%), from >30ng/ml, n=15 (18.8%) and <10ng/ml n=5(6.3%). (figure 2).

Table No.1: Demographic variables

Variables	Frequency (percentages)
Age in years Mean ± SD	34.8 ± 4.4 years
Serum vitamin D in ng/ml	14.6ng/ml ± 4.82

Patients with erectile dysfunction were treated with vitamin d for period of 6 weeks with 65% patients responded to treatment together with lifestyle modification.

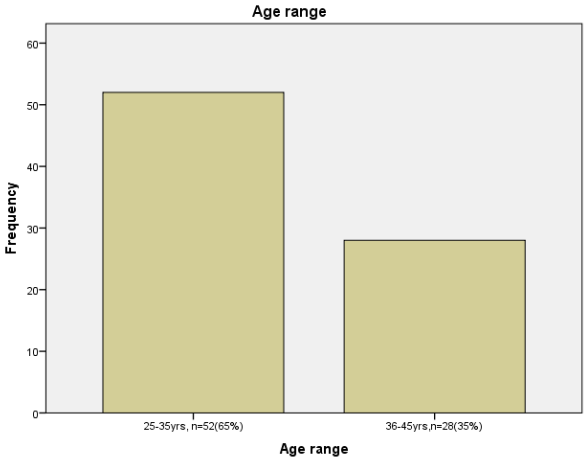

Figure No.1: Age range with percentage.

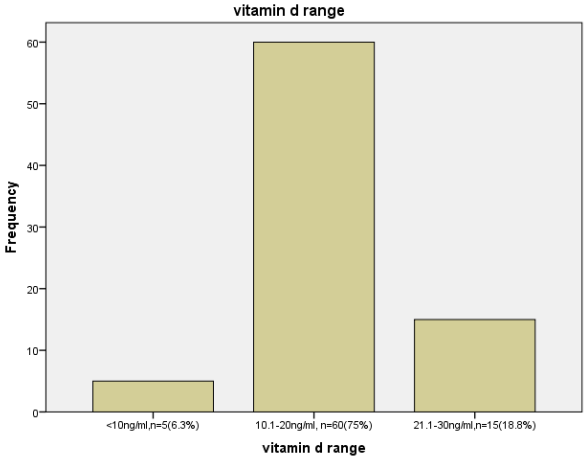

Figure No.2: Vitamin d range with percentage.

DISCUSSION

The erectile dysfunction is most prevalent in elderly age mostly related to atherosclerotic heart diseases, it also has many neurogenic, medical and psychogenic causes. In our study the patients with erectile dysfunction with other causes like vascular cause, drugs, neurogenic etc were excluded. All patients presented mostly belong age of >25yrs till 45yrs with no evident ischemic heart diseases etc. Most of patients with erectile dysfunction had severe vitamin D deficiency i-e; <20ng/ml while some patients have moderate deficiency > 30mg/ml while some also had levels of <10ng/ml. in US there are around 80%patients with erectile dysfunction secondary to atherosclerotic heart disease[16].

The Endocrinology Society Clinical practice guidelines classifies vitamin D levels below <20ng/ml to be

deficient. In developing countries mostly patients have been seen to be deficient in vitamin D. In Pakistan too mostly patients have low levels of vitamin D affecting mostly weiled women. However, different studies have been done to evaluate the cause behind erectile dysfunction and vitamin D levels, but causal relationship cannot be established. Sorenson eta l in 2012 has found I his prospective study has found levels of vitamin D to be <39ng.ml in men with erectile dysfunction [18].Canguven et al in 2017 has found mean levels of 15ng.ml of vitamin D especially among young patients with improvement in erectile dysfunction after its supplementation [19].Although other factors are also contributory like genetics, weight, exposure to sun etc.

In our study most patients ages were between 25 to 35yrs with severe vitamin D deficiency of <15ng/ml. Vitamin D increases vascular health by inflammatory cascade inhibition. However some studies does not support the evidence as in some studies there was no improvement in erectile dysfunction even after supplementation[20]. Not only this the patients with severe deficiency has been found to have diabetes mellitus in controlled range. By modification in lifestyle and some other changes patients with erectile dysfunction have revealed good results after treatment with vitamin D supplementation for six weeks.

CONCLUSION

Therefore, we concluded that patients presenting with erectile dysfunction were found to have severe vitamin d deficiency with improvement in ED after vitamin d supplementation together with some lifestyle modification.

Author's Contribution:

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

REFERENCES

1. Pittas AG, Chung M, Trikalinos T, Mitri J, Brendel M, Patel K, 35 al. Systematic review: Vitamin D and cardiometabolic outcomes. Annals of Int Med 2010;152(5): 307–14..
2. Chung M, Balk EM, Brendel M, Ip S, Lau J, Lee J, et al. Vitamin D and calcium: a systematic review of health outcomes. Evidence Report/Technology Assessment 2009;(183):1–420.
3. Bjelakovic G, Gluud LL, Nikolova D, Whitfield K, Wetterslev J, Simonetti RG, et al. Vitamin D supplementation for prevention of mortality in adults. The Cochrane Database of Systematic Reviews (Systematic review) 2014;1(1): CD007470.
4. Bolland MJ, Grey A, Gamble GD, Reid IR. The effect of vitamin D supplementation on skeletal, vascular, or cancer outcomes: a trial sequential meta-analysis. Lancet Diabetes Endocrinol (Meta-analysis) 2014; 2 (4): 307–20.
5. Talib RA, Khalafalla K, Cangüven Ö. The role of vitamin D supplementation on erectile function. Turkish J Urol 2017;43(2):105-111.
6. Sorenson M, Grant WB. Does vitamin D deficiency contribute to erectile dysfunction? Dermato-endocrinol 2012;4(2):128-36.
7. Barassi A, Pezzilli R, Colpi GM, Corsi Romanelli MM, Melzi d'Eril GV. Vitamin D and erectile dysfunction. J Sex Med 2014;11:2792–2800.
8. Araujo AB, Hall SA, Ganz P, Chiu GR, Rosen RC, Kupelian V, et al. Does erectile dysfunction contribute to cardiovascular disease risk prediction beyond the Framingham risk score? J Am Coll Cardiol 2010;55:350–6.
9. Sorenson M, Grant WB. Does vitamin D deficiency contribute to erectile dysfunction? Dermatoendocrinol 2012;4(2): 128–136.
10. Zubair UB, Mumtaz H, Tabassum AS. Effect of high altitude on erectile function in otherwise healthy individuals. Pak Armed Forces Med J 2016;66(3):314-8.
11. Ahmed I, Aamir AH, Anwar E, Ali SS, Ali A, Ali A. Erectile dysfunction and type 2 diabetes mellitus in northern Pakistan. J Pak Med Assoc 2013;63(12):1486-90.
12. Khan MU, Alam MT, Kumar D, Adnan SM, Soomro H. Type 2 diabetic patients; frequency of self-reported sexual dysfunctions among male. Profess Med J 2016;23(06):646-54.
13. Vacek JL, Vanga SR, Good M, Lai SM, Lakkireddy D, Howard PA. Vitamin D deficiency and supplementation and relation to cardiovascular health. Am J Cardiol 2012;109:359–63.
14. Tare M, Emmett SJ, Coleman HA, Skordilis C, Eyles DW, Morley R, et al. Vitamin D insufficiency is associated with impaired vascular endothelial and smooth muscle function and

hypertension in young rats. J Physiol 2011; 589:4777–86.

15. Farag YM, Guallar E, Zhao D, Kalyani RR, Blaha MJ, Feldman DI, et al. Vitamin D deficiency is independently associated with greater prevalence of erectile dysfunction: The National Health and Nutrition Examination Survey (NHANES) 2001–2004. Atherosclerosis 2016;252:61–7.
16. Selvin E, Burnett AL, Platz EA. Prevalence and risk factors for erectile dysfunction in the US. Am J Med 2007;120:151–7.
17. Holick MF, Binkley NC, Bischoff-Ferrari HA, et al. Evaluation, treatment, and prevention of vitamin D deficiency: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 2011;96:1911–30.
18. Shin D, Pregenzer G, Gardin JM. Erectile dysfunction: a disease marker for cardiovascular disease. Cardiol Rev 2011;19(1):5-11.
19. Sorenson M, Grant WB. Does vitamin D deficiency contribute to erectile dysfunction? Dermatoendocrinol 2012;4(2):128-36.
20. Canguven O, Talib RA, El Ansari W, Yassin DJ, Al Naimi A. Vitamin D treatment improves levels of sexual hormones, metabolic parameters and erectile function in middle-aged vitamin D deficient men. Aging Male 2017:1-8.

Original Article

Prevalence of Antibiotic Resistant Pathogens in Post-Orthopedic Implant Site

Akkad Rafiq[1], Ahsan-ul-Haq[1], Abdul Hannan[2] and Asad Ali Choudhary[3]

ABSTRACT

Objective: To assess the frequency of infective organisms and their changing antibiotic sensitivity trends in surgical site infection after orthopedic implant surgeries.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Orthopedic Surgery, Divisional HQ Hospital Mirpur AJK from January 2018 to December 2018.

Materials and Methods: Ninety six patients of both genders and age between 16-80 years with surgical site infection after elective surgeries were included. Patients' demographics were recorded. Type of most common pathogen and its sensitivity pattern were recorded.

Results: The mean age of patients was 45.93±10.58years. There were 51 (53.1%) males and 45 (46.9%) females. There was Staphylococcus aureus was found in 33 (33.96%) cases, MRSA was found in 18 (18.75%) cases, E. coli was found in 15 (15.63%) cases. Ceftriaxone was sensitive in 88 (91.7%) cultures, Ampicillin was sensitive in 62 (64.6%) cultures, and Metronidazole was sensitive in 58 (61.4%) cultures.

Conclusion: The frequency of Staphylococcus aureus was found to be most common pathogen in SSI and ceftriaxone was most sensitive antibiotic for SSI management.

Key Words: Surgical site infection, Pathogen, Antibiotic sensitivity

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INTRODUCTION

Infections caused by antibiotic-resistant pathogens are a major public health concern, and their treatment can bechallenging.[1] The increasing rates of orthopedic surgery across many countries emphasize the importance of implementing strategies to minimize the risk of surgical site infection.[2,3] In advance trauma and orthopaedic surgery device related infections remains a major complication.[4] The SSI was reported 3.8%, which is below the reported worldwide incidence of 2.6% to 41.9%.[5,6] Despite best practice in medical and surgical management, neither prophylaxis nor treatment of orthopedic device–related infection is effective in all cases, and can lead to infections that negatively impact clinical outcome and significantly increase healthcare expenditure.[7]

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In developing countries like Pakistan hospitalization still suffers lack of proper surgical instrument sterilization resulting into various pathogen growth at SSI. The present study will help in assessing the prevalence of such pathogens.

MATERIALS AND METHODS

This cross sectional study was done from 1st January 2018 to 31st December 2018 at Department of Orthopedic Surgery, Divisional HQ Hospital Mir AJK and comprised 96patients of surgical site infection. Patients of age 16-80years, of either gender underwent surgery for bony fractures and developed SSI were included. Patients with diabetes, osteomalacia and patients on antibiotics for previous infections were excluded from the study. Written informed consent was taken from each case. Demographic and clinical details as name, age, sex, duration of surgery, symptoms and infection site involved were obtained. Patients were evaluated for infection and pus sample was obtained under aseptic measures and sent to the hospital laboratory for reporting. Reports were assessed and type of pathogen found in culture and its antibiotics sensitivity was noted. All the collected data was then analyzed through SPSS version 21.

RESULTS

The mean age of patients was 45.93±10.58years. There were 51 (53.1%) males and 45 (46.9%) females. The mean duration of surgery was 23.84±11.35days. In the sample, 44 had femur fracture, 23 had humerus

fracture, 17tibial fractures, 9 had radial fracture and 3 had fibula fracture (Table 1). Out of 96, Staphylococcus aureus was found in 33 (33.96%) cases, MRSA was found in 18 (18.75%) cases, E. Coli was found in 15 (15.63%) cases, Pseudomonas A was found in 12 (12.5%) cases, BHS group A in 10 (10.4%) cases, Enterococcus in 9 (94%) and salmonella in 9 (9.4%) cases (Table 2). Different antibiotics were applied on pus culture Ceftriaxone was sensitive in 88 (91.7%) cultures, Ampicillin was sensitive in 62 (64.6%) cultures, Metronidazole was sensitive in 58 (61.4%) cultures, Gentamicin was sensitive in 29 (30.2%) cultures while cefoxitin was sensitive in 13 (13.5%) cultures (Table 3).

Table No.1: Characteristics of patients (n=96)

Age	45.93±10.58years
Gender (Male / Female)	51 (53.1%) / 45 (46.9%)
Duration of surgery	23.84±11.35days
Site of fracture	
Femur	44
Humerus	23
Tibial	17
Radius	9
Fibula	3

Table No.2: Pathogens found in culture

Bacteria	**No. (%)**
Staph Aureus	33 (33.96%)
MRSA	18 (18.75%)
E. Coli	15 (15.63%)
Pseudomonas A	12 (12.5%)
BHS Group A	10 (10.4%)
Enterococcus	9 (9.4%)
Salmonella	9 (9.4%)

Table No.3: Antibiotic sensitivity of pathogens

Antibiotic	**Sensitive**
Ceftriaxone	88 (91.7%)
Ampicillin	62 (64.6%)
Metronidazole	58 (61.4%)
Gentamicin	29 (30.2%)
Cefoxitin	13 (13.5%)

DISCUSSION

The most prevalent species in orthopaedic device-related infection are Staphylococci.[8,9] Staphylococcus aureus accounts for between 20% and 30% of cases of infection after fracture fixation and prosthetic joint infections, with coagulase-negative staphylococci accounting for 20–40% of cases, including small colony variants.[10]

The most common isolated infective organism was Staphylococcus species including Methicillin Resistant Staphylococcus aurous 33 (33.2%), MRSA 18 (18.75) Pseudomonas 12 (12.5%), Enterococcus species in 9 (9.4%) and Escherichia coli in 15 (15.6%). There were 53 patients (72.6%) infected by a single organism, (21.9%) by two infecting organisms, and 4 (5.5%) patients infected by more than two organisms.[11] In all patients who had two or more organisms, Staphylococcus aureus was the common organism. The following prophylactic antibiotics were used: ampicillin, gentamicin, cefoxitin, metronidazole and ceftriaxone.[12]

The Gram-positive cocci including Streptococci (1-10%) and Enterococci (3-7%) are less frequently encountered. Infection caused by Gram-negative bacilli, including Pseudomonas aeruginosa and Enterobacteriaceae account for approximately 6-17% and anaerobes (including Propionibacteria and Peptostreptococci) are comparatively rare at approximately 4–5%.[8-12] Shoulder orthopedic device–related infections, however, may have higher Propionibacterium acnes prevalence, at up to38%.[13] Recently more attention has been focused upon polymicrobial infections, which may account for 10-20% ofcases.[8.9.12] Furthermore, studies using molecular diagnostic techniques indicate that, in addition, there is a significant proportion (5-34%) of culture-negativeinfections.[14,15]

Others are anaerobes, gram-negative bacilli such as Pseudomonas species or E. coli, and especially in hematogenous infections streptococci.[16,17] Tunney et al[18] isolated Propionibacterium species in 60% of orthopedic device-related infections by using strict anaerobic bacteriologic practices during the processing of samples considered associate with orthopedic device–related infections. Propionibacterium species are the second most frequent contaminant found in jointaspiration.[19]

Hidayatullahet al[20] found that Staphylococcus aureus (13 cases) including MRSA (5 cases) was the most common infecting organism in our study, involving 18 (50%) patients. Other studies show the frequency of Staphylococcus aureus to be 25-29%.[21,22] The frequency of MRSA among Staphylococcus aureus was 27.8% (5 out of 18). Staphylococcus aureus was most sensitive to fusidic acid, vancomycin linezolid, clindamycin and erythromycin. There was a mixed sensitivity pattern to gentamycin, cotrimxazole and oxacillin. In majority of cases Staphylococcus aureus was resistant to pencillin, levofloxacin and tetracyclin.[20]

CONCLUSION

The frequency of Staphylococcus aureus and MRSA were most common pathogens in SSI and ceftriaxone, ampicillin and metronidazole were most sensitive antibiotic for SSI management. Now in future, we can implement the use of ceftriaxone, ampicillin and metronidazole for management of SSI keeping in mind most common pathogens.

Author's Contribution:

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

REFERENCES

1. Vergidis P, Schmidt-Malan SM, Mandrekar JN, Steckelberg JM, Patel R. Comparative activities of vancomycin, tigecycline and rifampin in a rat model of methicillin-resistant Staphylococcus aureus osteomyelitis. J Infec 2015;70(6):609-15.
2. Kassavin DS PL, Goldfarb MA. Surgical site infections: incidence and trends at a community teaching hospital. Am J Surg 2011;201:749-53.
3. Pronovost P ND, Berenholtz S, et al. An intervention to decrease catheter-related bloodstream infections in the ICU. N Engl J Med 2006;355:2725-32.
4. Tsaras G OD, Mabry T, et al. Incidence, secular trends, and outcomes of prosthetic joint infection: a population-based study, olmsted county, Minnesota, 1969-2007. Infect Control Hosp Epidemiol 2012;33:1207-12.
5. Lilani SP JN, Chowdhary A, Daver GB. Surgical site infection in clean and clean-contaminated cases. Indian J Med Microbiol 2005;23:249-52.
6. Skarzyńska J CA, Madry R, et al. Hospital infections in general surgery wards. Przegl Epidemiol 2000; 54:299-304.
7. Poultsides LA LL, Malizos KN. The socioeconomic impact of musculoskeletal infections. J Bone Joint Surg [Am] 2010;92:e13.
8. Corvec S PM, Pasticci BM, Borens O, Trampuz A. Epidemiology and new developments in the diagnosis of prosthetic joint infection. Int J Artif Organs 2012; 35:923-34
9. Montanaro L SP, Campoccia D, et al. Scenery of Staphylococcus implant infections in orthopedics. Future Microbiol 2011;6:1329-49
10. Tande AJ OD, Greenwood-Quaintance KE, et al. Clinical characteristics and outcomes of prosthetic joint infection caused by small colony variant staphylococci. MBio 2014;5:e01910-14.
11. Bachoura A GT, Smith RM, Vrahas MS, Zurakowski D, Ring D. Infirmity and injury complexity are risk factors for surgical-site infection after operative fracture care. Clin Orthop Relat Res 2011;469:2621-2630.
12. Mardanpour K, Rahbar M, Mardanpour S, Mardanpour N. Surgical site infections in orthopedic surgery: incidence and risk factors at an Iranian teaching hospital. Clin Trials Orthop Disord 2017; 2(4):132-7.
13. Achermann Y SF, Schwyzer HK, et al. Characteristics and outcome of 16 periprosthetic shoulder joint infections. Infection 2013;41: 613-20.
14. Hoiby N BT, Moser C, et al. ESCMID guideline for the diagnosis and treatment of biofilm infections 2014. Clin Microbiol Infect 2015;21 Suppl 1:S1-25.
15. Parvizi J EO, Della Valle CJ. Culture-negative periprosthetic joint infection. J Bone Joint Surg [Am] 2014;96:430-6.
16. Steckelberg JM, Osmon DR, Bisno AL, Waldvogel FA. Prosthetic joint infections, Infections associated with indwelling medical devices. Washington DC: Am Society for Microbiol 1994; 59-90.
17. Tattevin P, Cremieux AC, Pottier P, et al. Prosthetic joint infection: when can prosthesis salvage be considered? Clin Infect Dis 1999; 29:292-5.
18. Tunney MM, Patrick S, Curran MD, et al. Detection of prosthetic hip infection at revision arthroplasty by immunofluorescence microscopy and PCR amplification of the bacterial 16S rRNA gene. J Clin Microbiol 1999;37:3281-90.
19. Barrack RL, Harris WH. The value of aspiration of the hip joint before revision total hip arthroplasty. J Bone Joint Surg Am 1993;75:66-76.
20. Hidayatullah, Siraj M, Ali A, Khan MAJ, Khan MS, Askar Z. Infective Organisms and their Changing Antibiotic Sensitivity Trends in Infections Occurring in Orthopaedics Implant Surgery. JPOA 2018;30(1):1-3.
21. Al-Mulhim FA BM, Sadat-Ali M, Alomran AS, Azam MQ. Prevalence of surgical site infection in orthopedic surgery: a 5-year analysis. Int Surg 2014;99(3):264-8.
22. Phillips JE CT, Noy M, Elliott TS, Grimer RJ. The incidence of deep prosthetic infections in a specialist orthopaedic hospital. Bone Joint J 2006; 88(7):943-8.

Original Article

Functional Outcome of Cambell's Triceps Tongue Flap Approach in Patients with AO "Type C" Distal Humerus Fracture

Kashif Siddiq[1], Muhammad Ali[1], Muhammad Amir[1], Muhammad Safdar Baig[2], Muhammad Khizer Hayat Makki[1] and Sajjad Ahmad[1]

ABSTRACT

Objective: To determine functional outcome of cambell's triceps tongue flap approach in patients with AO "Type C" distal humerus fractures in patients between 16 to 50 years of age.

Study Design: Descriptive case study

Place and Duration of Study: This study was conducted at the Department of Orthopedic Surgery, Civil Hospital Bahawalpur/Quaid-e-Azam Medical College, Bahawalpur from January 2012 to November 2012.

Materials and Methods: 196 cases between the ages of 16 –50 years with "Type C" distal humerus fractures according to AO classification were studied and samples were taken by a non-probability purposive sampling. Risen-borough and Radin criteria was used to assess the functional outcome of the results. All patients were evaluated at 16th postoperative week and range of elbow flexion with the help of goniometer measured to draw a meaningful conclusion in terms of satisfactory (Good and fair) and unsatisfactory (poor) functional outcome.

Results: According to Risen-borough and Radin criteria evaluation of these cases at final follow up (16th post operative week) revealed that 100 (54.3%) patients had good functional results with 60 (32.6%) male and 40 (21.7%) female whereas 55 (29.9%) patients had fair results with 40 (21.7%) male and 15 (8.2%) female. Poor results were found in 29 (15.8%) patients with 21 (11.4%) male and 8 (4.3%) female patients.

Conclusion: From our study we conclude that triceps tongue flap approach affords adequate exposure with ample space to fix the intra-articular fractures of distal humerus using both pillar fixations if required, in adults with satisfactory functional recovery in majority of the patients.

Key Words: AO type C. Distal humerus fractures, Triceps tongue flap.

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INTRODUCTION

Complex fractures of distal humerus are one of the difficult fractures to treat. AO type C fractures are multifragmentary and result from high energy trauma in young individuals while in elderly people low energy trauma like fall from height is usually responsible for such fractures[1]. A severe blow on the point of the elbow drives the olecranon process upwards, splitting the condyles apart[2].

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The danger with conservative treatment is the strong tendency to stiffening of the elbow and persistent pain. Operative management is usually the appropriate treatment for the fractures with displacement[2].

A variety of approaches have been recommended for exposure and fixation of distal humerus fractures[3]. Triceps mechanism is the key for surgical approaches whether it is divided to make better exposure or kept intact with reasonable exposure[4]. Most commonly, a posterior approach with an olecranon osteotomy has been used as it provides the best fracture exposure.[3] Although it provides a good exposure, it also has disadvantages of delayed union, nonunion and implant related complications at the osteotomy site[5]. Significant osteotomy complications have prompted a search for alternative approaches[6].

In different studies good results were reported with cambell's triceps tongue flap approach. According to a study of 34 patients conducted at Chengdu Modern Hospital in China, stable fixation and a high rate of union of complex distal humeral fractures can be achieved with double-plate fixation through triceps tongue-shaped flap approach. Elbow functional activity can be achieved in patients with early stage.

Excellent rate was 85.29%.[7]In one study 20 cases were treated by triceps tongue flap approach, the excellent and good rate was 60%[8]. In another study 22 patients were operated by Campbell's triceps tongue flap approach showed 59.09% good results.[4]

The proposed study is designed because there is difference in outcome of these studies and no local work has been done in whichfunctional outcome of cambell's triceps tongue flap approach for reduction and internal fixation of AO type C distal humerus fractures has been evaluated. The results of this study will further be helpful in treatment and management protocol.

MATERIALS AND METHODS

Medical College, Bahawalpur, from 23th January 2012 to 22th November 2012, involving patients either male or female reporting in OPD or emergency within one week of injury having AO type C distal humerus fractures diagnosed on standard anteroposterior and lateral radiographs of the elbow. 196 cases between the ages of 16 –50 years with"Type C"distal humerus fractures according to AO classification were taken by a non-probability purposive sampling.

Risen-borough and Radin criteria was used to assess the functional outcome of the results. All patients were evaluated at 16th postoperative week and range of elbow flexion with the help of goniometer measured to draw a meaningful conclusion in terms of satisfactory (Good and fair) and unsatisfactory (poor) functional outcome.

RESULTS

According to Risen-borough and Radin criteria evaluation of these cases at final follow up (16th post-operative week) revealed that 100 (54.3%) patients had good functional results with 60 (32.6%) male and 40 (21.7%) female whereas 55 (29.9%) patients had fair results with 40 (21.7%) male and 15 (8.2%) female. Poor results were found in 29 (15.8%) patients with 21 (11.4%) male and 8 (4.3%) female patients. The results were divided into two groups with 155(84.2%) patients in satisfactory (Good, Fair) and 29(15.7%) patients in unsatisfactory (poor) group. The Mean age was 33 ± 8.3 while mean range of motion was 99 degrees (range 70°-118°).

Table No.1: Showing 100(54.3%) patients with Good Functional Outcome (Range of Motion)

No. of Patients	6	12	16	20	17	29
Range of Motion	18-136°	20-128°	22-122°	24-120°	26-118°	28-116°
Arc	118°	108°	100°	96°	92°	88°
Result	Good					

Table No.2: Showing 55 (29.9%) patients with Fair Functional Outcome (Range of Motion)

No. of Patients	4	5	7	11	12	16	4
Range of Motion	30-130°	36-126°	40-122°	44-120°	48-118°	56-116°	64-112°
Arc	100°	90°	82°	76°	70°	60°	48°
Result	Fair						

Table No.3: Showing 29 (15.8%) patients with Poor Functional Outcome (Range of Motion)

No. of Patients	6	7	12
Range of Motion	68-108°	70-106°	74-100°
Arc	40°	36°	48°
Result	Poor		

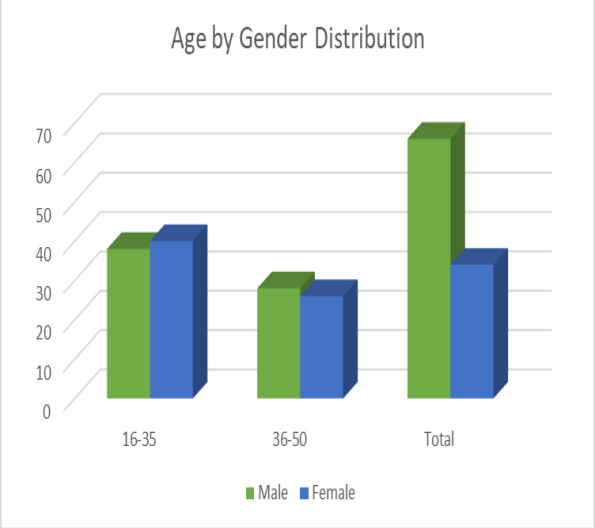

Figure No.1: Figure showing percentage of male and female in two age groups.

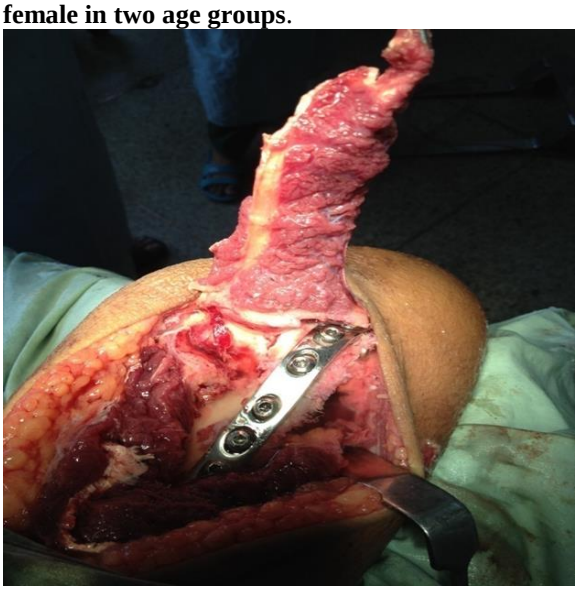

Figure No.2: Per-operative picture showing Triceps tongue flap

Table No.4: Percentage of complications of surgery among 196 patients

Complications	Total	Percentage
Superficial Wound Infection	12	6%
Neurapraxia	5	2.5%
Hardware Irritation	16	8%
Non-Union	5	2.5%
Heterotropic Ossification	18	9.7%

DISCUSSION

The majority of distal humerus fractures have complex fracture patterns, with displaced articular segments, requiring operative intervention. The goals of surgery are anatomic reduction and rigid internal fixation via an operative approach that balances maximum required exposure with minimum soft tissue or bony disruption[9].

Most commonly, a posterior approach with an olecranon osteotomy has been used as it provides the best fracture exposure.[3]Although it provides a good exposure, it also has disadvantages of delayed union, nonunion and implant related complications at the osteotomy site.[5] Significant osteotomy complications have prompted a search for alternative approaches[6].

In my study 196 patients were treated by triceps tongue flap approach that divides triceps mechanism providing good exposure for open reduction and internal fixation of AO type C distal humerus fractures and functional outcome was determined.

Age wise distribution results with mean age 33 ±8.39(16-50)were in agreement with the studies of Majeed N, Salim M, Islam Q (36.95 ±4.21)[4] in 2007, Pankaj A, Mallinath G et al (32 ± 4.5)[10] in 2007 and Babhulkar S in 2011with maximum number of cases in 30-40year group[11].

Gender distribution results with 130(66.3%) males and 66(33.7%) females were comparable with the studies of Pankaj A, Mallinath G et al[10] in 2007 with 28(70%) males and 12(30%) females and Babhulkar S in 2011[11] with139(75%) males and 45(25%) females[11].

The dominant right arm was more injured than left arm with 132(67.34%) cases of right elbow and 64(32.65%) cases of left. These results were similar withthe studies of Pankaj A, Mallinath G et al[10]in 2007 with 27(67.5%) patients of right elbow and 13(32.5%) of left and Babhulkar S in 2011[11] with134(72.82%) patients of right and 50(27.17%) of left elbow.

Analysis of complications developed after surgery revealed that superficial wound infection developed in 12(6%) patients and satisfactorily controlled with aggressive wound toilet and appropriate antibiotics. Neuraparaxia of radial nerve was seen in 5(2.5%) patients due to tourniquet and spontaneously recovered within 8-10 weeks. Hardware irritation was seen in 16(8%) patients due to K-wires and malleolar screws and treated by removing the hardware. These results disagree with the study of Majeed N, Salim M, Islam Q, where hardware irritation and superficial infection rate was 4.5%[4].

Slight higher rate of complications in my study demonstrated the need for further implant and surgical procedure improvement.

Our results were better regarding heterotropic ossification with 18(9.7%) patients whereas the study by Yan Zhou, Xin Qu revealed heterotropic ossification in 40% patiens[8]. We started early gentle mobilization, taught the patient to move his limb and elbow himself without anyone aggressively doing the exercise that helped in preventing heterotropic ossification in our study group. Message was strictly condemned only self-supervised ROM exercises were advised. This helped in reducing the incidence of heterotropic ossification in our patients.

In Tyllianakis M, Panagopoulos A, et al study reported complications were postoperative ulnar nerve palsy 3.8%, wire migration 15%, heterotopic ossification 11.5% and infection 7.6%[12].In our study no ulnar nerve palsy was seen, as we isolated and saved the ulnar nerve while exposing the fracture. Rest of the complications rate was almost comparable to our study.

All 184 patients were evaluated and 100 (54.3%) patients had good functional results with 60 (32.6%) male and 40 (21.7%) female whereas 55 (29.9%) patients had fair results with 40 (21.7%) male and 15 (8.2%) female. Poor results were found in 29 (15.8%) patients with 21 (11.4%) male and 8 (4.3%) female patients. In the poor result group on exploring it was found that majority belonged to age group between 40-to-50 years, their cooperation level as compared to younger patients was found to be low even though their recovery regarding wound and bone healing was comparable to the satisfactory result patient group.

A variety of approaches including olecranon osteotomy, triceps tongue flap, triceps-splitting, triceps-reflecting, triceps-reflecting anconeus pedicle (TRAP), anconeus flap transolecranon (AFT), and paratricipital approaches have been described for reduction and fixation of distal humerus fractures.Intra-articular exposure is dependent on triceps mobilization.

Majority of studies have small number of patients and diversity of classification systems and criteria for assessment makes it hard to compare the outcomes. In our study functional outcome was range of elbow motion measured with goniometer and results of elbow motion arc can be easily compared with other studies irrespective of the criteria used.

We started mobilization with active small range flexion and extension in 3rd week. In Majeed N, Salim M, Islam Q study, the patients were also motivated to perform active flexion and extension exercises early[4].Talha, Toulemonde SI et al also advised early physical rehabilitation (between 3 and 21 days) provided satisfactory fixationwas made[13].

Early postoperative mobilization depends on surgical approach, types of fractures and types of internal fixation of the fractures. In our study early physical rehabilitationwas successful in 140 fractures due to primary stable osteosynthesis. In 44 cases additional immobilization was carried out for 10 to 28 days with extensive fracture comminution and less stable fracture construct. In these patients outcome tilted towards fair results in the final analysis, as extended period of immobilization caused more stiffness in the joint and the soft tissue which required managed rehabilitation with much stress on the patients self involvement in his exercise regimen. These patients ended up with somewhat reduced arc of elbow motion with no weakness in the use of the limb.

Tang Lin-jun, Lu Bo, Tang Hua et al conducted study on 34 patients with double-plate fixation for AO type C-3 fractures of humerus using triceps tongue-shaped flap approach and elbow functional activity was achieved in early stage with early physical rehabilitation. Results were assessed with Mayo Elbow Performance Score (MEPS). Twenty-nine patients (85.29%) had a good or excellent results with mean flexion-extension arc 92 degrees (88°-107°)[7]. In our study result the patients were divided into two groups with 155(84.2%) patients in satisfactory (Good, Fair)and 29(15.7%) patients in unsatisfactory (poor) group. The mean flexion-extension arc was 88 degrees (60°-118°) in satisfactory group (Good, Fair) of patients. Thus results of our study were comparable to Tang Lin-jun, Lu Bo, Tang Hua et al study.

In Liu YK, Xu H, Liu F et al study 38 patients were treated for humeral intercondylar type-C fractures by exposing 32 patients through trans-olecranon osteotomy and the Campbell (Van Gorder) Triceps tongue-flap approach and stabilised with dual plating. Results were evaluated with Aitken and Rorabeek criteria. Twenty-nine patients (82.9%) had a good or excellent results with elbow flexion averaged 119 degrees (range 90°-135°)[14].In our study average elbow flexion was 120 degrees (range 116°-136°). Our results were relatively better because we started early gentle mobilization, taught the patient to move his limb and elbow himself. The patients were instructed to support the wrist with the opposite hand and gently flex and extend the elbow, gradually increasing the range of motion without anyone else aggressively doing the exercise. This helped in achieving better range of motion.

Majeed N, Salim M, Islam Q compared triceps tongue flap approach with olecranon osteotomy approach and revealed 59.09% good and 27.27% fair results with triceps tongue flap approach[4]. These results were corresponding to 54.3% good and 29.9% fair results of our study. Thus satisfactory (Good, Fair) results of our study 84.2% are similar to Majeed N, Salim M, Islam Q study 86.36% satisfactory (Good, Fair) results. In our study percentage of good results were relatively less and fair were more. Although the difference in the results of both studies were not significant but additional immobilization in patients with comminuted fractures tilted our results more towards fair with somewhat reduced elbow arc of motion.

Triceps tongue flap approach was easy to perform, proved to be safe, and provided adequate intra-articular exposure to fix fractures while avoiding delayed union, nonunion and implant related complications at the osteotomy site in most commonly used olecranon osteotomy approach. For better elbow arc of motion results more work needs to be done regarding stable fixation of the fractures and stronger triceps tongue flap repair after surgery so that early rehabilitation could be instituted at the earliest.

CONCLUSION

From our study we conclude that triceps tongue flap approach affords adequate exposure with ample space to fix the intra-articular fractures of distal humerus using both pillar fixations if required, in adults with satisfactory functional recovery in majority of the patients.

Author's Contribution:

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

REFERENCES

1. Distal humerus fractures. In: Bucholz RW, Heckman JD, Court-Brown CM, editors. Rockwood And Green's Fractures In Adults. Philadelphia: Lippincott Williams & Wilkins; 2010.p.945-6.
2. Injuries of the shoulder, upper arm and elbow. In: Solomon L, Warwick D, Nayagam S, editors. Apley's system of orthopaedics and fractures. London: Hodder Arnold; 2010.p.751.
3. Fractures of the shoulder, arm and forearm. In: Canale ST, Beaty JH, editors. Cambell's operative orthopaedics. Philadelphia: Mosby Elsevier; 2008.p.3401.
4. Majeed N, Salim M, Islam Q. Comparison of cambell's and olecranon osteotomy approaches for treatment of inter-condylar fracture of humerus. Pak Armed Forces Med J 2007;57:300-4.

5. Lakhey S, Sharma S, Pradhan RL, Pandey BK. Osteosynthesis of intercondylar humerus fracture using Bryan and Morrey approach. Kathmandu Univ Med J 2010;8:154-7.
6. Tak SR, Dar GN, Halwai MA, Kangoo KA, Mir BA. Outcome of olecranon osteotomy in the trans-olecranon approach of intra-articular fractures of the distal humerus. Ulus Travma Acil Cerrahi Derg 2009;15:565-70.
7. Lin-jun Tang, Bo Lu, Hua Tang. The triceps tongue-shaped flap approach double-plate fixation for 34 cases of AO C_3 type intercondylar fracture of humerus. Sichuan Med J 2010.
8. Yan Zhou, Xin Qu. Approaches of triceps tongue flap and V-shaped olecranon osteotomy for the treatment of intercondylar fracture of humerus. J Clin Orthopaedics 2010.
9. Pollock JW, Athwal GS, Steinmann SP. Surgical exposures for distal humerus fractures. Clin Anat 2008;21:757-68.
10. Pankaj A, Mallinath G, Malhotra R, Bhan S. Surgical management of intercondylar fractures of the humerus using triceps reflecting anconeus pedicle (TRAP) approach. Ind J Orthop 2007;41: 219-23.
11. Babhulkar S, Babhulkar S. Controversies in the management of intra-articular fractures of distal humerus in adults. Ind J Orthop 2011;45:216-225.
12. Tyllianakis M, Panagopoulos A, Papadopoulos AX, Kaisidis A, Zouboulis P. Functional evaluation of comminuted intra-articular fractures of the distal humerus (AO type C). Long term results in twenty-six patients. Acta Orthop Belg. 2004 Apr;70:123-30.
13. Talha, Toulemonde SI, Cornier CT. Supra and inter-condylar fracture of distal humerus in adults. T Chir Paris 1989; 126: 217-24.
14. Liu YK, Xu H, Liu F, Wang YH et al. Treatment of type C intercondylar fractures of distal humerus using dual plating. Zhonghua wai ke za zhi 2009; 15:892-5.

Original Article

Dengue Fever

A Hospital Based Study of Knowledge, Attitude and Practices Regarding Dengue Fever among the Population of Peshawar

Saminullah Khan[1], Sher Bahadur[2], Attaullah Jan[2] and Gohar Rehman[2]

ABSTRACT

Objective: To determine the knowledge, attitude and practices among patients and visitors in two tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa, Pakistan.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Khyber Teaching Hospital (KTH), Peshawar and Lady Reading Hospital (LRH) from September to November 2016.

Materials and Methods: Data Collection was based on indigenous questionnaire. Using Convenient sampling techniques, a total of 448 adult patients and visitors were recruited in the study from two selected public sector tertiary care hospitals in Peshawar. The patients and visitors presented to outpatient department (OPD) were requested to take part in the study. Data were analyzed SPSS version 20 for descriptive statistics.

Results: Out of 448 sampled subjects, 435 (age 18-40 years) participated in the study, whom 289(66.4%) were male and 146(33.6%) were female. Regarding knowledge, only 239(54.9%) knew about mosquito bite as the main mode of transmission, 234(53.7%) believe that dengue is contagious diseases, while 72(16.5) were unaware. Similarly, 189(43.4%) reported that fresh water is main breeding site. Knowledge about prevention measures revealed that 72(16.5%) were lacking information of preventive measures and 137(31.4%) had no ideas about eradication strategies. More than half 253(58.1%) considered dengue could be dangerous if not treated early. Similarly, 239(54.9%) also believed that it should be prevented before onset. However 196(45.1%) of them were not in favor of prevention. The preventive measures proposed by participants included; Sprays 126(28.9%), Matt/ coil/ repellant 46(10.5%), Screening 32(7.3%) and Covering with cloths 31(7.1%), while 126(28.9%) were of the view that there is no need of any precautionary measures.

Conclusion: The knowledge among the adult participants was not optimal; there were wide variation in interpretations of causes, preventive aspects and consequences of dengue fever.

Key Words: Dengue Fever, Population, Peshawar

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INTRODUCTION

Dengue fever is vector borne infectious disease; mostly occurring in tropical regions and is suspected to be transmitted to susceptible human, characterized by mild influenza (flu) like symptoms, fever and some time presenting by hemorrhage, known as dengue hemorrhagic fever which can then lead to a shock like state called dengue shock syndrome.[1]

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It is believed that dengue fever is infecting around 50 to 100 million people every year.[2] There have been drastically around 30 fold increase in the prevalence of dengue fever in 2010.[1] The reasons behind this trend are: increased in population, travelling around the globe, and most importantly the phenomenon of global warming. The problem is that 70% people live near the equator which is around 2.5 billion, making huge endemic areas in Asia and pacific.[3 4] In some area of developing countries the dengue has still come up as a lethal disease transmitted[5]. The mortality and morbidity being caused by dengue, DHF and dengue shock syndrome is becoming a mammoth concern for the health authorities worldwide. It is still a vital health problem in Asian and African countries where the outbreak of dengue fever reported every year.[6 7]As half of World population is living in areas endemic to dengue, there is a need of urgency of devising a policy against it. These being underdeveloped nations, cannot further bear the financial loss which occurs in terms of loss of daily wages and health expenditure.[4] In the Asian subcontinent WHO has now labeled dengue and

DHF endemic. As of now it is present as endemic in 112 countries.[7] In Pakistan the outbreak goes back to 1994 and after that a large number of cases come up every year. In a poor and developing country like Pakistan it has the potential to cause havoc.[8] After 2005-6 there occurred an unprecedented upsurge in the spread of dengue and a huge number of cases were reported in Karachi.[9] In Pakistan the cases reported are on the on the rise annually.[10] In spite of the gravity of situation, no documented evidence regarding the awareness and practices among people regarding dengue fever is present. [11] Knowledge, attitude, and practice play a vital role in prevention of diseases, including dengue fever,[12] Literature in this regards indicates that poor knowledge among respondents was negatively associated with preventive measures of dengue through protection of containers in close vicinity of the houses. Similarly increased awareness lead to positive attitude of practices of mosquito reducing acts like using mosquito's repelling coil, screening on doors and windows.[13] It is worrying that despite of the drastic level of threat being posed by dengue here in Pakistan, the health care has not come up with a serious policy. In the near past dengue has been causing havoc especially in Punjab province and it also took several precious lives in KPK leaving more with more morbidities in KPK. A need is felt to assess the knowledge attitude and practice of the adult population of Peshawar regarding dengue which ultimately led to this study hence. This study encompasses the knowledge, attitude and awareness of the adult population of Peshawar regarding dengue fever and various variables are taken into consideration to assess the Knowledge attitude and practices of adult population.

MATERIALS AND METHODS

This was a cross sectional study conducted in two public sector tertiary care hospital; the Khyber Teaching Hospital (KTH) and Lady Reading Teaching Hospital (LRH), Peshawar. The study was conducted from September to November 2016 as in this period the occurrence of cases was at peak. All adult residents of Peshawar who were visiting KTH and LRH Peshawar during data collection period were requested to take part in the study. Assuming 95% confidence level and 0.50 prevalence, sample size was 448. Using convenience sampling technique the individual who were residents of Peshawar aged 18 years or above, who visited the outpatient departments (OPDS) of LRH and KTH either patients or their attendants and who can read/understand/speak Urdu/Pashto/English were included in the study. Those who refused to be part of the study were excluded. After taking verbal consent participant were given self-administered questionnaire, however they were also assisted in filling the questionnaire when they needed. Data were analyzed using SPSS version 20 and the results recorded as mean, standard deviation and frequencies.

RESULTS

A total of 435 out of 448 (response rate 97%) participated in the study out of whom 289 (66.4%) were male and 146 (33.6%) were female. Among them majority 158(36.3%) and 165 (37.9%) were in the range of 18-30 and 31-40 years age respectively, whereas 336 (77.2 %) were married. The sources of information from which the participant became aware about the dengue fever included; television, friend/family, poster/pamphlets and banners as shown in figure 1.

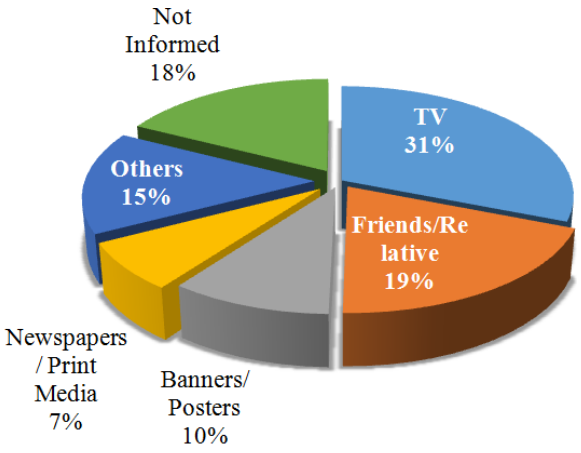

Figure No.1: Various information sources about dengue

Table 1a: Knowledge of participant about different aspects of dengue fever

Variables	Options	Frequency	%tage
Dengue History	Yes	29.	6.7
	No	406.	93.3
Spreading Mode	Mosquito Bite	239	54.9
	Fly bite	69	15.8
	Unhygienic water/ food	55	12.6
	Don't know	72	16.5
Contagious	Yes	234	53.7
	No	104	23.9
	Don't know	96	22
Symptoms of dengue	Fever	163	37.4
	Headache	54	12.4
	Rash	30	6.8
	Body ache	53	12.1
	Nausea/ vomiting	35	7.3
	Bleeding	29	6.6
	Don't know	72	16.5
Medication for dengue	Antibiotic	46	10.5
	Anti-malarial	37	8.5
	Antipyretics/ analgesics	149	34.2
	Don't know	203	46.6

Table No.1b: Knowledge of participant about different aspects of dengue fever

Variables	Options	Frequency	%age
Breeding sites of mosquitoes	Clean water	189	43.4
	Dirty water	92	21.1
	Garbage/ trash	75	17.2
	Vegetation/ Plants	38	8.7
	Don't know	41	9.4
Frequent biting time	Sunset	103	23.6
	Sunrise	117	26.8
	Day	74	17
	Night	88	20.2
	Don't know	53	12.1
Knowledge of prevention measures	Sprays	148	34
	Matt/ coil/ repellant	63	14.4
	Screening	38	8.7
	Cloth cover	55	12.6
	Others	59	13.5
	Don't know	72	16.5
Eradication of breeding sites of mosquitoes	Preventing water stagnation	146	33.56
	Covering water container	79	18.1
	Cutting trees/ vegetation	69	15.8
	Don't know	137	31.4

Among the participants 29(6%) have suffered from Dengue fever. From Knowledge perspectives, 239(4.9%) believed that Dengue infection is transmitted by mosquito bite while 69 (15.8%) reported that it is transmitted by fly bite. On the other hand 234 (53.7%) were thinking that Dengue is a contagious diseases. Regarding the sign and symptom most of them 163(37.4%) were aware about fever as main feature, however still 72(16.5) were not aware about the symptoms of disease. Regarding treatment option 149 (34.2%) believed that only antipyretic is the treatment whereas, 203(46.6%) had no idea about the medication, 46(10.5%) said antibacterial are the drug of choice while 37(8.5%) reported that the problem is dealt with by anti-malarial drugs. Only 189 (43.4%) reported that clean water is main breeding site. Nearly 50% of them knew that probability of biting by mosquitoes is high during the time of sunset and morning. Knowledge about prevention measures revealed that 72 (16.5%) were lacking information of preventive measures, while 137 (31.4%) had no ideas about eradication strategies.

The attitude of the participants indicated that more than half, 253(58.1%) considered dengue could be dangerous if not treated early. Similarly, 239(54.9%) also believed that it should be prevented before onset. However 196(45.1%) of them were not in favor of prevention. The preventive measures proposed by participants included; Sprays 126 (28.9%), Matt/ coil/ repellant 46 (10.5%), Screening 32 (7.3%) and Covering with cloths 31 (7.1%), while 126 (28.9%) were of the view that there is no need of any precautionary measures and 68 (15.6%) did not comment in this regards.

Table No.2. Attitude variables regarding dengue

Variables	N	%
You think dengue is dangerous?		
Yes	253	58.1
No	182	41.8
Do you think prevention should be taken?		
Yes	239	54.9
No	196	45
Which measures do you think should be taken?		
Sprays	126	28.9
Matt/ coil/ repellant	46	10.5
Screening	32	7.3
Covering with cloths	31	7.1
Others	6	1.3
Don't think should be taken	126	28.9
I don't know	68	15.6

DISCUSSION

In Pakistan the dengue fever outbreak was reported in 1994 from Karachi followed by Lahore in 2007. The disease drastically affected huge population in district Swat and Peshawar in 2013 and is still steadily present in concentrated prevalent form. [14] For prevention of dengue breeding and proliferation community participation is considered to be vital as they can play crucial role in controlling the breeding side of mosquito that carries the infection agent through making clean hygienic practice (clean environment) and changing harmful (unhealthy) behaviors that could led to propagation of mosquito breeding sites. To have an effective way of community participation and efficient preventive measures for this disease knowledge, attitude and practices remained the core components.[15] This study was aim to determine KAP among general population presented in two tertiary care hospitals Peshawar.

In the present study sample was representative, having 97% response rate of adult population ranging from 18-40 years of age across both gender, 289 (66.4%) male and 146 (33.6%) female were part of the study. The study comprised of 336 (77.2 %) married participants indicating that study population consisted a mature and responsible group of people. Most of them had heard about dengue fever and main source of information was television, friend/family, and poster/pamphlets. However remarkable proportions (18%) were not informed. There was wide variation in the knowledge of the participants, although they have heard about the

word dengue fever. Only 239(54.9%) knows that it is transmitted through mosquito, and yet there was several misunderstanding in terms of nature of disease, symptoms, medication and preventive measures. The same findings were also reported in study conducted in Karachi.[16] The knowledge of general population in India and Brazil is high as compared to what reported in Pakistan.[17 18]

In attitude category we found out that 253 (58.1%) said they think dengue is dangerous and 239 (54.9%) reported that precaution should be taken. Most of the participants 126 (28.6%) recommend use of spray as preventive measure; however similar proportions were of the view that there is no need of any precautionary measures. The use of Matt/ coil/ repellant was recommended by only 46(10.5%). Study from Uttar Pradesh revealed that 172 (86%) of the respondents were using mosquito mats as precautionary measure 64(32%) were using mosquito nets and 42(21%) were using spray and only 10(5%) were using the repellent creams. This indicates that the people of Utter Pradesh used best remedies of preventive measures, however the practices of prays was also low.[19] It is important to note that the relationship between knowledge and practices is not always linear. Some time competent persons did not put their competency into practices as reported by study from Barzil where they found significant gap between knowledge and practices about dengue prevention.[20]

CONCLUSION

There were wide variations/misconceptions in terms of knowledge about the basic variables of dengue prevention, nearly half of participants shown poor attitude toward preventive measures. As a whole more focus were given to spray, while other traditional precautionary measures like use of bet net and widow net were ignored, a significant proportion of participant were not in favor of precautionary measures.

Author's Contribution:

Concept & Design of Study:	Saminullah Khan
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Heilman JM, De Wolff J, Beards GM, Basden BJ. Dengue fever: a Wikipedia clinical review. Open Med 2014;8(4):e105-15.
2. Guo C, Zhou Z, Wen Z, Liu Y, Zeng C, Xiao D, et al. Global Epidemiology of Dengue Outbreaks in 1990-2015: A Systematic Review and Meta-Analysis. Front Cell Infect Microbiol 2017;7:317.
3. 3. Choi Y, Tang CS, McIver L, Hashizume M, Chan V, Abeyasinghe RR, et al. Effects of weather factors on dengue fever incidence and implications for interventions in Cambodia. BMC Public Health 2016;16:241.
4. Murray NE, Quam MB, Wilder-Smith A. Epidemiology of dengue: past, present and future prospects. Clin Epidemiol 2013;5:299-309.
5. Gurugama P, Garg P, Perera J, Wijewickrama A, Seneviratne SL. Dengue viral infections. Ind J Dermatol 2010;55(1):68-78.
6. Amarasinghe A, Kuritsk JN, Letson GW, Margolis HS. Dengue virus infection in Africa. Emerg Infect Dis 2011;17(8):1349-54.
7. Gupta N, Srivastava S, Jain A, Chaturvedi UC. Dengue in India. Ind J Med Res 2012;136(3): 373-90.
8. Siddiqui TR, Ghazal S, Bibi S, Ahmed W, Sajjad SF. Use of the Health Belief Model for the Assessment of Public Knowledge and Household Preventive Practices in Karachi, Pakistan, a Dengue-Endemic City. PLoS neglected tropical Dis 2016;10(11):e0005129.
9. Zubair M, Ashraf M, Ahsan A, Nazir NU, Hanif H, Khan HA. Dengue viral infections in Pakistan and other Asian countries: a comprehensive review. J Pak Med Assoc 2016;66(7):884-8.
10. Thaver AM, Sobani ZA, Qazi F, Khan M, Zafar A, Beg MA. Assessing the need for training: general practitioners' knowledge, attitude and practice concerning dengue and malaria in Karachi, Pakistan. Int Health 2011;3(2):126-30.
11. Syed M, Saleem T, Syeda UR, Habib M, Zahid R, Bashir A, et al. Knowledge, attitudes and practices regarding dengue fever among adults of high and low socioeconomic groups. J Pak Med Assoc 2010;60(3):243-7.
12. Rafique I, Saqib MA, Munir MA, Siddiqui S, Malik IA, Rao MH, et al. Dengue knowledge and its management practices among physicians of major cities of Pakistan. J Pak Med Assoc 2015; 65(4):392-6.
13. Koenraadt CJ, Tuiten W, Sithiprasasna R, Kijchalao U, Jones JW, Scott TW. Dengue knowledge and practices and their impact on Aedes aegypti populations in Kamphaeng Phet, Thailand. Am J Tropical Med Hygiene 2006;74(4):692-700..
14. Jahan F. Dengue Fever (DF) in Pakistan. Asia Pac Fam Med 2011;10(1):1.
15. Zahir A, Ullah A, Shah M, Mussawar A. Community Participation, Dengue Fever Prevention and Control Practices in Swat, Pakistan. Int J MCH AIDS 2017;5(1):39-45.
16. Itrat A, Khan A, Javaid S, Kamal M, Khan H, Javed S, et al. Knowledge, awareness and practices

regarding dengue fever among the adult population of dengue hit cosmopolitan. PloS one 2008; 3(7):e2620.

17. Malhotra G, Yadav m, Dudeja P. Knowledge, Awareness and Practices Regarding Dengue Among Rural and Slum Communities in North Indian City, India. Int J Med Sci Public Health 2014;3(3):295-99.
18. Santos SL, Parra-Henao G, Silva MB, Augusto LG. Dengue in Brazil and Colombia: a study of knowledge, attitudes, and practices. Rev Soc Bras Med Trop 2015;47(6):783-7.
19. Nijhawan DM, Upadhye AJ, Upadhye AJ. Knowledge, awareness and practices regarding dengue fever. Int J Sci Rep 2018;4(3):49-53.
20. Phuanukoonnon S, Brough M, Bryan JH. Folk knowledge about dengue mosquitoes and contributions of health belief model in dengue control promotion in Northeast Thailand. Acta Trop 2006;99(1):6-14.

Original Article

Depression after Stroke

Prevalence and Clinical Correlates of Major Depression after Stroke: A Hospital-Based Stroke Study

Babar Bashir[1], Dileep Kumar[2], Jawwad us Salam[3], Munir Hussain Siddiqui[4] and Syed Shayan Ali[4]

ABSTRACT

Objective: To determine the prevalence and clinical correlates of major depression after stroke in patients admitted at tertiary care hospital in Karachi.

Study Design: Cross Sectional study.

Place and Duration of Study: This study was conducted at the departments of Medicine & Neurology, SMBBMC & DUH Karachi from July 2017 to June 2018.

Materials and Methods: A total of 340 patients with post stroke duration of greater than three months were included in this study. All the stroke patients were evaluated by Beck Depression Inventory questionnaire 2 for diagnosis of depression. All the data was entered in the predesigned proforma.

Results: The average age of the patients was 38.45 ± 9.48 years. Frequency of post stroke depression was observed in 45% cases, in which 13.2% mild, 44.1% moderate and 42.8% were severe. Rate of post stroke depression was significantly high in below 40 years and in ischemic type stroke.

Conclusion: Rate of post stroke depression was significantly high in ischemic than hemorrhage. We emphasize the importance of a thorough psychiatric evaluation of post stroke patients, particularly those who have a severe disability and a history of previous depressive episodes.

Key Words: Stroke, Depression, Ischemic, Hemorrhage

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INTRODUCTION

Stroke is the second most common cause of death in the world causing around 6.7 million death each year taking a life every five seconds[1]. Of all strokes, 85% are ischemic, 15% are hemorrhagic[2]. Stroke and transient ischemic attacks (TIA) are highly prevalent in Pakistan. A community-based survey suggested an estimated 21.8% prevalence of stroke and/or TIA in an urban slum of Karachi [3]. Stroke-specific fatality has been reported between 7% and 20% in various studies from Pakistan. Up to 63% of all stroke patients develop complications and up to 89% are dependent for activities of daily living [4]. After suffering a stroke, 80% of these patients' present motor impairment [5].

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Mortality and morbidity from stroke are on the increase. Among stroke survivors, the sequel of physical and psychological changes can be devastating. One of those psychological changes is major depression after stroke [6] Around a third of stroke survivors experience depression after their stroke[7]. Depressive disorder is characterized by period of mood an hedonic (inability to experience the pleasure from normally pleasurable life events such as eating, exercise, social or sexual interaction) occurring for two consecutive weeks and depression will be assessed, using a 4DSM IV criteria, persistence of two or more than two weeks duration[8]. Morris et al[9] reported that, over a 10-year period, depressed stroke patients were 3.4 more times likely to die than their non-depressed counterparts. Depression is thought to have a detrimental effect on stroke recovery through a number of mechanisms. For instance, a depressed patient may be less motivated to participate in stroke rehabilitation because of persistent fatigue or lack of hope. Cognitive impairment may also impede the recovery process, causing non-adherence to treatment schedules, which may lead to increased mortality. Depression after stroke is common among men and women Hackett et al, estimated the overall frequency of depression after to be 33% [10]. Stroke itself has debilitating morbidity and superimposed depression further decreases the quality of life of patients and impairs the recovery. This study leads us to know the magnitude of post stoke depression, so, that

departmental protocol will be developed for early screening and referral for treatment of depression after CVA. By early identification and treatment of depression we could improve the quality of life of our patients expedites their recovery and makes them functional [11].

MATERIALS AND METHODS

The cross sectional study was performed at the departments of Medicine & Neurology SMBBMC & DUH Karachi from 1 July 2017 to 30 June 2018.

Sample size: 340

Sample technique: Non-probability purposive.

Inclusion criteria: Either gender, aged between 20-70 years, post stroke duration of greater than three months.

Exclusion criteria: Patients with cognitive impairment (modified 6-item Mini-Mental Status score < 3).

• Patients having focal or diffuse organic brain disorder that may be associated with psychiatric manifestation like mental retardation, A-V malformation, tumor, intracranial infections etc.

• Patients with systemic diseases that may predispose them to depression e.g.
Hypo / hyperthyroidism, SLE.

• Patients already diagnosed as having depression or prior antidepressant treatment.

Data collection procedure: This study was conducted after the approval from Hospital Ethical Review Committee. The patients were approached through neurology outpatient department. The patient fulfilling the inclusion criteria was enrolled in the study. Informed consent was obtained from all the patients after explanation of the study protocol. All the stroke patients were evaluated by Beck Depression Inventory questionnaire (annexure II) for diagnosis of depression. The researcher will himself interview the patient in a conductive environment assuring him or her confidentiality. All the data including age, gender, duration post stroke, types of stroke (i.e. Ischemic or Hemorrhagic) and frequency of depression was entered in the pre-designed proforma.

Data analysis procedure: The data was analyzed on SPSS version19. The frequency and percentage were calculated for qualitative variable like gender, type of stroke ischemic and Hemorrhage and frequency of depression. Mean ±SD was computed for quantitative variables like age, and post stroke duration. Variables considered as potential confounders and/or effect modifiers age and gender were stratified to find out the effect of these on outcome. Post stratification chi-square test will be applied and p value <0.05 will be taken as significant.

RESULTS

A total of 340 patients with stroke were included in this study. Age distribution of the patients is presented in figure 1. The average age of the patients was 38.45 ± 9.48 years (95%CI: 36.25 to 39.58) as shown in table 1. There were 197(58%) were male and 143(42%) were female (figure 2). The average duration of post stroke cases 4.25 ± 2.68 months.

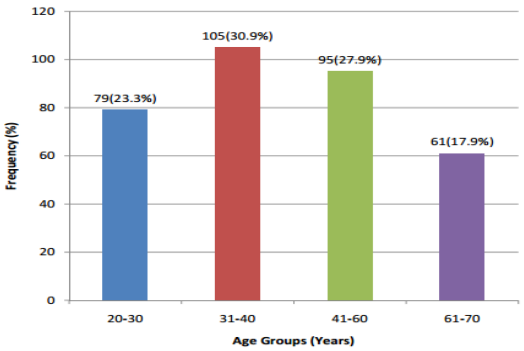

Figure No.1: Age distribution of patients. N=340

Table No.1: Descriptive statistics of characteristics of patients

Variables	Mean ± SD	95%CI	Max-Min
Age (Years)	38.45 ± 9.48	36.25 to 39.58	70-20
Duration of post stroke	4.25 ± 2.68	3.65 to 5.21	3 to 12

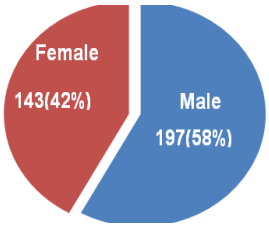

Figure No.2: Gender Distribution

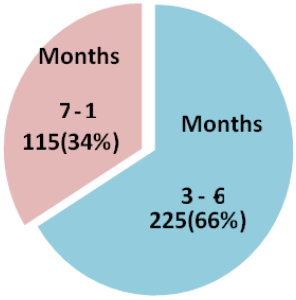

Figure No.3: Duration of post stroke

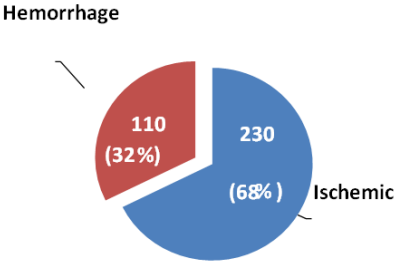

Figure No.4: Distribution of types of stroke

Distribution of duration of post stroke is given in figure 3. Regarding type of stroke, 68% were ischemic and 32% were hemorrhage as presented in figure 4. Frequency of post stroke depression was observed in 45% cases as presented in figure 5, in which 13.2% (20/152) were mild, 44.1% (67/152) were moderate and 42.8% (62/152) were severe figure 6. Rate of post stroke depression (PSD) was significantly high in below 40 years of age than above 40 years of age (p=0.009) as presented in table 2. Rate of PSD was not significant between male and female (43.1% vs. 46.9%; p=0.49) as shown in table 3. Rate of post stroke57 depression was significantly high in ischemic than hemorrhage (50% vs. 33.6% p=0.005) as shown in table 4.

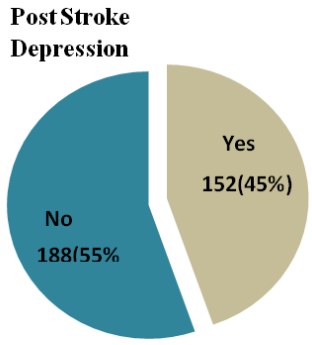

Figure No.5 Frequency of post stroke depression n=340

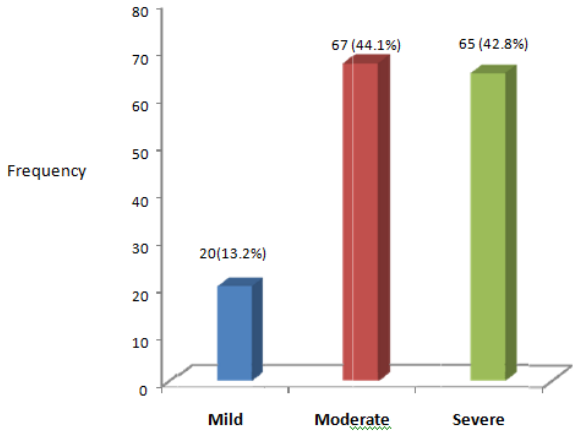

Figure No.6: Severity of post stroke depression n=152

Table No.2: frequency of post stroke depression (psd) with respect to age groups

Age Groups	n	PSD n=152		No PSD n=188	
20-30	79	45	57.0%	34	43.0%
31-40	105	52	49.5%	53	50.5%
41-60	95	35	36.8%	60	63.2%
61-70	61	20	32.8%	41	67.2%

Chi-Square= 11.67 df= 3 p=0.009

Table No.3: Frequency Of Post Stroke Depression (Psd) With Respect To Gender

Gender	n	PSD n=152		No PSD n=188	
Male	197	85	43.1%	112	56.9%
Female	143	67	46.9%	76	53.1%

Chi-Square = 0.46 df= 1 p=0.49

Table No.4: Frequency of post stroke depression with respect type of stroke

Type of Stroke	n	PSD n=152		No PSD n=188	
Ischemic	230	115	50.0%	115	50.0%
Hemorrhage	110	37	33.6%	73	66.4%

Chi-Square= 8.06 p=0.005

DISCUSSION

Stroke is a sudden non-convulsive focal neurological deficit produced by insufficiency of blood circulation to the brain [12]. Every two seconds, someone in the world will have a stroke. There were almost 17 million incidences of first-time stroke worldwide in 2010 [13]. In addition to major impact of stroke on patients' physical health, many patients experience emotional disorders following stroke. Depression is a common neuropsychiatric consequence of stroke affecting approximately 40% ofthe patients. In addition to the psychosocial stress due to disability, loss of independence, and worsening of quality of life, neurobiological factors such as site of infarcts and brain atrophy have also been proposed to be related to depression after stroke [14]. In recent years, major depression after stroke has attracted worldwide interests. Studies conducted throughout the world have found a prevalence rate of major depression of 19.3% among hospitalized patients and 23.3% among outpatient samples [15] and more recently around a third stroke survivors experience depression after their stroke [7]. In our study frequency of post stroke major depression was observed in 45% cases. The average duration of post stroke cases 4.25 ± 2.68 months. This rate is higher than those reported for outpatient samples (23.3%) [16] and (33%) [17] and reflect increasing frequency of depression after stroke.Demographic variables are important determinants of post strokedepression. Depressive symptoms were found statistically associated with young age group in our study. Rate of major depression after stroke was significantly high in below 40 years of age than above 40 years of age (p=0.009) and these results has similarity with previous studies[18] . Regarding type of stroke, 68% were ischemic and 32% were hemorrhage. Rate of post stroke depression was significantly high in ischemic than hemorrhage (50% vs. 33.6% p=0.005 and these results compatible with other studies [14, 19].

Among risk factors Hypertension was found in 68(75%), Diabetes Mellitus in 48(54.5%), Smoking &Dyslipidemia were found in 12(13.6%) these risk factors were quite higher than other published studies[20,21,22,23,24] and these differences because we did study on larger scale. Regarding the severity of PSD in our study frequency of post stroke depression was observed in 45% cases as presented in which 13.2% (20/152) were mild, 44.1% (67/152) were moderate and 42.8% (62/152) were severe. The average duration of post stroke cases 4.25 ± 2.68 months. This rate is higher than those reported for outpatient samples (23.3%) [16] and 33%) [17] and reflects these variety of depression in our sample. The prevalence of post-stroke depression at about 30% was seen in other earlier studies [25] and in Malaysian study[26] showed a prevalence of moderate to severe depression of15%patients.

CONCLUSION

It is thus concluded that prevalence of post stroke depression is high and frequent. It usually remained under recognized. Rate of major depression after stroke was significantly high in ischemic than hemorrhage. We emphasize the importance of a thorough psychiatric evaluation of post cerebrovascular accidents patients, particularly those who have a severe disability and a history of previous depressive episodes.

Author's Contribution:

Concept & Design of Study:	Dileep Kumar
Drafting:	Babar Bashir, Jawwad us Salam
Data Analysis:	Munir Hussain Siddiqui, Syed Shayan Ali
Revisiting Critically:	Jawwad us Salam
Final Approval of version:	Babar Bashir

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

REFERENCES

1. World Health Organization Quality & Outcome frame work (QOI) achievement data2015/16. Available htt/bit.ly/2hQN, MB. Dec 2016.
2. Intercollegiate Stroke working party. National clinical guidelines for stroke. 5th ed. London: Royal College Physician; 2016.
3. Khatri IA, Wasay M. Can we stop stroke epidemic in Pakistan. J Coll Physicians and Surgeons Pakistan 2011;21(4):195-196.
4. Farooq MU, Majid A, Reeves MJ, Birbeck GL. The epidemiology of stroke in Pakistan: past, present, and future. Int J Stroke 2009;4:381-9.
5. Moura Rde C, Fukujima MM, Aguiar AS, Fontes SV, Dauar do Prado GF. Predictive factors for spasticity among ischemic stroke patients. Arq Neuropsiquiatr 2009; 67: 1029-36.
1. Jorge RE, Robinson RG. Post-stroke depression. Geriatrics and Aging 2004;7:26–32.
6. Ayerbetal. Explanatory factors for the association between depression &long term physical disability after stroke. Age Aging 2015;44:1054-1058.
2. Poynter B, Shuman M, Diaz-Granados N, Kapral M, Grace SL, Stewart DE. Sex differences in the prevalence of post-stroke depression: A systematic review. Psychosomatics 2009;50(6): 563-9.
7. Morris PL, Robinson RG, Andrzejewski P, Samuels J, Price TR. Association of depression with 10-year post-stroke mortality. Am J Psychiatr 1993; 150: 124–9.
8. Hackett ML, Yapa C, Parag V, Anderson CS. Frequency of depression after stroke: a systematic review of observational studies. Stroke 2005; 36:1330–40.
9. Williams LS, Brizendine EJ, Plue L, Bakas T, Tu W, Hendrie H, et al. Performance of the PHQ-9 as a screening tool for depression after stroke. Stroke 2005; 36: 635-8.
10. Adams RA, Victor M. Principles of neurology. 3rded. New York: McGraw Hill;1985.p.569-640.
11. Feigin VL, et al. Global and regional burden of stroke during 1990-2010: findings from the Global Burden of Disease Study 2010. Lancet 2013;383: 245-255.
12. Vataja R, Pohjasvaara T, Leppavuori A, Mantyla R, et al. Magnetic Resonance Imaging Correlates of Depression after Ischemic Stroke. Arch Gen Psychiatr 2001;58:925-931.
13. Robinson RG. Post Stroke Depression: prevalence, diagnosis, treatment and disease progression. Biol Psychiatr 2003;54:376-387. 88
14. Hackett Maree L, Yapa C, Parag V, Anderson Craig S. Frequency of depression after stroke. Stroke 2005; 36:1300- 1305.
15. Verdelho A, Henon H, Lebert F, Pasquoer F, and Leys D. Depressive symptoms after stroke and relationship with dementia. Neurol 2004;62: 905-11.
16. Robinson RG, Starr LB, Price TR. A two year longitudinal study of mood disorder following stroke, prevalence and duration at six months follow-up. Br J Psychiatr 1984;144: 256- 62.
17. Raju RS, Prabhakaran S. Sarma, Jeyaraj D. Pandian; Psychosocial Problems, Quality of Life, and Functional Independence Among Indian Stroke Survivors. Stroke J Am Heart Associat 2010;41: 2932-37.
18. Marwat MA, Usman M, Hussain M. Stroke and its relationship to risk factors. Gomal J Med Sci 2009;7:17-21.

19. Memon FA, KhooharoY, Ali S, et al. Clinical audit of stroke patients presenting at teaching hospital. Pak J Med Sci 2009;25:1-7.
20. Lakhair MA, Memon RA, Rahu QA etal.Clinical spectrum of stroke in young adults. Medical Channel 2008; 14: 181-84.
21. Memon RA, Lakhair MA, Rahu QA et al. Risk factors for stroke: An experience at Nawabshah Medical College Hospital Nawabshah. Medical Channel 2008; 14: 175-77.
22. Zafar A, ShahidSK,Siddiqui M et al. Pattern of stroke in type -2 diabetic subjects versus non diabetic subjects. J Ayub Med Coll Abbottabad 2007;19: 64-67
23. Astrom M, Adolfsson R, and Asplund K. Major depression in stroke patients: a 3-year longitudinal study. Stroke J Am Heart Assoc 1993;24:976-82.
24. Glamcevski MT, Tan CT. Prevalence of post-stroke depression, a Malaysian study. Neurol J Southeast Asia 2000;5:51-3.
25. Astrom M, Adolfsson R, and Asplund K. Major depression in stroke patients: a 3-year longitudinal study. Stroke. J Am Heart Assoc 1993; 24: 976-82.
26. Glamcevski MT, Tan CT. Prevalence of post-stroke depression, a Malaysian study. Neurol J Southeast Asia 2000; 5: 51-3

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Original Article

Frequency of Urinary Tract Infection in Postmenopausal Women

Humaira Imran, Farah Deba and Taqwa Abdur Rehman

ABSTRACT

Objective: To determine the frequency of urinary tract infection in postmenopausal women visiting Bakhtawar Amin Hospital Multan.

Study Design: Descriptive / cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Gynecology, Bakhtawar Amin Hospital Multan from August, 2016 to July 2017.

Materials and Methods: A sample of 142 consecutive patient fulfilling the inclusion and exclusion criteria were included in the study. Informed written consent was taken from all patients. The demographic information like name, age, gender and address was noted. A detailed history and physical examination was carried out especially about symptoms of urinary tract infection. Complete urine examination was done in all the patients and 8 or more pus cells on urinary examination were considered as diagnostic of urinary tract infection. All the collected data was entered in a specially designed profroma.

Results: There were 142 patients in total. Mean age of the patients was 55.92$\pm$ 2.88 years. Mean for parity was 3.37$\pm$ 1.98. There were 136/142 (95.8%) married while 6/142 (4.2%) were unmarried. Urinary tract infection was found to be present in 39/142 (27.5%). When the effect of age was noted on the frequency of urinary tract infection it was found that among patients in age group $\leq$ 55 years urinary tract infection was found to be present in 17/57 (29.8%) while in age group $>$ 55 years there were 22/85 (25.9%) patients with urinary tract infection (p-value = 0.702). When the effect of parity was seen on the frequency of urinary tract infection it was found that there were 6/16 (37.5%) in nulliparous group with urinary tract infection as compared to 19/58 (32.8%) in those with parity 1-3 and 14/68 (20.6%) in those with parity > 3 (p-value = 0.198) When the effect of marital status was seen it was found that among unmarried women 2/6 (33.34%) had urinary tract infection while among married women 37/136 (27.21%) had urinary tract infection (p-value = 0.742).

Conclusion: Urinary tract infection has a high frequency among postmenopausal women with lower urinary tract symptoms and should be closely looked for and managed meticulously with proper antibiotics as well as by the proper implementation and utilization of preventive measures.

Key Words: Postmenopause, Urinary tract infection

Citation of articles: Imran H, Deba F, Rehman TA. Frequency of Urinary Tract Infection in Postmenopausal Women. Med Forum 2019;30(3):36-39.

INTRODUCTION

Urinary tract infection causes millions of women to suffer pain ful urination, suprapubic pressure and urgent desire to micturate[1].

The anatomy of periurethral area provides more places for growth of bacteria vaginal cavity provides additional source for bacteria to grow which can easily move to urethral opening. Due to shorter urethra these pathogens can ascend to bladder multiply and invade its walls..

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Although menopause is a physiological process, but many women experience many uncomfortable urogenital problems such as vaginal dryness, dysperaunea and urinary tract infection.[2] Bladder and surrounding structures are rich in estrogen and progesterone receptors, physiological and anatomical changes occur after menopause.[3]

Postmenopausal deprivation is the major risk factor for urinary tract infection.[4] Before menopause 90% of viginal flora are Lactobacilli which protects against uropathogens such as Ecoli. Due to estrogen deficiency in menopause, there is thinning of vaginal epithelium and glycogen loss which results in hostile environment for lactobacilli and colonization of uropathogens.[5]

According to Ther D, et al.5 about 10-47% women experience postmenopausal symptoms such as valvovaginal dryness and urinary tract infections.[6,7] In a study conducted in Agha Khan University Karachi the annual incidence of urinary tract infection was found out to be 10%.[8] In another study conducted in Malyshia on 326 menopausal women 19.3% experienced urinary

tract infection.[9] According to a study [10], frequency of urinary tract infection was found out to be 11%.

MATERIALS AND METHODS

This descriptive cross sectional study was carried out in outpatient department of gynaecology Bakhtawar Amin Hospital Multan after taking permission from ethical committee of the hospital the duration of study was one year starting from 1st August 2016 to 31st July 2017, 142 consecutive patients (using non probability consecutive technique) fulfilling the inclusion and exclusion criteria were included in the study.

Inclusion Criteria:

- Women having anemmohrea of 1 year.
- Women aged over 51 years to 60 years.
- All married and unmarried women will be included

Exclusion Criteria:

- Introgenic menopause
- Patients on any type of anticancer therapy
- Unwillingness
- Any medical disorder involving diabetes, hypertension, autoimmune disease etc.
- Surgical menopause.

Informed written consent was taken from all patients. The demographic information like name, age, gender and address was noted. A detailed history and physical examination was carried out especially about symptoms of urinary tract infection like frequency, burning micturation and lower abdominal pain. Complete urine examination was done in all the patient from the central laboratory of the hospital for confirmation of diagnosis of urinary tract infection and 8 or more pus cells on urinary examination were considered as diagnostic of urinary tract infection. All the collected data was entered in specially designed proforma.

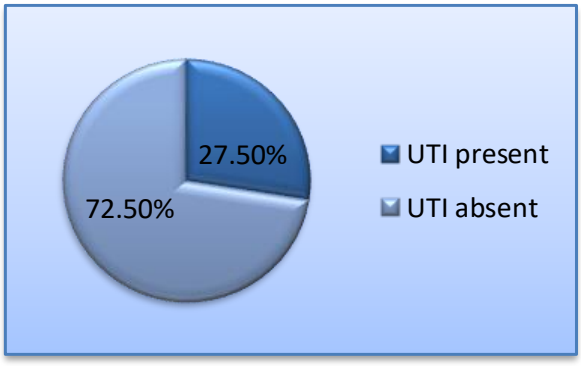
RESULTS

There were 142 patients in total. Mean age of the patients was 55.92 ± 2.88 years. Mean for parity was 3.37 ± 1.98. There were 136/142 (95.8%) were married while 6/142 (4.2%) were unmarried. Urinary tract infection was found to be present in 39/142 (27.5%) (Table 1, Graph 1).

Table No.1: Characteristics of the study population.

Total patients	**124**
Mean age	55.92 ± 2.88
Mean for parity	3.37 ± 1.98
Married	136/142 (95.8%)
Unmarried	6/142 (4.2%)
Urinary tract infection	39/142 (27.5%

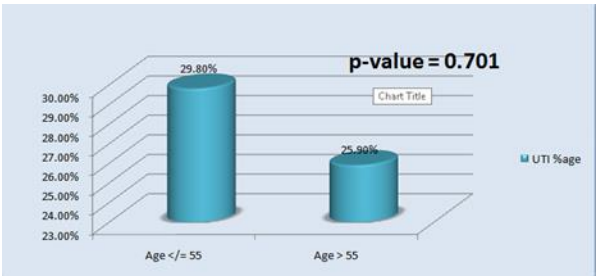
When the effect of age was seen on the frequency of urinary tract infection in the patient population it was found that among 57 patient in age group ≤ 55 years urinary tract infection was found to be present in 17/57 (29.8%) of the patients while in age group > 55 years there were 85 patients in total and urinary tract infection was found to be present in 22/85 (25.9%) of the patients. When chi-square test was applied to see the effect of age on the frequency of urinary tract infection, the p-value turned out to be 0.701 (Table 2, Graph 2).



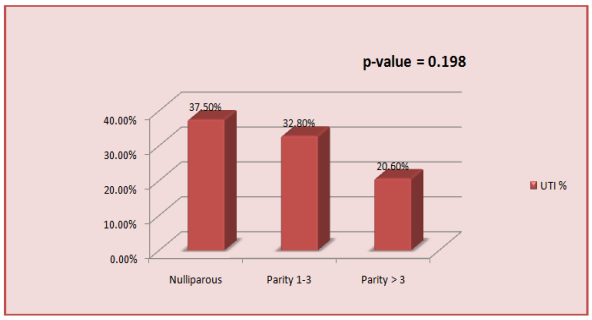
Graph No.1: Frequency of urinary tract infection in the patient population.

Table No.2: Effect of age on frequency of Urinary tract infection in postmenopausal women.

	Age≤ 55 years (n=55)	Age > 55 years (n=85)	p-value
Frequency of UTI	17/57 (29.8%)	22/85 (25.9%)	0.702



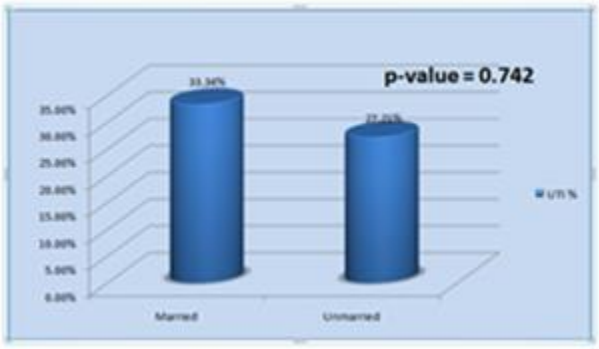
Graph No.2: Effect of age on the frequency of urinary tract infection.



Graph No.3: Effect of parity on the frequency of urinary tract infection in the postmenopausal women.

When the effect of parity was seen on the frequency of urinary tract infection it was found that there were 16 patients in total and urinary tract infection was found to be present in 6/16 (37.5%). Among those with number of children 1-3, there were 58 patient in total and urinary tract infection was diagnosed in 19/58 (32.8%). Among those with number of children > 3 there were 68 patients in total and urinary tract infection was found to be present in 14/68 (20.6%). When the effect of parity was seen on the frequency of urinary tract infection the p-value was found out to be 0.198 (Graph 3).

When the effect of marital status was seen it was found that among 6 unmarried women 2/6 (33.34%) has urinary tract infection while among 136 married women 37/136 (27.21%) had urinary tract infection. When chi-square test was applied to see the effect of marital status on the frequency of urinary tract infection the p-value was found out to be 0.742(Graph 4).



Graph No.4: Effect of marital status on the frequency of urinary tract infection in postmenopausal women.

DISCUSSION

More than 8 million women in the United States seek medical attention for urinary tract infections (UTI) each year. The annual incidence among women older than 50 years is 9% and these infections account for substantial morbidity. Risk factors for UTI have been well characterized among young healthy women and among older, debilitated women living in institutional settings. However, the risk factors for healthy community-dwelling postmenopausal women have not been well described. The major characteristics predisposing young women to UTI are sexual activity, use of spermidical agents and constraceptive diaphragm, and a prior history of UTI. The major characteristics predisposing older, institutionalized women to UTI are advancing age, urologic abnormalities, and debilitating comorbid conditions.[11]

The role of estrogen replacement therapy remains controversial. After menopause, the change in the urinary tract due to lower levels of estrogen are believed to contribute to recurrent UTI. Two controlled trials of intravaginal estrogen creams found a significant risk reduction in recurrent UTI in women who use them.[12,13] However, the effect of oral estrogen is less clear. Randomized trials and observational studies of oral estrogen have yielded conflicting results.[13]

In our study, there were 142 postmenopausal female patients in total. Mean age of the patients was 55.92 $\pm$ 2.88 years. Mean for parity was 3.37 $\pm$ 1.98. There were 136/142 (95.8%) were married while 6.142 (4.2%) were unmarried. Urinary tract infection was found to be present in 39/142 (27.5%). The observed frequency is slightly lower than that observed in an American review by Olasehinde GI et al,[14] who conducted cross-sectional studies of UTI among post menopausal women between January and June, 2009 using standard microbiological techniques. The result obtained showed that 42 (39.6%) out of 106 postmenopausal women had urinary tract infections with highest prevalence among women aged 56-60 and lowest among those aged more than 61. Microscopic examination of forty-two (42) mid-stream urine sample revealed the presence of 13(30.9%). Epithelial cells, 5 (11.9%) phosphate crystals, 16 (38.1%) pus cell, 9 (21.4%) yeast cells, 7(16.7%) red blood cells and eggs of Schistoma haematobium 2(4.8%). Bacteria isolated were: Escherichia coil 20(25.3%), followed by Staphylococcus aureus 16(20.3%), Pseudomonas aureginosa 10(12.7%), Coagulase negative Staphylococus spp 9(11.4%), Streptococcus pyogenes 6(7.6%), Serratia marcescens 6(7.6%), Enterobacter spp 5(6.3%. Klebsiella spp. 4(5.1%) and Enterococcus faecalis 3(3.8%). E. coli showed low percentage resistance to ciprofloxacin, ceftazidime and ceftriaxone. Enterobacter spp. Were susceptible to ciprofloxacin and cotrimoxazole in 80%, respectively. Between 60-80% of Pseudomonas aeruginosa and Enterobacter spp were susceptible to all the tested antibiotics, while 4(66.7%) Streptococcus pyogenes, 6(66.7%), Staphylococcus spp and 4(66.7%) Serratia marcescens were sensitive to ceftazidime. All the Enterococcus faecalis and Klebsiells spp isolated were sensitive to ciprofloxacin. The result also showed that 18.9% of the bacteria were resistant to at least 3 antibiotics with (MAR) index ranging from 0.2 to 0.8. the results obtained in this study were statistically significant.

In our study when the effect of age was seen on the frequency of urinary tract infection in the patient population it was found that UTI was more common among patients in younger age group as in age group $\leq$ 55 years urinary tract infection was found to be present in 17/57 (29.8%) while in age group > 55 years, urinary tract infection was found to be present in 22/85 (25.9%) of the patients. However, this effect was found to be statistically insignificant as the p-value turned out to be 0.702. in the literature, the younger age group has been

reported as a risk factor for development of recurrent urinary tract infections in perimenopausal women.[14,15] When the effect of parity was seen on the frequency of urinary tract infection it was found that the frequency of urinary tract infection was highest in nulliparous women as 6/16 (37.5%) had UTI, followed by 19/58 (32.8%) among those with number of children 1-3 and Among those with number of children > 3 UTI was found to be present in 14/68 (20.6%). Although there was a constant trend towards a decrease in frequency of UTI among women with increasing number of children, this difference was found out to be statistically non-significant with a p-value 0.198. Similarly, when we studied the effect of marital status was noted on the frequency of UTI it was found that it was more frequent among unmarried women as compared to married. However, this difference was again statistically non-significant with a p-value 0.742. in the literature, nulliparity has been reported to have increase the risk of recurrent urinary tract infections.[13,16] We will need a larger study to see this effect of number of children on the frequency of urinary tract infection.

CONCLUSION

Urinary tract infection has a high frequency among postmenopausal women with lower urinary tract symptoms and should be closely looked for and managed meticulously with proper antibiotics as well as by the proper implementation and utilization of preventive measure.

Author's Contribution:

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Data Analysis:	Taqwa Abdur Rehman
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Bond S, Horton LS. Management of postmenopausal vaginal symptoms in women. J Geronol Nurs 2010;36(7):3-7.
2. Hillard T. The postmenopausal bladder. Menopause Int 2010;16(2):74-80.
3. Ewies AA, Alfhaiy F. Topical vaginal estrogen therapy in managing postmeopausal symptoms. Clemacteric 2012;13(5):405-18
4. Gupta K, Stam WE. Pathogenesis and management of recurrent urinary tract infection in women. World J Urol 1999;17(6):415-20.
5. Ther D. Atrophic vaginitis. Stika CS. 2010;23(5): 514-22
6. Mohsin R, Siddique KM. Recurrent urinary tract infection in females agha khan university Karachi. J Pak Med Assoc 2010;60(1):55-9
7. Dhillon HK, Singh HJ, Shuib R, Hamid Am, Mahmood N. Prevalence of menopausal symptoms in kelanton Malaysia. Maturital. 2006.54(3):213-21
8. Roberts JA. Etiology and pathophysiology of pyelonephritis. Am J Kidney Dis 1991;17:1
9. Stamm WE. Estogens and urinary-tract infection. J infect Dis 2007;195"623.
10. Shortliffe LM, McCue JD. Urinary tract infection at the age extremes: pediatrics and geriatrics. A Am J Med 2002;113:55-66.
11. Raz R, Stamm WE. A controlled trial of intra-vaginal estriol in postmenopausal women with recurrent urinary tract infections. Â N Engl J Med 1993;329:753-6.
12. Kirkengen Al, Andersen PG, Jersoe E, Jhoannessen GR, Jhonsen NB. Oestriol in the prophylactic treatment of recurrent urinary tract infections in postmenopausal women. Â Scand J Prim Health Care 1992.10:139-42.
13. Melsaac WJ. Validation of a decision aid to assist physicians in reducing unnecessary antibiotic drug use for acute cystitis. Arch intern Med 2007; 167(20):2201-6
14. Olasehinde GI. Epidemiological Studies of Urinary Tract Infection (UTI) among Post-menopausal Women in Uyo Metropolis, South-South, Nigreria. J Am Sci 2010;6(12):1674-81.
15. Maki KC, Kaspar KL, Khoo C, et al. Consumption of a cranberry juice beverage lowered the number of clinical urinary tract infection episodes in women with a recent history of urinary tract infection. Am J Clin Nutr 2016;103:1434.
16. Luis A, Domingues F, Pereira L. Can Cranberries Contribute to Reduce the Incidence of Urinary Tract Infections? A Systematic Review with Meta-Analysis and Trial Sequential Analysis of Clinical Trials. J Urol 2017;198.

Original Article

Awareness of Radiation Hazards among Undergraduate Medical Students

Radiation Hazards among Medical Students

Kiran Fatima Farooq[1], Nuwaryrah Jawaid Saghir[1], Jaiada Nabeel[2], Amna Khalid[1], Urooj Jabbar[3] and Maaida Hussain[4]

ABSTRACT

Objective: Many studies have been conducted regarding x- radiation hazards but there is lack of studies regarding x- radiation hazards among medical students in Pakistan. Our research aimed to assess the knowledge about imaging associated radiation hazards among medical students.

Study Design: This was a cross sectional descriptive study.

Place and Duration of Study: This study was conducted at the Foundation University Medical College, Islamabad from February 2015 to June 2015.

Materials and Methods: A self-administered close ended questionnaire was distributed among 350 medical students from first year to final year. The obtained data was analyzed using SPSS version 19 statistical software.

Results: Our target population included 350 medical students. 100% students had some idea about hazards of radiation. 99.7% students answered that x-rays are harmful. 93.4% students believed x-rays cause cancer / infertility. 37.7% students thought that x-rays cause nausea, vomiting and sore throat. 96% students replied that x-rays should not be done in pregnant patients. 52% students believed that x-rays are more dangerous than CT scan & MRI. 95.4% students answered that x-rays are harmful for x-ray technicians.

Conclusion: This study concludes that the majority of students of Foundation University Medical College have satisfactory knowledge about radiation hazards and know about means to minimize it. The awareness about radiation hazards among medical students increases as the year of study progress. There is a need to provide more knowledge about risk of radiation exposure to medical students by adding various objectives in curriculum and by ward rotations

Key Words: x-rays, radiations, radiation hazards, awareness, radiology technicians, medical students.

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INTRODUCTION

As the medical technology is evolving, the number of radiological investigations is increasing rapidly. In recent years, many studies have proved that there is increased patient radiation exposuresattributed to increased utilization of diagnostic imaging, particularly computed tomography (CT) [(1)]. Clinicians have to be aware of the risks, benefits and radiation doses so as to provide aprecise explanation to their patients and reduce the incidence of radiation related diseases [(2)].

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In a report by "The US National Council on Radiation Protection and Measurement" it is stated that medical x-rays and nuclear medicine account for 15% of all radiation exposures [(3)]. Similarly, in UK, there is an estimated number of 100-250 deaths that occur each year from cancers directly connected to medical exposure due to radiations [(4)]. It is seen that about 30-50% of medical judgements depend on x-ray imaging results [(5)]. In other words, these investigations are the backbone for diagnosis of several diseases. Hence it is very important that the dose of radiation in any diagnostic procedure should be sufficient to answer the pertinent clinical question but must be as low as reasonably achievable (ALARA) to minimize the risk of developing different diseases [(6)].

Several radiological investigations have harmful effects on human body. All living beings in this world are exposed to different sources of radiations and around 18% radiation is due to man-made source[(7)].X-rays were discovered in 1895, and many years after this discovery radiologists were exposed to such high radiation doses that skin diseases like dermatitis and other radiation-induced injuries were common [(8)]. At that time the effects of radiation induced diseases were not studied in detail.

Various research studies show potentially damaging effects of radiation exposure. It is believed that a linear

relationship exists between radiation exposure and development of cancer[9].

It is responsibility of health care personnel to be well aware of basic knowledge aboutharmful radiation effects and radiation protection soas to minimize x-ray examinations and reduce unnecessary radiation dose to the patient in accordance with ALARA principle (as low as reasonably achievable) [5]. It is useful to note that the main objective of any diagnostic procedure or examination utilizing X-rays, is to produce sufficient quality images so as to provide suitable diagnostic information for clinical use[10]. There is an increasing concern in the literature that regarding that the referring doctor's knowledge of radiation doses gained during radiological procedures is inadequate [11].

Many worldwide studies have been conducted to assess the awareness about radiation hazards among physicians showing dearth of knowledge in physicians. It has been shown that the increasing awareness of radiation hazard among doctors and clinicians can be improved by increasing knowledge of radiation hazards to medical students [5].[1] Literature review has revealed that there is lack of studies on aspect of radiations hazards among medical students in Pakistan [12].

MATERIALS AND METHODS

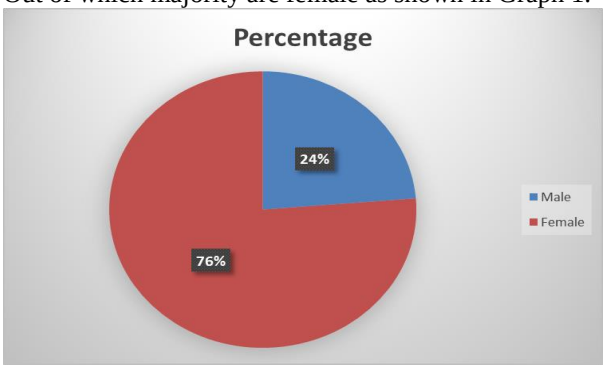
It was a cross sectional descriptive study that was conducted in Foundation University Medical College Islamabad from February 2015 to June 2015.

The confidence level is 95%. Anticipated population proportion 98% and absolute precision required is 1.5% (with the help of WHO sample size calculations).

There were 350 participants. Sampling technique was non-probability. All willing students of FUMC were included in the study. Permission of the college ethical committee was taken prior to conducting the study. After collection of data it was analyzed by using SPSS 19.

RESULTS

Our target population included 350 medical students. Out of which majority are female as shown in Graph 1.



Graph No.1: Percentage of male and female students

The objective of study was to estimate the knowledge & awareness about radiation hazards. 100% students answered that x-rays have hazardous side effects. Most of the students believed x-rays cause cancer and infertility and x-rays should not be done in pregnant patients. Some students thought that x-rays cause nausea, vomiting and sore throat and X-rays are more dangerous than CT scan & MRI. This is depicted in Table 1.

Table No.1: Students understanding about Radiation Hazards

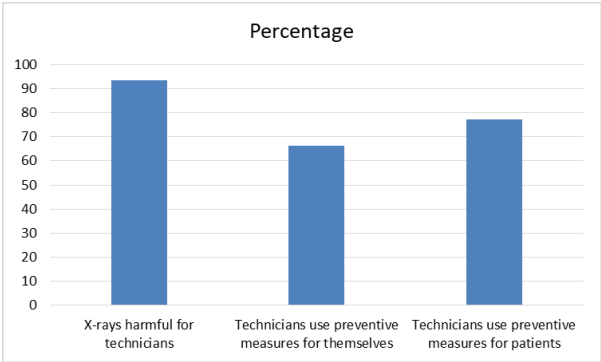
Students' Perceptions about Radiation Hazards	Percentage
X-rays have hazardous side effects	100.0%
X-rays cause cancer and infertility	93.4%
X-rays cause nausea, vomiting and sore throat	37.7%
X-rays should be avoided in pregnancy	96.0%
X-rays are more dangerous than CT/MRI Scans	52.0%

Our study also showed that results improved with number of years completed in medical school; 4th year & 5th year M.B.B.S students appeared to have more knowledge than 1st year, 2nd yearand 3rd year medical students. As revealed in Table 2

Table No.2: Radiation Hazards Awareness in Medical Students

Radiation Hazards Awareness	Percentage
First Year	44.0%
Second Year	57.0%
Third Year	78.0%
Fourth Year	90.0%
Final Year	94.0%

The views of the students regarding X-ray technicians' using preventive measures for themselves and for the patients is shown in Graph no 02.



Graph No. 2: Technicians and preventive measures

DISCUSSION

Everyone is being exposed to ionizing radiations and about 18% of population exposure is due to man-made sources [12].

The Eurotom directive to address radiation protection awareness in 1997 issued by European council states that radiation exposure for medical purpose should yield a net benefit to the patient and society [1].

Many previous studies have shown that there is deficiency of knowledge of ionizing radiation among medical students, doctors and paramedical staff.

The objective of our study was to assess the knowledge of ionizing radiations and their hazards among medical students. Our results show that most of the students of Foundation University Medical College (FUMC) have satisfactory knowledge and awareness about radiation hazards. This study also demonstrates differences or fluctuations in knowledge and awareness of different study years of MBBS. Our study results show that 4th Year MBBS students have the maximum knowledge regarding radiation hazards but as only 50 final year students participated in this study hence this conclusion is indecisive. According to study conducted by Syed Mohammad in Karachi, medical students showed insufficient knowledge about radiation related diseases occurring from different investigations [12]. Lack of knowledge can affect correct medical decisions and can also cause harm. If a doctor is too concerned about radiation hazards and very rarely prescribes x-ray related medical investigations, then he is under-diagnosing many diseases. On the other hand, if a doctor is asking for a lot of x-radiation investigations then he is putting his patients at the risk for developing certain sinister diseases. The doctor must, therefore, have sound knowledge of when to order an investigation and when not to.

A study conducted in Medina by Suleman Shah showed that knowledge of medical students, interns, and residents, about investigations involving X rays was inadequate[5]. While another study conducted in Ethiopia also shows the same results, that is, lack of adequate knowledge about radiation related diseases and how to minimize them [4].

In a study conducted at University of British Columbia, knowledge of final year medical students about radiation hazards was assessed. It was seen that medical students were aware of the importance of radiation related issues to patient care. While almost all students were familiar with radiation free modalities, many underestimated the relative doses and risks of common imaging studies. This may expose patients to increasing imaging investigations and exposure to radiation hazards [13].

Some studies show a consistent inability to correctly identify excess cancer risk as a result of an abdominal CT in an adult; only 12.5 % of 240 doctors surveyed in the UK were correct [14]. Similarly, a survey of 331 Australian medical students revealed that 59% underestimated this risk [15].

The excess of cancer risk is related to ionizing radiation. Because of recent attention to this issue, patients are more likely to express concerns over radiation risk [16]. Education regarding various radiation levels and risks is necessary to decrease patient's anxiety [17].

CT scan use has increased dramatically over the past several decades [18]. CT delivers much higher radiation dose than convectional diagnostic x-rays. A chest CT delivers more than 100 times the radiation dose of a routine frontal and lateral x-ray chest [19,20].

However according to another article published by Radiological Society of North America (RSNA), the risk of cancer is sometimes exaggerated, as the principal data source for the risk factors is the ongoing study of survivors of the Japanese atomic explosions, a population of individuals that is far different form patents undergoing medical imaging [21].

During medical procedures from examination involving radiation, doctors are the main source of information. They have to be prepared for risks, benefits, and doses in order to provide an accurate explanation to their patients. The dose of radiation utilized in any diagnostic procedure should be as low as reasonably achievable to minimize the risk to the patient [6]. To decrease risks to patients, efforts should be put in increasing the knowledge of Doctors regarding radiation effects, risks, doses and patient safety and large-scale studies should be conducted to assess the efforts and to discover any errors.

The curriculum for a medical student involves teaching various subjects that aims specifically at the application of knowledge and problem-solving skills during in a pre-assigned academic period. In Pakistan, medical students undergo their clinical rotation in the department of radiology either in the fourth or in the final year of undergraduate training program. Within the curriculum, the Pakistan Medical and Dental Council has combined six subjects that includes radiology and has allocated a total of 40 hours in five years. Medical students acquire knowledge about the fundamentals of radiology and the interpretation of clinical radio-diagnostics during their rotation in the radiology department. If medical students are not empowered with sufficient and precise knowledge regarding different aspects of radiation, it would be difficult to communicate correct information to the potential radiation recipient [12].

Foundation University Medical College follows a modular curriculum with vertical and horizontal integrations. Radiology is part of the curriculum from first year till final year. However, the learning objectives for first and second year are different from the rest of the classes. In these two years special emphasis is being laid on teaching normal anatomy on X-ray films, CT and MRI scans while touching upon the concept of hazards of radiation. The topic of radiation hazards is further reinforced in the rest of the years.

CONCLUSION

This study concludes that the majority of students of Foundation University Medical College have satisfactory knowledge about radiation hazards and how to minimize them. The awareness about radiation hazards among medical students increases as the year of study progress.

There is a need to provide more knowledge about risk of radiation exposure to medical students by adding various objectives in curriculum and by rotations in radiology department. Different seminars / workshops / lectures can be organized for referring physicians and surgeons in order to increase their understanding of radiation hazards and how to minimize them.

Author's Contribution:

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

REFERENCES

1. O'Sullivan J, O'Connor OJ, O'Regan K, Clarke B, Burgoyne LN, Ryan MF &Maher MM. An assessment of medical students' awareness of radiation exposures associated with diagnostic imaging investigations. PMC 2010;1(2):86-92
2. Hagi SK, Khafaji MA. Medical students' knowledge of ionizing radiation and radiation protection. Saudi Med J 2011;32(5):520-4.
3. Kamble V, Mitra K, Ratnaparkhi C and Dhote S. Consultants knowledge and awareness about radiation exposure in diagnostic radiology in Central India. IJBR 2015;6(01):14-18
4. Zewdneh D, Dellie ST, Ayele T. A study of knowledge & awareness of medical doctors towards radiation exposure risk at TikurAnbessa specialized referral and teaching hospital, Addis Ababa, Ethiopia. IOSRJPBS 2012;2(4):1-5
5. Salih S, Zeidan ZA, Alzalabani A, Albadrani MS, Yousef M. Awareness and Knowledge Towards Ionizing Radiation Hazard Among Medical Students, Interns and Residents in Al-Madinah Al-Munawarah, KSA. Life Science J 2014;11(3):6-10
6. Soye JA, Paterson A. A survey of awareness of radiation dose among health professionals in Northern Ireland. BJR 2008;81(969): 725-9
7. Sukumar S, Rajagopal KV, Sabu KM. Perception of radiation awareness among medical doctors in India. Int J Pharm Biolog Sci 2013;3(3):371-376
8. Yoshinaga S, Mabuchi K, Sigurdson AJ, Doody MM, Ron E. Cancer Risks among radiologists and radiologic technologists: Review of Epidemiologic Studies. RSNA 2004;233(2):313-321
9. Dellie ST, Admassie D, Ewnetu Y. An assessment of final-year medical students and interns awareness of radiation exposure to common diagnostic imaging procedures. Advances in Radiol 2014.
10. Mohammad H, Iortile JT, Garba I, Suwaid MA. Knowledge of radiation and its effects among doctors in Makurdi, North Central Nigeria. Int Res J Basic and Clinical Studies 2013;1(7):103-106
11. Keijzers GB, Britton CJ. Doctors' knowledge of patient radiation exposure from diagnostic imaging requested in the emergency department. MJA 2010;193(8):450-453.
12. Mubeen SM, Abbas Q, Nisar N. Knowledge about ionising and non ionising radiation among medical students. J Ayub Med Coll Abbottabad 2008; 20(1):118-121.
13. Scali E, Mayo J, Nicolaou S, Kozoriz M, Chang S. Senior medical students' awareness of radiation risks from common diagnostic imaging examinations. Can Med Educ J 2017;8(4): e31-e41.
14. Jacob K, Vivian G, Steel JR. X-ray dose training: are we exposed to enough? Clin Radiol 2004;59 (10): 928–934; discussion 926–7.
15. Zhou GZ, Wong DD, Nguyen LK, Mendelson RM. Student and intern awareness of ionising radiation exposure from common diagnostic imaging procedures. J Med Imaging Radiat Oncol 2010;54 (1):17–23.
16. Lin EC, Mayo Clinic proceedings. 2010;85(12): 1142-1146.
17. Gentzler B, O'Conner M, Ugorowski M. Radiation risks in medical imaging. J Nuclear Med 2015;56 (3):1924-1924.
18. Smith-Bindman R, Lipson J, Marcus R. Radiation dose associated with common computed tomography examinations and the associated lifetime attributable risk of cancer. Archives of Int Med 2009 169 (22): 2078-2086.
19. Linet MS, Kim KP, Rajaraman P. Children's exposure to diagnostic medial radiation and cancer risk: epidemiologic and dosimetric considerations. Pediatr Radiol 2009;39 (S1): 4-26.
20. Mettler FA Jr, Huda W, Yoshizumi TT, Mahesh M. Effective doses in radiology and diagnostic nuclear medicine: a catalog. Radiol 2008;248(1):254-63.
21. Hendee WR, O'Conner MK. Radiation risks of medical imaging: Seperating fact from fantasy. Radiol 2012; 264 (2): 312-321.

Original Article

"Surgical Site Infections" and it's Management 'Our Experience' at KMC/Civil Hospital Khairpur

Surgical Site Infections and its Management

Abdul Malik Sangri[1], Fozia Unar[2], Shabnam Naz Shaikh[2], Zahoor Hussain Bheelar[1], Zulfiqar Ali Shar[1] and Anila Gul Sheikh[2]

ABSTRACT

Objective: To find out the incidence, causative organism, severity and treatment of surgical site infections (SSIs) at of KMC/Civil Hospital Khairpur Mir's.

Study Design: Prospective Observational study.

Place and Duration of Study: This study was conducted at the in Surgical Unit and Gynae Obs, KMC/Civil Hospital Khairpur Mir's from January 2018 to December 2018.

Materials and Methods: The study included 100 patients in this study. Four of these patients were lost during follow up, therefore net 96 patients were statistically analyzed. 54 (56.25%) patient were male and 42 (43.75%) patients were female. All those post-operative cases were included in this study, who developed wound infection during their hospital stay or one month follow up. Protocol of pus culture and sensitivity report of each infected case was also followed in this study.

Results: Out of 802 procedures, 96 (11.97%) patients developed SSIs. Mean age of these patients was 32.0 +7 years. Forty one patients (42.70%) were having different comorbidities. SSI was found more common in laparotomy, Pyelolithotomy, prostectomy and appendicectomy, accounting (68%) of overall recorded infections.In this study overall Gram-positive organism were (54%) and Gram-negative organism (46%).

Conclusion: Surgical site infection (SSI) is common in developing countries, pre-operative assessment, aseptic measures and prophylactic antibiotic can reduce post-operative wound complications /sepsis. In this study, Piperacillin/Tazobactam found most effective and Oxytetracycline most resistant agents against these isolated organisms.

Key Words: Surgical site infection; incidence, severity; organism; treatment

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INTRODUCTION

Surgical site infection (SSIs) has remained as a burning issue and important public health concern all over the word. Surgical site infection (SSIs) are defined as infection that occurs within 30 days of the operation or within 1 year, if an implant is left in place. Superficial infections (47%) involve only skin or subcutaneous tissue of incision; deep infections (23%) involve the fascia and muscle layers; and organ space infections (30%) involve any part of the anatomy.

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Globally, SSI rates have been found to be from 2.5% to 41.9%.[1,2] SSIs are preventable complications following surgery and imposes significant burden on patient's morbidity, mortality and additional cost of treatment. World health organization (WHO) and other global studies indicated that, periodic surveillance and giving feedback for surgeons on SSIs rate and associated factors can decrease up to 50% of SSIs.[3,4]

Infections and rates are increasing globally even in hospitals with most modern facilities and standard protocols of pre-operative preparation and antibiotic prophylaxis.[5]

These infections not only increase significantly the rate of morbidity and mortality but serious SSIs almost doubled the patient's risk of death after surgery.

The following measures are identified as prevention to risk of SSI

1. Pre-operative patient bathing
2. Avoiding hair removal or performing this with clipper
3. Appropriate surgical hand preparation
4. Appropriate patient skin preparation
5. Optimal antibiotic prophylaxis and

Therefore, this study aimed to show the incidence rate, pattern and predictors of SSIs in surgical ward of KMC/Civil Hospital Khairpur. The result of our study will provide base line information for surgeons, governmental and non-governmental organizations working in health care system of KMC/Civil Hospital Khairpur particularly as well as in and outside country at large, to control the surgical infections (SSIs).

MATERIALS AND METHODS

All those cases were included in this study which developed any degree of wound infection, at the incision site of surgery during admission or after wards, but within 30 days of operation. At our institution, post-operative patients are followed by related surgeons on weekly basis for 4 consequent weeks. During follow up, wound infection cases were picked and brought on record and included in present study. In more severe cases, if patients required post-operative close wound care, then they were readmitted in surgical wards for wound management according to SSIs protocol. First of all, ongoing antibacterial treatment was completely hold for consecutive 3 days and then sample of pus send for culture and sensitivity report. In each case wound swabs were taken in pairs and immediately send to creditable microbiological laboratory for aerobic and anaerobic medium culture. They were processed and inoculated in 'automatic machine' and the prepared results were collected after 72 hours in routine cases. Antibiotics were latter on restarted according to their sensitivity report. Meantime, local management of wound was also carried out with aseptic dressings. Final outcome of each wound was recorded and statistics were prepared as per PASW.

Inclusion Criteria: All those cases were included in this study who were pre-operatively categorized as, clean wounds, clean contaminated wounds and contaminated wounds as per their procedure classification.

Exclusion Criteria: Highly infected and dirty wounds, patients having serious illness like Cancer and septicemia, were not included in this study due to their high rate of morbidity and mortality.

RESULTS

Patient related Factors:- (Table-I) overall 100 patients were included in this study during the period of 12 months with the followup of 30 days from January 2018 to December 2018. Four of these patients were lost during followup, therefore net 96 patients were statistically analyzed. 54 (56.25%) patient were male and 42 (43.75%) patients were female.

Male to female ratio remained 1.28 :1. Mean age was 32.0 +7 years. More than half patients were from rural 71 (73.96%) area and other 25(26%) were from urban areas. Five patient (5.20%) were obese BMI > 30 and 32 (33.33%) patient were underweight with BMI <18.5 but the remaining patients were either normal weight or slightly overweight.

Forty one patients had different kinds of co-morbidities and nine patients had one or more co-morbidities like diabetic 15 (15.62%), respiratory 07 (7.29%), cardio-vascular disease 10 (10.41%) and miscellaneous diseases 09 (9.37%).

More than half of the patients 64 were under ASA score of II (66.66%) 76% patients had less than 07 days hospital stay and 24% had more than week stay in the hospital. (Table-I).

Table No.1: Patient Related Factors

Variables	Frequency	Percent
1. Age in Years		
12-20	25	26%
21-40	39	40.62%
>40	32	33.33%
2. Gender		
Male	54	56.25%
Female	42	43.75%
3. Residence		
Rural	71	73.96%
Urban	25	26%
4. Nutritional Status		
I. Undernutrition BMI<18.5 Kg/ $m^2$32 33.33%		
II. Normal weight BMI 18.5 to 25 kg / m^2	34	35.41%
III. Over weight BMI 25 to 30 kg / m^2	25	26%
IV. Obesity BMI>=30 kg /m^2	5	5.20%
5. Co-Morbidity		
I. Diabetic Mellitus	15	15.62%
II. Respiratory	07	07.29%
III. Cardiovascular Diseases	10	10.41%
IV. Miscellaneous	9	9.37%
6. ASA Score		
I	26	27%
II	64	66.66%
III	6	6.25%
7. Re-Admission & Hospital Stay		
<= 7 Days	73	76%
>7 Days	23	24%

SSI rate in different surgical procedures (Table-2)in this study 802 cases of general surgeries were included and total 20 common types of procedures were performed. Hernioraphy and hernioplasty for inguinal and para-umbilical was the leading procedure 263 out of 802 (32.79%) followed by appendicectomies accounting 190 cases out of 802 (23.69%). Overall infection rate in our operated patients remained almost

12%. Among all these surgical procedures, SSI was found more common in emergency exploratory laparotomy, open Cholecystectomy,Pyelolithotomy, open prostectomy and appendicectomy accounting 68% of overall recorded infections.

SSIs rate is found minimum in clean wounds like procedures for thyroid, breast and hernia diseases 0% to 7.5% in our present series of patients. SSI rate in clean wound is 5.26% where as in contaminated wounds it raised up to 42.85% (Table-2).

Table No.2: Surgical site infection rate in different surgical procedure

Surgical Procedure	No. of Patients (n=)	No. Of SSIs (n=)	%age (n%)
Elective and emergency Laparotomy for abdominal trauma/ fire arm injury	62	15	24.19%
Open/ Laparoscopic Cholecystectomy	86	13	15.11%
CBD Exploration	07	01	14.28
Inguinal Hernioraphy/ Hernioplasty	213	15	7%
Mesh repair for P.U.H	50	6	12%
Pyelolithotomy	48	9	18.75%
Thyroid	15	0	0
Breast	25	01	4%
Appendectomy	190	25	13.15%
Ileostomy/ colostomy Closure	07	03	42.85%
V.C, B.P.H	36	06	16.66%
Hydrocele	38	01	2.63%
Miscellaneous (07 Procedures)	25	01	4%
Total	802	96	11.97%

SSI class & degree of wound infection: (Table-3). Three Hundred Forty One (42.51%) procedures were clean, Three Hundred Sixty Seven (45.76%) procedures were clean-contaminated and Ninety Four (11.72%) were contaminated surgical procedures. SSI rate in clean surgical wounds remained (4.39%), in clean-contaminated it was found (10.89%) but it was significantly high in contaminated wounds (43.61%). Degree of SSI was also found reciprocal to the nature of wound like it is 15.62% in clean, 41.66% clean-contaminated and 42.70% in contaminated incisions. Overall 58 cases (60.41%), were first degree, 26% second degree SSI, 7.29% third degree and 6.25 fourth degree surgical site infections.Table-4.

Microbiological Investigation SSI: (Table-04). In this study out of 96 SSI cases 76 swabs were microbiologically isolated for various aerobic and anaerobic organism. The following results depicts various bacterial isolates obtained from patients with SSI. Twelve (15.78%) Staphylococcus aureus in which 3 (25%) were methicillin resistant staphylococcus aureus (MRSA). 10 (13.15%) were P. Aeruginosa in which 2(20%) were multi drug resistant strain (MDR). 6(7.89%) were Klebsiella spp., 7(9.21%) E. coli, 5(6.57%) Streptococcus (4 group A and 3 S. mitis group). 6(7.89%) were Coagulase negative Staphylococcus (CONS) in which 1(16.66%) were MRCONS. 5(6.57%) were Enterobacter spp. 4(5.26%) were Enterococcus faecalis. 2(2.63%) were Nocardia spp. 2(3.13%) were Acinetobacter spp. Anaerobic infection was seen in 11 patient with 8(10.52%) Peptostreptococcus and 3(37.5%) Bacteriodes spp. (Table-04)

In this study overall Gram-positive organism were 54% and Gram-negative organism 46% and their antibiotic susceptibility revealed high degree of resistance for commonly used antimicrobial agents. Amoxicillin-clavulanate, ciprofloxacin and linezolid were found to be the most effective antimicrobial agents, were as Tetracycline, cefotaxime and Ceftriaxone were among the most resistant drugs against gram-positive organisms.

Piperacillin/tazobactam, meropenem, ceftriaxone and chloramphenicol were most common sensitive agents and tetracycline, ampicillin, cefuroxime and gentamycin were found resistant agents against gram-negative organisms.

Table No.3: Classes and degrees of wounds in study group of patients

wound class	No. of Procedures	Number of **SSI** the patient n=96	Degree of SSIs				Percentage of SSIs
			First Degree	Second Degree	Third Degree	Fourth Degree	
Class I / Clean	341	15 (4.39%)	11	04	00	00	15.62%
Class II/ Clean Contaminated	367	40 (10.89%)	24	11	03	02	41.66%
Class III/ Contaminated	94	41 (43.61%)	23	10	04	04	42.70%
Total	802	96	58 (60.41%)	25 (26%)	07 (7.29%)	06 (6.25%)	99.98%

Table No.4: Microbiological Profile of Pus Specimen with SSIs. (N=76)

S No.	Organism	Percentage of isolation (n=76)	Drug Sensitively	Drug Resistant
01	S. aureus MRSA (Gram-Positive)	12 (15.78%) 3(25%)	Ciprofloxacin, Vancomycin, Linezolid	Amoxicillin-Clavulanate, Cefotaxime
02	P. Aeruginosa MDR (Gram-Negative)	10 (13.15%) 2 (20%)	Piperacillin/Tazobactam Amikacin, Meropenem	Amoxcillin-Clavulanate, Tetracycline, Ampicillin,
03	Klebsiellaspp(Gram-Negative)	6 (7.89%)	Ceftriaxone, Piperacillin/ Tazobactam	Gentamycin, Ampicillin, Cephradine
04	E.coli (Gram-Negative)	7 (9.21%)	MeropenemCefuroxime, Amoxicillin, Clavulanic Acid, Chloramphenicol	Tetracycline, Ampicillin, Cefotaxime, Cephazoline
05	Streptococcus spp (Gram-Positive) (4 group A and 3 S. mitis group	5 (6.57%)	Amoxillin/ Clavulanate Ceftriaxone , Ceftazidime	Gentamycin, Ciprofloxacin, Erythromycin
06	Coagulase negative Staphylococcus.MRCONS (Gram-Positive)	6 (7.89%) 1 (16.66%)	Gentamycin. Clindamycin Piperacillin/Tazobactam	Ciprofloxacin, Ofloxacin, Tetracycline, Ceftriaxone
07	Enterobacterspp (Gram-Negative)	5 (6.57%)	Nalidixic Acid, Piperacillin/ Tazobactam, Moxifloxacin	Vancomycin, Tetracycline, Gentamycin
08	Enterococcus faecalis (Gram-Positive)	4 (5.26%)	Amikacin, Linezolid, Amoxillin/ Clavulanate	Vancomycin, Penicillin, Tetracycline
09	Nocardiaspp (Gram-Positive)	2 (2.63%)	Amoxillin/ Clavulanate Nalidixic Acid	Cefotaxime, Cefamandole, Tobramycin
10	Acinetobacterspp (Gram-Negative)	2 (3.13%)	Ceftriaxone Meropenem, Chloramphenicol	Ampicillin, Cephazoline, Cefuroxime Sodium
11	Anaerobic Infection (Gram-Positive) Peptostreptococcus Bacteriodesspp (Gram-Negative)	08 (10.52%) 3 (37.5%)	Ciprofloxacin Gentamycin, Metronidazole	Ceftriaxone Ceftazidime, Tetracycline

DISCUSSION

In this study, we studied professionally different factors related to post-operative surgical site infection (SSIs) and found certain interesting facts and figures. Overall results were compared with similar domestic and international research work, with slight variations, due to difference in demographic, environmental and health facility setup.

In our study out of 802 patients who underwent different surgical procedures, out of them 96 patients developed SSI which give overall incidence rate of (11.97%). Infection rate varies from hospital to hospital, surgeon to surgeon and from patient to anotherpatient.[6] In our present study it varies from 0% (thyroid procedures) to 42.85% (gut procedures). Many studies from different places have shown the SSI rate to vary from 6.09% to 38.7%,[7] like in few domestic studies it was found 6.5% to 9.294%.[8,9] SSI rate was found higher in developing countries like in Africa 16.4%[10] and it was significantly found lower in developed countries, like in china 4.5%,[11] south Korea 3.3%[12] and in US 2-3%.[13] . In this study isolation and identification of causative agent remained our prime concern, followed by the specific antibiotic used in controlling and treating SSI. Predominant Causative organism were staphylococcus, S aureus, P. Aeruginosa, E. coli, Klebsiella spp. .[5,14,15] CDC also defined most common pathogen associated with SSI is S. Aureus likewise another study carried out in Bangalore demonstrated that, Staphylococcus aureus (S. aureus) was the most common pathogen, followed by Escherichia coli and Coagulase Negative Staphylococcus.[16]

Prolonged duration of surgery increases risk of SSI.[17,18] Successful management of patients with SSI depends on, early identification of bacterial pathogens and selection of an effective antibiotic against the organism. Current finding showed 54% and 46% of gram-positive and gram-negative organism respectively, which is comparable with other studies associated with SSI in different countries.[19,20]

CONCLUSION

A pre-exiting medical illness, prolonged operating time, the wound class and wound contamination strongly predispose to wound infection. The practice of aseptic technique during and after surgery should be the primary support rather than over-reliance on antibiotics to reduce emergence and spread of resistant pathogens.

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REFERENCES

1. Singh R, Singla P, Chaudary U. Surgical Site Infection: Classification, risk factors, pathogenesis and preventive management: review article. Int J Pharma Research Health Sci 2014;2(3):203-14.
2. Mawalla B, Mshana SE, Chalya PL, Imirzalioglu C, Mahalu W. Predictors of surgical site infections among patients undergoing major surgery at Bugando Medical Centre in Northwestern Tanzania. BMC Surj 2011;11(1):21.
3. WHO. Guide line for safe surgery; 2009.p. 69-80.
4. Ernesto C, Starling F, Horzonte B, Applicability of the national nosocomial infections surveillance system risk index for the prediction of surgical site infection: a review. Braz J Infect Dis 2007; 11(1):134-41.
5. Dinda V, Gunturu R, Kariuki S, Hakeem A, Raja A, Kimang'a A, Pattern of Pathogens and their sensitivity isolated from surgical site infection at the Aga Khan University Hospital, Nairobi, Kenya. Ethiopian J Health Sci 2013;23(2,):141-149.
6. Yohannes Y, Mengesha Y, Tewelde Y. Timing choice and duration of peri-operative prophylactic antibiotic use in surgery: A teaching hospital based experience from Eritrea. J Eritrean Med Associat 2009;65-7.
7. Lilani SP, Jangale N, Chowdhary A, Daver GB. Clean-contaminated cases. Ind J Med Microbiol 2005;23:249-52.
8. Malik AZ, Ali Q. Surgical Site Infection after elective surgery Pakistan SURGIPAK Study (JRMC) 2015;19(3):209-214.
9. Khan M, Khalil J, et al. Rate and risk factors for Surgical Site Infection at a Tertiary care facility in Peshawar, Pakistan. J Ayub Med Coll Abbottabad 2011;23(1).
10. Lubega A, et al. Incidence and Etiology of Surgical Site Infection among Emergency post-operative patients in Mbarara Regional Referral Hospital, South Western Uganda. Hindawi Surgery Research and Practice 2017.
11. Fan Y, Wei Z, Wang W, et al. The Incidence and distribution of surgical site infection in mainland China: a meta-analysis of 84 prospective observational studies. Scientific Reports 2014;4: 6783.
12. Jeong SJ, Ann HW, Kim JK, et al. Incidence of risk factors for surgical site infection after gastric surgery; a multicenter prospective cohort study. Infection & Chemotherapy 2013;45(4):422-430.
13. Acin-Gandara D, Rodriguez-Caravaca G, Duran-Poveda M, et al. Incidence of surgical site infection in colon surgery: comparison with regional, National Spanish, and United States Standards. Surgical Infection 2013;14(4):339-344.
14. Pal N, Guhathakurtha R. Surgical site infection in surgery ward at a tertiary care hospital: the infection rate and the bacteriological profile. IOSR J Pharm 2012;2(5):1-5.
15. Leaper DJ. Surgical site infection- a European perspective of incidence and economic burden. Int Wound J 2004;1(4):247-73.
16. Golia S, Kamath BA, Nirmala AR,. A Study of superficial surgical site infections in a tertiary care hospital at Bangalore. Int J Res Med Sci 2014; 2:647-652.
17. Bandaru NG, Rao RA, Prasad VK, Murty R. A prospective study of post-operative wound infections in a teaching hospital of rural setup. J Clin and Diagnostic Res 2012;6(7):1266-71.
18. Awan MS, Dhari FJ, Laghari AA, Bilal F, Khaskheli NM. Surgical Site Infection In Elective Surgery. J Surg Pak 2011;16(1):49-52.
19. Adegoke A, Mvuyo T, Okoh AI, Steve J. Studies on multiple antibiotic resistant bacterial isolated from surgical site infection. Scientific Research and Essays 2010;5(24):3876-3881.
20. Mahmood A. Bacteriology of surgical site infection and antibiotic susceptibility pattern of the isolates at a tertiary care hospital in Karachi. J Pak Med Assoc 2000;50(8):256-259.

Original Article

Two Years Experience of Myo-Inositol Use in Women Presented with Polycystic Ovarian Syndrome

Basma Zia Isran[1], Shazia Shaikh[2] and Shaista Hifaz Abro[2]

ABSTRACT

Objective: To determine the two years' experience of myo-inositol use in women presented with polycystic ovarian syndrome at a tertiary care hospital.

Study Design: Observational / cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology Unit-II, Chandka Medical College Hospital Larkana from January 2017 to December 2018.

Materials and Methods: A total of 65 patients with polycystic ovarian syndrome were included. Detailed history was taken and myo-inositol was administrated to assess the outcomes i.e. conceiving of women, weight loss and menstrual regularity.

Results: The mean age was 31.98+4.615 years. The results were 25 patients (38.5%) conceived after treatment, 15 (23.1%) had weight loss and menstrual regularity was noted in 20 patients (30.8%).

Conclusion: The treatment of females with PCOS with myoinositol has showed considerable amount of improvements in terms of increasing fertilization along with omitting menstrual cycle irregularities and weight loss of the patients.

Key Words: Myo-inositol, Polycystic ovarian syndrome, Infertility

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INTRODUCTION

According to the definition of polycystic ovary syndrome (PCOS), it can be defined as a gynecological disease which is of heterogeneous nature which shows polycystic ovaries on the ultrasound and most of the times causes irregular bleedings, excess of androgen levels and long term anovulation.[1] As per research it is thought to be as the most common reason for making females of reproductive age infertile by number of 5 percent to 10 percent.[2] However, strong genetic association along with lifestyle and gestational environment are thought to be as an important factor though exact etiopathology of PCOS is still not known. In a meeting which was held in Rotterdam 2003, American society for Reproductive medicine and European society of Human reproduction and Embryology has clearly defined the criteria for how to define PCOD.[3] Moreover, insulin resistance was discovered as one of the factors behind the clinical causation of PCOS in women recently. Especially obese PCOS patients with having severe insulin sensitivity disorders with hyperinsulinemia compensatory mechanisms along with in females having normal basal metabolic index as well. It also indicates that weight is not directly associated with the development of insulin resistance at all.[4] Scientifically androgen production can be initiated by two different ways with the stimulus of hyperinsulinemia as firstly by inducing ovaries to produce androgens or lessening the binding of globulin related to sex hormones in serum.[5]

Furthermore, as per our literature review it was found that for a long period of time drugs like metformin, troglitazone or pioglitazone which are also termed as insulin sensitizers thought to be as vital choice for management therapy due to the important role of insulin in its etiopathology. Moreover, for menstrual cycle irregularities or the improvement in ovarian dysfunction along with consecutive anovulation metformin is being given as a treatment in patients with hyperinsulinemic condition.[6] It was also reported that metformin use will result in a few side effects like nausea, diarrhea, flatulence making it as difficult to use in a longer run.[7] However, in very recent times alternatives of management therapy drugs for PCOS, compounds cyclohexane with five equatorial and one axial hydroxyl group and most frequent form found in

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nature in relative to other nine different stereoisomer forms, have been under the investigation.[8]

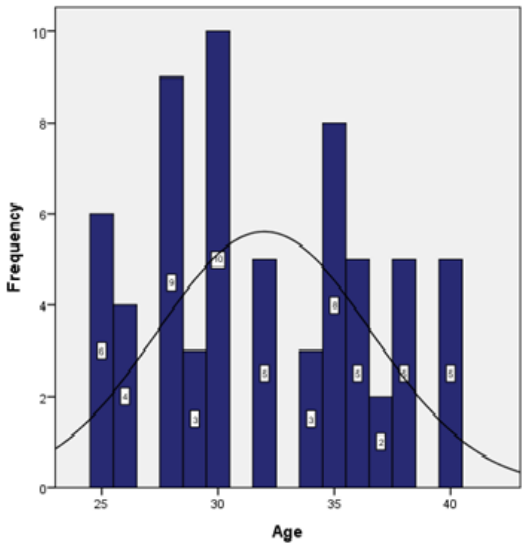
Plenty of researches have been conducted for PCOS which collectively suggests that, insulin resistance is a net result of inositol insufficiency in the inositophosphoglycans so insulin deficiency will be rise from the inositolphophoglycan (IPG) mediator. Furthermore, many researches have also stated that if D-chiro-inositol which is converted from myo-inositol intracellularly, administrated to the affected patients can decrease insulin resistence[9] while as a second messenger, myo-inositol can play very important role in cells for various signal pathways which enhance the sensitivity for insulin which will ultimately show remarkable increase of glucose uptake intracellularly.[10] So, the researchers have proved myoinositol as a potential nontoxic drug option for an effective management of women with PCOS by improving the metabolic processes following induction of ovulation activity especially in infertile women and also paved the way for researchers to take experimental interest in to it. Moreover, myoinositol dose up to 12 grams per day is termed as the safest dose with slight gastrointestinal adverse effects, have also been reported by the various researches.[11] So, the main aim of this study was to assess the rates of pregnant women under the administration of myoinositol and folic acid in combination therapy for the PCOS in Germany, and secondly to institute this notion if this can be opted for the improvement of the patients with infertility.

MATERIALS AND METHODS

This cross-sectional study was carried out at Department of Obstetrics & Gynaecology Unit-II, Chandka Medical College Hospital Larkana from 1st January 2017 to 31st December 2018. A total of 65 patients with polycystic ovarian syndrome were included. Detailed history was taken and myo-inositol was administrated to assess the outcomes i.e. conceiving of women, weight loss and menstrual regularity. The patients of age 25 to 40 years, who were diagnosed cases of polycystic ovarian syndrome (PCOS) were included. Patient's name, age, marital status, body mass index (BMI) and patients complains like infertility and scanty menses was recorded. Exclusion criteria were firmly followed to avoid confounding variables. Myo-inositol was started and continued for 2 years. After 2 years outcome/results were assessed in terms of conceived after treatment, weight loss and menstrual cycle regularity after treatment. Patients with presence of other causes of hyperandrogenism or infertility, such as hypothyroidism, congenital adrenal hyperplasia, cushing's syndrome, hyperinsulinaemia or endometriosis were excluded. Data was entered and analyzed in SPSS 22.

RESULTS

The mean age was 31.98+4.615 years and frequency of age is presented in Figure 1. The mean BMI was 27.044+3.555 kg/m^2 (Table 1). There were 15 (23.1%) single while 50 (76.5%) patients married. The infertility was noticed in 40 (61.53%) patients and scanty menses in 35 (53.8%). Twenty five patients (38.5%) conceived after treatment, 15 (23.1%) had weight loss and menstrual regularity was noted in 20 patients (30.8%) [Table 2].



Graph No.1: Frequency distribution of age (years)

Table No.1: Descriptive statistics of age & BMI

Statistics	Age (years)	BMI (kg/m^2)
Minimum	25	18
Maximum	40	35
Mean±SD	31.98+4.615	27.044+3.5550

Table No.2: Frequency of marital Status, complain of patients (infertility & scanty menses) and Results (conceived after treatment, weight loss, menstrual regularity)

Variable	No.		%
Marital status			
Single		15	23.1
Married		50	76.9
Complain	Yes	No	Total
Infertility	40(61.53%)	25(38.46%)	65(100%)
Scanty menses	35(53.8%)	30(46.2%)	65(100%)
Results			
Conceived a	25(38.5%)	40(61.5%)	65(100%)
Weight loss	15(23.1%)	50(76.9%)	65(100%)
Menstrual reg	20(30.8%)	45(69.2%)	65(100%)

Majority of the patients who conceived after treatment were 33-40 years of age group (p=0.005), had BMI of 28.1-36 kg/m^2 (p-0.539), majority of patients had complain of infertility (p=0.000) & significant

association was noted with complain of scanty menses (p=0.005). Weight loss after treatment was commonly noted in age group of 25-32 years (p-value=0.719), BMI of 28.1-36 kg/m^2 (p=0.070), also commonly noted in patients with complain of infertility (p=0.041) and no significant association was noted with complain of scanty menses (p=0.220). Menstrual regularity after treatment was commonly noted in age group of 25-32 years (p-value=0.263), BMI of 20-28 kg/m^2 (p-value=0.200), with significantly associated complain of infertility (p-value=0.000) and scanty menses (p-value=0.000) [Tables 3-4).

Table No.3: Stratification of conceived after treatment, weight loss, menstrual regularity according to Age, BMI (n=65)

Variable	Conceived after treatment		Weight loss		Menstrual regularity	
	Yes	No	Yes	No	Yes	No
Age (years)						
25-32	7(10.76%)	30(46.15%)	10(15.38%)	27(41.53%)	16(24.61%)	21(32.30%)
33-40	18(27.69%)	10(15.38%)	5(7.69%)	23(35.38%)	4(6.15%)	24(36.92%)
P value	**0.005**		**0.719**		**0.263**	
BMI (kg/m^2)						
20-28	11(16.92%)	28(43.07%)	3(4.61%)	36(55.38%)	14(21.53%)	25(38.46%)
28.1-36	14(21.53%)	12(18.46%)	12(18.46%)	14(21.53%)	6(9.23%)	20(30.76%)
P-value	**0.539**		**0.070**		**0.200**	

Table No.4:Result (conceived after treatment, weight loss, menstrual regularity) according to Age, BMI (n=65)

Variable	Conceived after treatment		Weight loss		Menstrual regularity	
	Yes	No	Yes	No	Yes	No
Infertility						
Yes	24(36.92%)	17(26.15%)	10(15.38%)	31(47.69%)	5(7.69%)	36(55.38%)
No	1(1.53%)	23(35.38%)	5(7.69%)	19(29.23%)	15(23.07%)	9(13.84%)
P value	**0.000**		**0.041**		**0.000**	
Scanty Menses						
Yes	8(12.30%)	27(41.53%)	6(9.23%)	29(44.61%)	20(30.76%)	15(23.07%)
No	17(26.15%)	13(20%)	9(13.84%)	21(32.30%)	0(%)	30(45.15%)
P-value	**0.005**		**0.220**		**0.000**	

DISCUSSION

Amongst many endocrinal diseases, PCOS is considered as the most frequently upsetting the health of women who are reproductively active. Moreover, credible number of women with PCOS have hyperinsulinemia along with developing resistance to insulin. So, myoinositol which is termed as the insulin lowering drug are known for the betterment in outcome of spontaneous ovulation because of the encouragingly positive consequence on meiotic division of human oocyte. Moreover, this course of treatment not only positively sway genesis of steroid hormones but will also lessening the ability of theca cells to produce androgens. Research has not only showed the diminishing of testosterone concentration in the serum but also increasing ovulation in females with PCOS by administrating inositol.[12]

In this present study 25 patients which makes 38.5 percent of the total sample revived their ovulatory functions as previously done in a research study of Regidor et al.[13] In which it was reported that 70 percent of the patients gained normality in their ovulatory functions. Though it was an observational study and this was the main limitation of it, but still reliable data of the patients for analysis is present. Moreover, the rates of pregnancy were in a range equal or more than those stated after the administration of metformin which is insulin sensitizer. Another research study of Karimzadeh and Javedani[14] also suggested that around 14.4 percent of pregnancy rates were reported in a cohort with the 90 female participants likewise, 12.3 percent in a cohort group of 75 females with having PCOS.[15] Furthermore, it is also evident from the study that the safety profiles and patient compliance were slightly different between the myoinositol and metformin, and those are the observed side effects like mild to severe gastrointestinal upset which includes nausea, diarrhea and abdominal pain. While few patients reported with severe side effects as lactic acidosis. On the contrary myoinositol was proved as to be less harmful and nearly safe for the use and tolerated very well by the patients was equally capable in terms of efficacy as of metformin. So, on the whole it would be pertinent to say that myoinositol administration can increase glucose uptake intracellularly.

Another prospective research study which is named as Gerli et al[16] has clearly reported that, overall 82 percent improvement was observed by increasing ovulatory functions of females patients who were administrated

myoinositol along with the combination of folic acid and on the contrary patients who received placebo were observed the ovulatory function restoration by 63 percent. Likewise regular menstrual cycles were experienced by 70 percent of females taking myoinositol after 16 weeks of treatment and 13 percent regular cycles were found in a placebo group as compared to our study the percentage was 30.8 percent for menstrual cycle regularity and this was most commonly found in an age group of 25 to 32 years of age with p value of 0.263, Basal metabolic index of 20 to 28 kg/m2 with p value of 0.200, with considerable infertility compliant with p value of 0.000 and scanty menstruation with the p value of 0.000. In this research study 23.1 percent of females showed considerable weight loss as well when given myoinositol meanwhile improvement in ovulatory functions were attained by the dose of 4 g myoinositol and 400 µg folic acid per day.

In another research study namely Raffone et al[17], two groups were compared in one group was given myoinositol 2x 2000 gram along with the 200 µg per day administrated to the emale patients with PCOS while other group was given 1500 mg per day. When analyzed the results then considerable improvements were noted in the ovulatory functions and rates of pregnancies were higher in myoinositol group relative to metformin group. However, in this research study the age group of 33 to 40 years successfully conceived after getting myoinositol treatment with p value 0.005 having basal metabolic index of 28.1 to 36 kg/m2 with the p value 0.539. However, patients in majority had complained infertility with p value of 0.000 while scanty menses complains with p value of 0.005. Furthermore, plenty of other researches no doubt showed myoinositol efficacy with improving fertility in women with PCOS[18-20].

There have been copious research studies presenting that myoinositol treatment regime along with in combination of folic acid in the dosage 2 x 2000 g myoinositol and 200 µg of folic acid per day) positively affects hence ultimately improves hormonal and matbolic parameters. Furthermore, another important research study namely Costantino et al[21] has showed that, after administration of myoinositol considerable amount of improvement after 75 mg oral glucose tolerance test was observed in triglycerides, cholesterol, blood pressure and level of insulin with 16 weeks of treatment period. Moreover, prominent decrease in free serum testosterone levels relative to increase progesterone levels because of increased ovulation was seen. It would be appropriate to conclude that myoinositol improves the metabolic profiles in females but also give them relieve from other skin and acne problems by suppressing androgen activity.

Similarly, author Unfer et al[22] conducted a research meta-analysis and concluded that when the 4000 g of myoinositol along with the combination of 400 milligram of folic acid given to the patients reported no any kind of adverse effects as compared to the treatment with 1500 mg of metformin were stated and improvement of ovulatory functions was observed in the former group. Kamenov et al[23] also endorsed the fact which means women who were taking myoinositol in combination with clomiphene citrate in females with PCOS who have developed resistance for insulin. Melotonin can contribute a further therupatic benefit if more researches conducted[24]

So, in the light our research study it is safe to conclude that myoinositol can be implemented as an effective treatment plan for patients with PCOS with little or no adverse effects of it as per the research. However, the importance of proper compliance to the treatment regime cannot be denied which in turn ensures the positive outcomes in terms of ovulatory function disturbances, along with hyperandrogenism and metabolic profiles of PCOS affected females. However, further detailed researches are required to be conducted in future as well just to observe the effect of myoinositol on developmental process of follicles and oocyte maturation along with results of pregnancy in IVF procedure.

CONCLUSION

The treatment of females with PCOS with myoinositol has showed considerable amount of improvements in terms of increasing fertilization along with omitting menstrual cycle irregularities and weight loss of the patients.

Author's Contribution:

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REFERENCES

1. Ehrmann DA. Polycystic ovary syndrome. N Engl J Med 2005; 352:1223–36.
2. Homburg R. Polycystic ovary syndrome – from gynecological curiosity to multisystem endocrine-pathy. Hum Reprod 1996;11:29–39.
3. The Rotterdam ESHRE/ASRM-sponsored PCOS consensus workshop group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome (PCOS). Hum Reprod 2004;19:41–7.
4. Genazzani AD, Lanzoni C, Ricchieri F, Jasonni VM. Myo-inositol administration positively affects

hyperinsulinemia and hormonal parameters in overweight patients with polycystic ovary syndrome. Gynecol Endocrino 2008 ;24(3):139-44.
5. Croze ML, Soulage CO. Potential role and therapeutic interests of myo-inositol in metabolic diseases. Biochimie 2013;95(10):1811-27.
6. Baillargeon JP, Iuorno MJ, Nestler JE. Insulin sensitizers for polycystic ovary syndrome. Clin Obstet Gynecol 2003;46(2):325-40.
7. Strugaru AM, Botnariu G, Agoroaei L, Grigoriu IC, Butnaru E. Metformin induced lactic acidosis–particularities and course. Med Surg J 2013; 117 (4):1035-42.
8. Clements R, Darnell B. Myo-inositol content of common foods: development of a high-myo-inositol diet. Am J Clin Nutr 1980;33:1954–67.
9. Baillargeon JP, Nestler JE, Ostlund RE, Apridonidze T, Diamanti-Kandarakis E. Greek hyperinsulinemic women, with or without polycystic ovary syndrome, display altered inositols metabolism. Human Reprod 2008;23(6): 1439-46.
10. Hooper NM. Glycosyl-phosphatidylinositol anchored membrane enzymes. Clinica chimica acta 1997;266(1):3-12.
11. Carlomagno G, Unfer V. Inositol safety: clinical evidences. Eur Rev Med Pharmacol Sci 2011; 15 (8):931-6.
12. Unfer V, Carlomagno G, Dante G, Facchinetti F. Effects of myo-Inositol in women with PCOS: a systematic review of randomized controlled trials. Gynecol Endocrin 2012;28:509–15.
13. Regidor PA, Schindler AE. Myoinositol as a safe and alternative approach in the treatment of infertile PCOS women: a German observational study. Int J Endocrinol 2016;2016.
14. Karimzadeh MA, Javedani M. An assessment of lifestyle modification versus medical treatment with clomiphene citrate, metformin, and clomiphene citrate–metformin in patients with polycystic ovary syndrome. Fertility Steril 2010; 94(1):216-20.
15. Legro RS, Zaino RJ, Demers LM, Kunselman AR, Gnatuk CL, Williams NI, et al. The effects of metformin and rosiglitazone, alone and in combination, on the ovary and endometrium in polycystic ovary syndrome. Am J Obstet Gynecol 2007;196(4):402-e1.
16. Gerli S, Papaleo E, Ferrari A, Di Renzo GC. Randomized, double blind placebo-controlled trial: effects of myo-inositol on ovarian function and metabolic factors in women with PCOS. Eur Rev Med Pharmacol Sci 2007;11(5):347-54
17. Raffone E, Rizzo P, Benedetto V. Insulin sensitiser agents alone and in co-treatment with r-FSH for ovulation induction in PCOS women. Gynecol Endocrinol 2010;26(4):275-80.
18. Genazzani AD, Prati A, Santagni S, Ricchieri F, Chierchia E, Rattighieri E, et al. Differential insulin response to myo-inositol administration in obese polycystic ovary syndrome patients. Gynecol Endocrinol 2012;28(12):969-73.
19. Morgante G, Orvieto R, Di Sabatino A, Musacchio MC, De Leo V. The role of inositol supplementation in patients with polycystic ovary syndrome, with insulin resistance, undergoing the low-dose gonadotropin ovulation induction regimen. Fertility Sterility 2011;95(8):2642-4.
20. Sun TH, Heimark DB, Nguygen T, Nadler JL, Larner J. Both myo-inositol to chiro-inositol epimerase activities and chiro-inositol to myo-inositol ratios are decreased in tissues of GK type 2 diabetic rats compared to Wistar controls. Biochem Biophysical Res Communications 2002;293(3): 1092-8.
21. Costantino D, Minozzi G, Minozzi E, Guaraldi C. Metabolic and hormonal effects of myo-inositol in women with polycystic ovary syndrome: a double-blind trial. Eur Rev Med Pharmacol Sci 2009; 13(2):105-10.
22. Unfer V, Carlomagno G, Dante G, Facchinetti F. Effects of myo-inositol in women with PCOS: a systematic review of randomized controlled trials. Gynecol Endocrinol 2012;28(7):509-15.
23. Kamenov Z, Kolarov G, Gateva A, Carlomagno G, Genazzani AD. Ovulation induction with myo-inositol alone and in combination with clomiphene citrate in polycystic ovarian syndrome patients with insulin resistance. Gynecol Endocrinol 2015; 31(2):131-5.
24. Rizzo P, Raffone E, Benedetto V. Effect of the treatment with myo-inositol plus folic acid plus melatonin in comparison with a treatment with myo-inositol plus folic acid on oocyte quality and pregnancy outcome in IVF cycles. A prospective, clinical trial. Eur Rev Med Pharmacol Sci 2010; 14(6):555-61.

Original Article

Comparison the Rate of Complications Between Mesh and Darn Repair in Inguinal Hernias

Naseebullah Zarkoon, Mohyuddin Kakar and Samina Karim

ABSTRACT

Objective: To compare the rate of complications especially of recurrence in inguinal hernias treated with mesh repair and darn repair.

Study Design: Prospective/randomized control trial study.

Place and Duration of Study: This study was conducted at the Department of Surgery Unit-I, Bolan Medical College Quetta from November 2017 to December 2018.

Materials and Methods: A total of 86 patients had ages 19 to 65 years were included. Patients were divided into two groups. Forty three patients were treated with mesh repair of inguinal hernia and 43 were treated with darn repair procedure. Complications were recorded and compared between two different techniques, such as surgical site infection, length of hospital stay and recurrence of inguinal hernias.

Results: There were 18 (20.93%) patients had ages <30 years, 22 (25.58%) patients ages between 30 to 40 years. 23 (26.74%) patients had ages 41 to 50 years and 23 (26.74%) patients above 50 years. Surgical site infection (superficial), l found in 4 patients in mesh repair group and in 3 patients in darn group. Length of hospital stay was high in mesh group as compared to darn repair group. Recurrence of inguinal hernia found in 2 patients in mesh group while in 5 patients in darn group.

Conclusion: Mesh repair technique is had less rate in recurrence of inguinal hernias as compared to darn repair technique.

Key Words: Inguinal hernias, Mesh repair, darn repair, Recurrence

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INTRODUCTION

Inguinal hernia is the most frequent disorder found in surgical departments and rated 25% in males and 2% in females.[1] Many of researches illustrated that the prevalence of this malignant disorder is high in older age and rated 50% yearly.[2] In US inguinal hernia repair is the most frequent performing surgical treatment and yearly approximately 0.6 million cases treated.[3] This intervention puts the highest burden on health care system.[4] During last 10 years many of procedures used for the treatment of inguinal hernia nut the recurrence rate is still high and rated 15 percent.[5] In 1987, Lichtenstein introduce the mesh technique for repairing the inguinal hernia. This useful and effective procedure shows better results regarding pain and recurrence rate.[6,7]

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Worldwide, polypropylene mesh technique for inguinal hernia repairs taking as a gold standard because of its better surgical results and less complications rate. Lichtenstein mesh technique is the world most common performing procedure and this method is now method of choice.[8] However, in many under developed countries Bassini procedure is still using due to limited health care facilities and procedural cost.[9] Polypropylene mesh technique reduces the prevalence of chronic groin pain and other complications.[10] The use of absorbable meshes like lactic acid polymer and glycolic acid copolymer is very useful procedure to reduce the complications. This exposes the patient to inevitable hernia recurrence because the inflammatory response, through a hydrolytic reaction completely digests the implanted prostheticmaterial.[11,12] A prosthetic mesh repair technique for inguinal hernia is a very useful and better treatment modality and reported less than 5% recurrence rate. [13,14] For synthetic mesh repairs many studies have noted their association with numerous complications, including persistent pain, infection, adhesions, bowel erosion, shrinkage, andinflammation.[15,16] Our objective was to compare the complications in Lichtenstein repair with tension free Darn repair. We also looked at the surgical site infections, length of hospital stay, time taken to return to normal routine and recurrence of hernia.

MATERIALS AND METHODS

This study was conducted at Department of Surgery Unit-I, Bolan Medical College Quetta from 15th November 2017 to 31st December 2018. This study comprised 86 patients had ages 19 to 65 years were included. Patient's detailed medical history was examined after taking informed consent from all the patients. Patients with recurrent inguinal hernia, having ASA class IV and above, patients with other abdominal surgery were excluded from this study. Patients were divided into two groups Mesh repair and Darn repair. 43patients were treated with mesh repair of inguinal hernia and 43 were treated with darn repair procedure. ASA class, smoking history, diabetes mellitus and site was recorded as baseline characteristics of all the patients. Complications were recorded and compared between two different techniques, such as surgical site infection, length of hospital stay and recurrence of inguinal hernias. Statistical data was analyzed by SPSS 19.

RESULTS

Out of 86 male patients 18 (20.93%) patients had ages < 30 years, 22 (25.58%) patients were ages between 30 to 40 years. 23 (26.74%) patients had ages 41 to 50 years and 23 (26.74%) patients were ages above 50 years (Table 1). Baseline clinical examination was recorded as ASA class I and II,

Table No.1: Age-wise distribution of all the patients (n=86)

Age (years)	No.	%
<30	18	20.93
30-40	22	25.58
41-50	23	26.74
>50	23	26.74

Table No.2: Clinical examination of patients of each group

Characteristics	Mesh Repair (n=43)	Darn Repair (n = 43)
ASA Class		
I	29(67.44%)	30(69.77%)
II	14(32.56%)	13(30.23%)
Controlled DM	6	10
COPD	5	5
Smoking history	19	21
Site		
Right	19	20
Left	9	8
Bilateral	8	7
Direct	7	7

Control diabetes mellitus, COPD, smoking history, surgical site (Table 2). Surgical site infection (superficial)l found in 4 patients in mesh repair group and in 3 patients in darn group. Deep surgical site infection found in 2 patients treated with darn repair technique. Length of hospital stay was high in mesh group as compared to darn repair group. Recurrence of inguinal hernia found in 2 patients in mesh group while in 5 patients in Darn group (Table 3).

Table No.3: Complications recorded in both groups

Variable	Mesh Repair	Darn Repair
Surgical site infection		
Found	4 (9.30%)	3(6.98%)
Not Found	39 (90.70%)	40 (93.02%)
DSSI		
Found	1 (2.33%)	2(4.65%)
Not Found	42 (97.67%)	41 (95.35%)
Recurrence		
Found	2(4.65%)	5(11.63%)
Not Found	41 (95.35%)	38(88.37%)
Hospital Stay	3-15 Days	3-5 days

DISCUSSION

Worldwide, repair of inguinal hernias is the second most common performing surgical procedure after appendectomy and accounted 11-16%.[17] In 1887 the Bassini's repair technique was introduced and till that many operative methods have been used for repair of inguinal hernias but there is no definitive technique is considered as the bestmethod.[18] The material used remains controversial. Now a days many of techniques applying for repairing the inguinal hernias to gain the better results and tension free procedure and to provide the better treatment, from those procedure Mesh repair reported as the best procedure to achieve the better results.[19,20]

In mesh repair group the most common age groups was 30 to 50 years and there was no significant difference found in both groups regarding age. These results shows similarity to some other studies conducted in Pakistan.[21]

In the present study, we found that surgical site infection (superficial) found in 9.30%patients in mesh repair group and in 6.98%patients in darn group. Deep surgical site infection found in 2 patients treated with darn repair technique. There was no haematoma found in our study in both groups. A study conducted by Shilcutt et al[22] in which hematoma was 4.4% and surgical site infection was 1.7%. Many other studies regarding repair of inguinal hernias illustrated different rates of complication.[23]

In this study, the recurrence of inguinal hernia in mesh group was 4.65%and in Darn repair group it was 11.63%. These results shows similarity to some other studies in which recurrence rate in Mesh group was 3 to 5% and in Darn group was 8 to 12%.[24,25] There was no significant difference was observed except recurrence in both groups of the present study.

CONCLUSION

Repair of inguinal hernia is the most common surgical procedure performed all over the world and different modalities are used to attain better outcomes. In our study, it is concluded from this study that Mesh repair

technique is had less rate in recurrence of inguinal hernias as compared to darn repair technique. Hospital stay was higher in mesh group than darn group. Moreover, there was no significant difference was observed regarding wound infection.

Author's Contribution:

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Revisiting Critically:	Naseebullah Zarkoon, Mohyuddin Kakar
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Nicks BA, Askew K. Hernias. In: eMedicine [online database]. Omaha, NE: eMedicine.com; 2010 Jan 25. http://emedicine.medscape. com/article/775630-overview.
2. Inguinal hernia: epidemiology [online database]. San Mateo, CA: Epocrates, Inc.; 2010. Accessed July 14, 2010.
3. Society of American Gastrointestinal Endoscopic Surgeons [2013] Available at: www.sages.org
4. Zhao G, Gao P, Ma B, Tian J, Yang K. Open mesh techniques for inguinal hernia repair: a meta-analysis of randomized controlled trials. Ann Surg 2009;250(1):35-42.
5. Junge K, Binnebösel M, Rosch R, Öttinger A, Stumpf M, Mühlenbruch G, et al. Influence of mesh materials on the integrity of the vas deferens following Lichtenstein hernioplasty: an experimental model. Hernia 2008; 12(6):621-7.
6. Lichtenstein IL, Shulman AG, Amid PK, Montllor MM. The tension-free hernioplasty. Am J Surg 1989;157(2): 188-93.
7. Matyja A, Kibil W, Pach R, Solecki R, Kulig J, Kamtoh G, et al. Assessment of inguinal hernia treatment results in patients operated on with mesh using Lichtenstein, PHS and Robbins-Rutkow techniques. Video Surgery Miniinv 2010;5:27-34.
8. Battocchio F, Terranova O, De Santis L. Grande Atlante di Tecnica Chirurgica: Chirurgia Delle Ernie. UTET Scienze Mediche, Torino 2004: 1-383.
9. Adesunkanmi AR, Badmus TA, Ogundoyin O. Determinants of outcome of inguinal herniorrhaphy in Nigerian patients. Ann Coll Surg Hong Kong 2004;8(1):14-21.
10. Sajid MS, Leaver C, Baig MK, Sains P. Systematic review and meta-analysis of the use of lightweight versus heavyweight mesh in open inguinal hernia repair. Br J Surg 2012;99(1):29-37.
11. Abd El Maksoud W, Abd El Salam M, Ahmed HH. Comparative study between Lichtenstein procedure and modified darn repair in treating primary inguinal hernia: a prospective randomized controlled trial. Hernia 2014; 18:231–6.
12. Ansaloni L, Catena F, Coccolini F, Gazzotti F, D'Alessandro L, Pinna AD. Absorbable versus permanent mesh in abdominal operations. Am J Surg 2009; 198(3):303-12.
13. Amid PK, Shulman AG. Open "tension-free" repair of inguinal hernias: the Lichtenstein technique. Euro J Surg 1996;162(6):447-53.
14. Kark AE, Kurzer MN, Belsham PA. Three thousand one hundred seventy-five primary inguinal hernia repairs: advantages of ambulatory open mesh repair using local anesthesia. J Am Coll Surg 1998;186(4):447-55.
15. Post S, Weiss B, Willer M, Neufang T, Lorenz D. Randomized clinical trial of lightweight composite mesh for Lichtenstein inguinal hernia repair. Br J Surg 2004;91(1):44-8.
16. Breuing K, Butler CE, Ferzoco S, Franz M, Hultman CS, Kilbridge JF, et al. Ventral Hernia Working Group. Incisional ventral hernias: review of the literature and recommendations regarding the grading and technique of repair. Surgery 2010;148(3):544-58.
17. Olasehinde O, Lawal OO, Agbakwuru EA, Adisa AO, Alatise OI, Arowolo OA, et al. Comparing Lichtenstein with darning for inguinal hernia repair in an African population. Hernia 2016; 20(5):667–74.
18. Khan M, Mufti TS. A study of incidence of external hernias in NWFP. J Pak Med Assoc 1982;32(5):119-21.
19. Pokorny H, Klingler A, Schmid T, Fortelny R, Hollinsky C, Kawji R, et al. Recurrence and complications after laparoscopic versus open inguinal hernia repair: results of a prospective randomized multicenter trial. Hernia 2008;12(4):385-9.
20. Montgomery A, Kallinowski F, Köckerling F. Evidence for replacement of an infected synthetic by a biological mesh in abdominal wall hernia repair. Front Surg 2015; 2(67):1–6
21. Rasool MI, Idress A, Qayyum F. Inguinal hernia clinical presentation. Rawal Med J 1992;20(1):23-26.
22. Shillcutt SD, Clarke MG, Kingsnorth AN. Cost-effectiveness of groin hernia surgery in the Western Region of Ghana. Arch Surg 2010; 145(10): 954-61.
23. Stephenson BM, Kingsnorth AN. Inguinal hernioplasty using mosquito net mesh in low income countries an alternative and cost effective prosthesis. Christmas; Surgery BMJ 2011; 18: 1237-47.
24. Sterne JAC, Hernán MA, Reeves BC, Savović J, Berkman ND, Viswanathan M et al. ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. BMJ 2016; 355:i4919.
25. Memon GA, Shah SKA, Rehman H. An experience with mesh versus darn repair in inguinal hernias. Pak J Med Sci 2017; 33(3):699–702.

Original Article

Comparison of Dosage of 4mg Versus 8mg Dexamethasone on Post-Operative Swellings in Zygomatic Bone Fractures

Farhad Ali[1], Muhammad Tariq Khan[1] and Muhammad Amir[2]

ABSTRACT

Objective: To compare the mean decrease in swelling with 4mg versus 8mg dexamethasone given preoperatively in patients undergoing surgery for zygomatic bone fractures.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the Department of Oral & Maxillofacial Surgery, Saidu Medical College/Saidu Group of Teaching Hospital, Swat KPK from July 2017 to December 2017.

Materials and Methods: One hundred patients were included and divided into equal two groups. Group A was given 8mg dexamethasone one hour before surgery while Group B was given 4mg dexamethasone one hour before surgery. Baseline reading of swelling was measured and patients were undergone surgery. Patients were asked to visit after 7 days of surgery in OPD.

Results: The mean ages were 27.66±8.38 years in group A and 28.52±8.38 years in group B. There were 82% males and 18% females in group A while in group B, 88% males and 12% females. The mean decrease in swelling, 7.12±3.60 mm in group A while in group B, 5.14±1.84 mm. Statistically the difference was significant (P<0.05) in mean decrease in swelling.

Conclusion: The current study concluded that the use of 8mg of the dexamethasone was more effective than 4mg reduce the degree of post operative swelling in zygomatic bone fracture.

Key Words: Dexamethasone, Swelling, Zygomatic bone fractures

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INTRODUCTION

In human body face is the most prominent and important position and often involved in trauma injuries.[1] The zygomatic bone is particularly prone to facial injuries due to its prominence and is the second most common mid facial bone fracture.[2] Zygomatic bone fracture occurs most frequently in young males.[2] The most common cause of zygomatic bone fracture is road traffic accidents, personal assault, fall, and sport injuries.[1,3] Zygomatic bone fracture often leads to distortion of appearance and may compromise masticatory system and ocular system.

There is different treatment recommendations of zygomatic bone fractures have evolved. The surgical reduction and rigid internal fixation is a satisfactory method of its treatment. In most cases surgical treatment leads to significant degrees of tissue trauma that again causes an inflammatoryreactions.[4] As a result of this inflammatory process patients display post operative swelling, pain and functional impairment.[5] Facial swelling reach maximum after 48 to72 hours post operatively.[6]

Corticosteroids are well-known adjuncts to surgery for suppressing tissue mediators of inflammation, thereby reducing transudation of fluids and reducing swelling.[5,6] Primarily steroids are used to reduce the post op swelling after the surgical treatment of zygomatic fractures.[7] In oral and maxillofacial surgery most clinical trials showed a significant decrease in edema after administration of corticosteroids.[6,8,9]

Patients experience a considerable reduction in quality of life, dysfunction, and discomfort following surgery due to post operative pain and swelling.[10] The post op swelling and pain results in considerable difficulty in eating, sleeping other daily activities and as well as cause distorted appearance.

Laureano Filho et al[6] reported that there is no difference in postoperative swelling by measuring swelling from different angles in 4mg and 8 mg doses. But another study has showed that with 4mg dexamethasone, mean decrease in swelling was 1.2±0.0mm while with 8mg dexamethasone, mean decrease in swelling was

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1.9±1.0mm at 7th post op day. The difference was significant (p<0.05).[9]

MATERIALS AND METHODS

This randomized controlled trial was carried out in the Department of Oral & Maxillofacial Surgery, Saidu Medical College/Saidu Group of Teaching Hospital, Swat KPK from 1st July 2017 to 31st December 2017 and comprised 100 patients. Patients were randomly divided into two groups by using random number table. Group A was given 8mg dexamethasone one hour before surgery and then 8mg dexamethasone in BD dosage post op for 3 days while Group B was given 4mg dexamethasone one hour before surgery and then 4mg dexamethasone in BD dosage post op for 3 days. Patients of 15 to 60 years of age with both sexes and unilateral zygomatic bone fracture were included. Those patients with diabetes mellitus (BSR>186mg/dl) and tuberculosis, use of anti-inflammatory drug within last 2 week and medically not fit for general anaesthesia (ASA grade III, IV) were excluded. At baseline, reading of swelling was measured and patients were undergone surgery under general anaesthesia. After surgery, patients were shifted in the wards and discharged from there after 48 hours. Patients were asked to present after 7 days of surgery in OPD. After 7 days, postoperative swelling was measured and then the difference between pre and post-operative treatment measurements were calculated to obtain decrease in swelling. All collected data was entered and analyzed by using SPSS-21.

RESULTS

The mean ages were 27.66±8.38 years in group A and 28.52±8.38 years in group B. The majority of patients were in the age range between 15-38 years, 44 (88%) patients used 8 mg dexamethasone and 42 patients (84%) used 5 mg dexamethasone also (Table 1). There were 41 males (82%) and 9 females (18%) in group A with male to female ratio was 4.5:1. While in group B, 44 males (88%) and 6 females (12%) with male to female ratio was 7.3:1 (Table 2). According to pre-operative swelling, 23 patients (46%) between 170-185 mm and 27 patients (54%) between 186-200 mm pre-operative swelling in group A with mean of 186.26±7.19. While in group B, 26 patients (52%) between 170-185 mm and 24 patients (48%) between 185-200 mm pre-operative swellings with mean of 184.68±4.50 (Table 3). Regarding post-operative swelling, 19 patients (38%) between 171-180 mm and 31 patients (62%) between 181-190 mm post-operative swelling in group A with mean of 182.34±4.13. While in group B, 18 patients (36%) between 171-180 mm and 32 patients (64%) between 181-190 mm post-operative swellings with mean of 181.36±2.91 (Table 4). When compared the mean decrease in swelling, 7.12±3.60 mm in group A while in group B, 5.14±1.84 mm. Statistically the difference was significant (P<0.05) in mean decrease in swelling (Table 5).

Table No.1: Frequency and percentage of patients according to age (n = 100)

Age (Years)	**8 mg dexamethasone** (n = 50)		**4 mg dexamethasone** (n = 50)	
	No.	%	No.	%
15 – 38	44	88.0	42	84.0
39 – 60	6	12.0	8	16.0
Mean±SD	27.66±8.38		28.52±8.38	

Table No.2: Frequency and percentage of patients according to sex (n = 100)

Sex	**8 mg dexamethasone (n = 50)**		**4 mg dexamethasone (n = 50)**	
	No.	%	No.	%
Male	41	82.0	44	88.0
Female	9	18.0	6	12.0

Table No.3: Frequency and percentage of pre-operative swelling (n = 100)

Pre-operative swelling (mm)	**8 mg dexamethasone** (n = 50)		**4 mg dexamethasone** (n = 50)	
	No.	%	No.	%
170 – 185	23	46.0	26	52.0
186 – 200	27	54.0	24	48.0
Mean±SD	186.26±7.19		184.68±4.50	

Table No.4: Frequency and percentage of post-operative swelling (n = 100)

Post-operative swelling (mm)	**8 mg dexamethasone** (n = 50)		**4 mg dexamethasone** (n = 50)	
	No.	%	No.	%
171 - 180	19	38.0	18	36.0
181 – 190	31	62.0	32	64.0
Mean±SD	182.34±4.13		181.36±2.91	

Table No.5: Mean decrease in swelling of both groups

Mean decrease in swelling (mm)	**8 mg dexamethasone** (n = 50)	**4 mg dexamethasone** (n = 50)
	7.12±3.60	5.14±1.84
P value	.004	

DISCUSSION

Dexamethasone is a synthetic corticosteroid that acts as an inflammation suppressor and decreases facial oedema after oral surgical procedures. Many studies have reported that dexamethasone was effective in reducing postoperative discomfort (pain, trismus and oedema) after impacted third molar surgical extraction.[11,12] Comparing both doses, the use of 8 mg

of dexamethasone has a statistical differential between the dosages in the preoperative measures of mandible angle to nose wing. This study recorded that more males than females (5.6:1) sustained zygomatic complex fractures. Similar findings were found by Aiabe et al[13] 4.7:1, Chowdhury et al[14] 5.2:1 and Kovacs et al[15] 6.4:1, the relative ratio of male to female is comparable with the present study. The reason could be greater social and economic involvement of young adult males.

It was noticed that the age group mostly involved in our study was from 1st decade of life then followed by 2nd decade. The least incidence was found in 2nd decade of life with respect to maxillofacial trauma, which is relatively common worldwide in the 1st decade so is the case with zygomatic bone fracture. Results of the Studies reported by Chowdhury et al[14] Motamedi et al[16] and Al Ahmad et al[17] according to the results of their studies zygomatic bone fractures are more common in 1st decade of life.

Our data results are also on consistent with the results of Graziani et al[18] that the submucosal administration of dexamethasone 4mg resulted is statistically significant decreases the postoperative swelling/edema. Moreover, the higher dose of dexamethasone was not associated with a better response that the lower dose, and no statistically significant differences were observed between the 2 dosage regimens. This latter finding seems to confirm data reported by Graziani et al[18], although they evaluated only the dose-dependent effects of the endoalveolar application of dexamethasone powder.

Similarly by another study by Graziani et al[18] have also reported the topical injection of dexamethasone 4mg reduces neither trismus nor the patient's pain perceptions. On the contrary it was also noticed that the endoalveolar use of both 4 mg and 8 mg of dexamethasone in powder form reduced trismus by 7 days postoperatively, while only the lowest local powder application reduced the patient's pain perception as well.[19] Without the assessment of which drug has been used to reduce the pain perception, an evaluation of the corticosteroid effects on trismus becomes difficult, because the effects of concomitant systemic medications as non steroidal anti-inflammatory drug (NSAIDs) may modulate the inflammatory response and modify or confound the study results.[20]

Alexander et al[21] suggested that the effect of dexamethasone is dose dependent and administration of less than 4mg is not beneficial. Grossi et al[9] also evaluated the effectiveness of submucosal administration of 4mg and 8mg dexamethasone reported that there was no statistical difference between the two doses. Similarly, Majid[12] reported that 4 mg administration of submucosal and intramuscular administration of 4mg dexamethasone was compared, both were effective in reducing facial oedema on postoperative on day 7. Injection of 8mg dexamethasone reduced facial swelling on postoperative day 7 in the present study this finding is inconsistent with the results of our study, which have shown not statistically significant difference between groups with regard to postoperative swelling in zygomatic bone fracture. This is in line with several authors who have observed the therapeutic efficacy of administration of dexamethasone in previous studies, may be a feasible for more invasive in dental procedures.[22,23]

CONCLUSION

It is quite evident from the result of this study the parental submucosal injection of corticosteroid in the form of dexamethasone in 8 mg dose when compared with 4 mg dose proved to be more efficacious for the reduction of post operative edema and swelling for reduction of the Zygomatic Bone Fracture than any other route of its administration. It is beyond doubt that even low doses of dexamethasone sodium phosphate injection given submucoal intra-orally at the site of oral surgery provides relatively higher drug tissue concentration availability ` to its less loss as to some other compartment and drug elimination effect as it remains confined at that specific site. The results of our study favors the submucosal route of dexamethasone administration during maxilla-facial bone surgery even under local anesthesia as most suitable for patient compliance and ease of its administration from the operator point of view for its efficacy, even after repeated doses of its administration to maintain an adequate level of the drug during the operative procedure and post-operatively as well.

We also conclude that 8mg doses of dexamethasone proved to be statistically significant in the mean reduction of post operative edema, swelling and trismus when compared to its lower doses of 4mg, although it has been observed it does not have any roll for the postoperative pain control in zygomatic bone reduction.

Author's Contribution:

Concept & Design of Study:	Farhad Ali
Drafting:	Muhammad Tariq Khan
Data Analysis:	Muhammad Amir
Revisiting Critically:	Farhad Ali, Muhammad Tariq Khan
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REFERENCES

1. Priya S, Ebenezerr V, Balakrishnan R. Versatility of Gillie's temporal approach in the management

of Zmc fractures. Biomed Pharmacol J 2014;7: 253-56.
2. Tollefson TT, Meyers AD. Zygomaticomaxillary complex fractures treatment and management. emedicine. medscape 2014.
3. Van den Bergh B, Karagozoglu KH, Heymans MW, Forouzanfar T. Aetiology and incidence of maxillofacial trauma in Amsterdam: a retrospective analysis of 579 patients. J Craniomaxillofac Surg 2012;40:e165-9.
4. Tian W, Li S, Pan J, Gao Z, Zheng X. Surgical reduction and rigid internal fixation of midface fractures. Hua Xi Kou Qiang Yi Xue Za Zhi 1999; 17:136-9.
5. Neil-Dwyer JG, Evans RD, Jones BM, Hayward RD. Tumescent steroid infiltration to reduce postoperative swelling after craniofacial surgery. Br J Plast Surg 2001; 54:565-9.
6. Laureano Filho JR, Maurette PE, Allais M, Cotinho M, Fernandes C. Clinical comparative study of the effectiveness of two dosages of Dexamethasone to control postoperative swelling, trismus and pain after the surgical extraction of mandibular impacted third molars. Med Oral Patol Oral Cir Bucal 2008;13:E129-32.
7. Buyukkurt MC, Gungormus M, Kaya O. The effect of a single dose prednisolone with and without diclofenac on pain, trismus, and swelling after removal of mandibular third molars. J Oral Maxillofac Surg 2006;64:1761-6.
8. Chegini S, Dhariwal DK. Review of evidence for the use of steroids in orthognathic surgery. Br J Oral Maxillofac Surg 2012;50:97-101.
9. Grossi GB, Maiorana C, Garramone RA, Borgonovo A, Beretta M, Farronato D, Santoro F. Effect of submucosal injection of dexamethasone on postoperative discomfort after third molar surgery: a prospective study. J Oral Maxillofac Surg 2007;65:2218-26.
10. Dan AE, Thygesen TH, Pinholt EM. Corticosteroid administration in oral and orthognathic surgery: a systematic review of the literature and meta-analysis. J Oral Maxillofac Surg 2010;68:2207-20.
11. Majid OW. Submucosal dexamethasone injection improves quality of life measures after third molar surgery: a comparative study. J Oral Maxillofac Surg 2011;69:2289-97.
12. Majid OW, Mahmood WK. Effect of submucosal and intramuscular dexamethasone on postoperative sequelae after third molar surgery: comparative study. Br J Oral Maxillofac Surg 2011;49:647-52.
13. Ajagbe HA, Daramola JO. Pattern of facial bones fractures seen at University College Hospital Ibaden Nigeria East Africa. Med J 1980;57:267-72.
14. Chowdhury LCSR, Menon LCPS. Etiology and management of zygomatico maxillary complex fractures in Armed Forces. MJAFI 2005;61: 238-40.
15. Kovacs AF, Ghahremani M. Minimization of zygomatic complex fracture treatment. Int J Oral Maxillofac Surg 2001;30:380-84.
16. Motamedi MH. An assessment of maxillofacial fractures, a five year study of 237 patients. J Oral Maxillofac Surg 2003;61:61-64.
17. Al Ahmed HE, Jaber MA, Fanas SHA. The pattern of maxillofacial fractures in Sharjah United Arab Emirates; a review of 230 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2004;98: 166-69.
18. Graziani F, D'Aiuto F, Arduino PG. Perioperative dexamethasone reduces post-surgical sequelae of wisdom tooth removal: a split-mouth randomized double-masked clinical trial. Int J Oral Maxillofac Surg 2006;35:241-5.
19. Schmelzeisen R, Frolich JC. Prevention of postoperative swelling and pain by dexamethasone after operative removal of impacted third molar teeth. Eur J Clin Pharmacol 1993;44:275-9.
20. Moore PA, Brar P, Smiga ER. Preemptive rofecoxib and dexamethasone for prevention of pain and trismus following third molar surgery. Oral Surg Oral Med Oral Pathol 2005;99:E1-6.
21. Alexander RE, Throndson RR. A review of perioperative corticosteroid use in dentoalveolar surgery. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2000;90: 406-15.
22. Bhargava D, Sreekumar K, Deshpande A. Effects of intra-space injection of Twin mix versus intraoral-submucosal, intramuscular, intravenous and per-oral administration of dexamethasone on post-operative sequelae after mandibular impacted third molar surgery: a preliminary clinical comparative study. Oral Maxillofac Surg 2013; 20:53-9.
23. Warraich R, Faisal M, Rana M, Shaheen A, Gellrich NC, Rana M. Evaluation of postoperative discomfort following third molar surgery using submucosal dexamethasone - a randomized observer blind prospective study. Oral Surg Oral Med Oral Pathol Oral Radiol 2013;116:16-22.

Original Article

Body Mass Index in Medical Students

Gender-Based Comparison of Body Mass Index, Red Blood Cell Indices and Mentzers Index in Medical Students

Saleem Ullah Abro[1], Mohammad Saleh Soomro[1], Quratulain Saleem[3]. Sarwat Sultana[3], Farhat Jafri[3] and Inayat Jafri[2]

ABSTRACT

Objective: To assess body mass index, red blood cell indices and mentzers index in medical students.
Study design: Comparative Cross-sectional study.
Place and Duration of study: This study was conducted in Physiology department of Baqai Medical University, Karachi from February 2017 to August 2017.
Materials and Methods: A total of 500 students were enrolled. Anthropometric measurements and Completed blood count i-e Hb%, Red Blood Cell Count, Mean Corpuscular Volume (MCV), Mean corpuscular hemoglobin (MCH), Mean corpuscular hemoglobin concentration (MCHC), Red cell distribution width (RDW) was done and Mentzer's Index were calculated. Data were analyzed by using SPSS version 22.0.
Results: Among the categories of Body mass index, It was seen in this study participants that only mean values of overweight, when compared in males (27.33±1.47) and females (26.67±1.40) showed statistically significant($p<0.05$) difference and mean values of hemoglobin comparison in males (13.75±2.05) and females (12.83±1.96), the mean Red Blood Cell Count comparison in males (5.08±0.71) and females (4.88±0.75), the mean Mean Corpuscular Volume comparison in males (81.49±8.08) and females (79.82±8.81) showed statistically significant ($p<0.05$) difference, but mean values of Mentzer's Index comparison had showed statistically non-significant ($p>0.05$) differences in this study.
Conclusion: With regard to our study results Body mass index (only overweight), and complete blood count (hemoglobin, red blood cell count and mean corpuscular volume) showed statistically significant values in gender based comparison. So it is considered as major issues for health of participants.
Key Words: Anemia; Body mass index (BMI); Obesity.

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INTRODUCTION

Anemia is defined as a decreased concentration of blood hemo-proteins (Red Blood Cells) or low hemoglobin (Hb%) level. Anemia is considered as public health problem in the world (developing and developed countries) especially in younger generation[1]. Anemia mainly affects the physical activities or performances, growth, cognitive function, as well as class attendance and daily performance especially in adolescents. Adolescence is the stage of life, where rapid spurt in the growth of human body occurs that leads to increased nutritional demand. Medical students are vulnerable to nutritional deficiencies due to sedentary life style to complete the syllabus, less time for physical exercise, hostel life and use of junk foods or improper dietary habits. It is one of the most common nutritional diseases present globally and affects 1/4th of the world's population[2]. BMI or Quetelet index is an independent of age and sex as it is a simple, economical and practical to assess. World Health Organization (WHO), food intake is categorized into good and poor nutrition. Good nutrition is the intake of micro and macronutrient along with any kind of regular activity and poor nutrition makes human body vulnerable to diseases, decreases immunity and decreases work performance in daily living[3].

Globally, there were twice or two fold increase in the obesity from 1980 to 2014 years. In the world there were 13% of the adults belongs to obese group, of which more females (15%) as compared to males (13%)[4]. Overweight and obesity are linked to elevated threat of mortality[5]. Body mass index or Quetelet index is defined as weight (kilogram) divided by square of the height (meters square) and it is expressed as kg/m^2 or

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Body mass index (BMI) is proportional to the body mass (muscle, fat, and bone) and inversely proportional to the square of the body height and it is always considered as a valid index of adiposity. Obesity is considered as a risk factor for developing anemia[6,7]. It is always due to energy intake greater than energy expenditure or lack. One unit increase in the BMI will increase risk of developing anemia up to 1.6- fold[7]. It is also reported in another study, that significant correlation exist between BMI and anemia[8]. This coexistence of obesity and anemia may be due to consumption of excessive energy dense food that is deficient in iron or poor source of iron [9]or due to decreased absorption of iron and/or poor utilization due to inflammation induced by obesity[10,11]. The main objective of this study was to evaluate the gender based comparison of body mass index, red blood cell indices and Mentzers index in medical students of ages between 18-25 years.

MATERIALS AND METHODS

A Comparative, Cross-sectional study was carried out in the Department of Physiology at Baqai Medical University, over a period of 6 months in 2017. A total of 500 students (250 males & 250 females) were included in this study. All those students, who were willing and had a written consent, were enrolled in this study. Students having history of thalassemia minor or major, iron or folate or vitamin B12 treatment, Blood donation or blood transfusion in last six months, passing worms in stools, ileal surgery (leads to vitamin B12 deficiency) and chronic diseases were excluded. Data were gathered with the help of pre-tested questionnaire. Anthropometric measurements for body mass index (BMI) were done by using Digital Scale and height was measured by measuring tape. Each student was asked to stand straight along the wall with the back towards the wall. Height was marked on the wall with a marker or pencil and the height was measured by measuring the distance between the floor and the mark. The height was taken in inches, which had been converted to meter square to calculate the Body Mass Index (BMI) in kg/m^2 as per the SI unit recommendations.

The students had been divided into four groups according to the World Health Organization (WHO) criteria (Table-1) [12]

Three millimeter of blood had been collected in a tube containing EDTA (anticoagulant) in order to be transported to the lab. Cell Blood Count was performed by Sysmex (XS-1000i). Complete blood count will be performed as to determine and record hemoglobin levels and Red Blood Cell indices and Red cell distribution width (RDW). The Hemoglobin (Hb%) is an oxygen-binding conjugated protein, present in the cytoplasm, Hb% in range is 12-15.5gm/dl in females, and Hb% concentration in range is 14-18 gm/dl in males. The Packed cell volume (PCV) is the volume of cellular elements, mainly Red Blood Cells (RBCs) or Hct% value and its normal values in females is about 42% and in males is about 45% respectively. This value is decreased in anaemia and increased in polycythemia. The RBC indices include the Mean corpuscular volume (MCV), Mean corpuscular hemoglobin (MCH), Mean corpuscular hemoglobin concentration (MCHC). The Mean Corpuscular Volume (MCV) is defined as the average volume of a single Red Blood Cell (RBC), and it is calculated by dividing the heamatocrit (Hct%) by red cell count, (Normal range: 80-100 fL). The MCH is the average weight of Hb% present in the erythrocyte and is calculated by dividing the Hb% by the RBC count.

Normal values of MCH are 30 and its range is 27-33 pg. The MCHC is the amount of Hb% expressed as a percentage of the volume of packed cells in 100 ml of blood and then multiplying by 100. The RDW indicates the range of variation of RBC volume; The RDW is in range of 11.5-14.5%. The RDW-CV is calculated with the following formula:

RDW-CV=(Standard deviation of MCV ÷ MCV)× 100.

The RBC indices provide useful information about the diagnosis of anemia and its type[13]. The mentzers index is calculated as MCV per red cell count and if the quotient is expressed less than 13, and then thalassemia will be most likely and if the quotient is greater than 13, then iron-deficiency anemia will be most likely. The mentzers index is used for diagnosing type of anemia.

The collected data were analyzed by using SPSS software version 22 was used for the analysis of the data and for Microsoft word and Excel had been used to generate graphs, tables etc. The descriptive statistics and inferential statistical analysis were done in this study. Mann-Whitney U Test and P- value of less than 0.05 (95% confidence level) were considered as significant. Study had been approved by Ethical committee and BAS&R of Baqai Medical University.

RESULTS

A total of 500 students of MBBS, BDS & DPT were participated in this study. Table: 1.2. Shows the Gender-based comparison of BMI had slightly higher percentage of males 31.2% were overweight than females 26.0% and a slightly higher percentage of females 2.8% were obese than males 0.8% (Table 2).

As shown in table 3-Gender-based comparison of categories of mean values of BMI, had shown in this study participants that only mean values of overweight, when compared in males (27.33±1.47) and females (26.67±1.40) showed statistically significant ($p<0.05$) difference, while the BMI mean values of under-weight, normal weight and obese subjects showed statistically non-significant ($p>0.05$) differences.

Table 4 Gender-based comparison of mean hematological values, had shown, the mean values of

Hb% comparison in males (13.75±2.05) and females (12.83±1.96), the mean RBC Count comparison in males (5.08±0.71) and females (4.88±0.75), the mean MCV comparison in males (81.49±8.08) and females (79.82±8.81) showed statistically significant ($p<0.05$) difference, while the mean values of MCH, mean values of MCHC, mean values of RDW and mean values of Mentzers Index comparison had showed statistically non-significant ($p>0.05$) differences.

Table No.1: WHO criteria for BMI standard levels

Category (Groups)	BMI(Kg/m^2)
Underweight	< 18.4 Kg/m^2
Normal	18.5- 24.9 Kg/m^2
Overweight	25-29.9 Kg/m^2
Obese	>30 Kg/m^2

Table No.2: Gender-based comparison of BMI.

Variable	Gender			
	Male (n=250)		Female (n=250)	
	Frequency	%	Frequency	%
BMI				
Underweight	29	11.6%	31	12.4%
Normal Weight	141	56.4%	147	58.8%
Overweight	78	31.2%	65	26.0%
Obese	2	0.8%	7	2.8%

Table No.3: Gender-based comparison of categories of mean BMI.

Categories of Parameter	Gender		p-value
	Male(n=250) Mean ±S.D	Female(n=250) Mean ±S.D	
BMI			
Normal weight	22.01±1.80	21.16±2.13	0.157
Under Weight	17.19±1.07	16.90±0.99	0.128
Overweight	27.33±1.47	26.67±1.40	0.022
Obese	31.51±0.68	31.44±0.51	0.889

P-value< 0.05 significant,
P-value> 0.05 Non-significant.

Table No.4: Gender-based comparison of Hematological means values.

Parameters	Gender		p-Value
	Males (n=250) Mean ±S.D.	Females (n=250) Mean ±S.D.	
Hemoglobin (g/dl)	13.75±2.05	12.83±1.96	0.001
RBC Count (x 10^{12}/ l)	5.08±0.71	4.88±0.75	0.001
MCH (pg.)	27.13±3.73	26.65±4.05	0.079
MCV (fl)	81.49±8.08	79.82±8.81	0.032
MCHC(g/dl)	34.33±21.06	32.76±2.50	0.105
RDW (%)	42.15±10.28	43.44±29.15	0.775
Mentzers Index	16.26±3.22	16.79±3.72	0.121

[1] Mann-Whitney U Test, P-value< 0.05 significant,
P-value> 0.05 Non-significant

DISCUSSION

Anemia is having the global impact and it is considered as major health problem in both developed as well as in developing countries. The type of anemia can be assessed by doing simple arithmetic calculation of red blood cell indices and mentzers index. High BMI (overweight and obesity) prevalence has been observed in the world. It had been considered as an important public health problem in developed and developing countries[14]. Mainly it had been due to the close inter relationship between inadequate nutritional status and cardiovascular diseases, so that it was resulting in early morbidity and mortality due to coronary heart disease (CHD)[15]. High BMI (overweight and obesity) had been affected by genetic and environmental factors like dietary habits, for example, the preference for quick or repeated meals (snacks or junk foods and soft drinks), mostly consisting of high-calorie foods [16]. In our study, the evaluation of gender-based comparison of BMI and RBC indices were conducted in Students of Baqai Medical University. As we are facing the double burden of diseases, that is communicable or infective and non-communicable or non-infective in our society. Our aim was to address prevalence of non-communicable diseases like overweight or obesity, anemia and thalassemia in our society[17].In our study, male and female participants were underweight [29(11.6%)vs. 31 (12.4%)], normal weight [141(56.4%)vs147(58.8%)], overweight [78(31.2%)vs65(26.0%)] and with obesity [2(0.8%)vs7(2.8%)]. (Table 1.2); our results were showing that more females are underweight (12.4%), as compared to males (11.6%). Iranian study also observed that more females are underweight than males (20%vs18.2%)[18], that supports this study. Another study carried out on Indian population, also observed, that more females were underweight than males with the BMI < 18.5 kg/m^2 [19]. This Indian study were also strengthens this study. These results would be attributed to physiological pubertal growth spurt in females, and had been leading to a decline in BMI in adolescence period and would suffers many psychological and physical disorders like infertility[20].

It had been observed in our study, that the mean Hb%, mean RBC count and the mean MCV comparison in males and females showed statistically significant ($p<0.05$) differences. (Table-1.4). It had also observed in Iranian study, that showed statistically significant ($p<0.05$) differences in mean Hb%[21]and another study also showed statistically significant ($p<0.05$) difference in gender -based comparison as similar results to this study, mean Hb%, RBC count[22]. In this study the mean RDW comparison in males (42.15±10.28) and females (43.44±29.15) and mean Mentzer Index comparison in males (16.26±3.22) and females (16.79±3.72) showed statistically non-significant ($p>0.05$) differences on

gender basis. Like this study, similar results showed statistically non-significant (p>0.05) of mean RDW in asmarian study [21] and an Ethopian study[22].These studies support this study. There were differences in observation on gender basis, that had been attributed to a multiple factors including: menstruation; is a period of intense activity in girls and may alter the autonomic nervous system due to intense hormonal production[23], hormonal influences of estrogens and androgen (testosterone) on erythropoiesis, and the relatively high prevalence of iron deficiency anemia in women[24-25].

CONCLUSION

It is an essential for us to find ways to alleviate the burden of non-communicable diseases like obesity, anemia and thalassemia worldwide, and to strive against malnutrition and thalassemia.

Recommendations: Lifestyle modification, dietary modification, promotion of physical activities and use of fruits in diet. Regular BMI, anaemia and thalassemia screening programs should be launched in society.

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REFERENCES

1. Peter R KR, Sangwan L, Pandey S. Prevalence of anemia and its correlation to body mass index; study among unmarried girls. Int J Basics and Applied Med Sci 2012;2(3september-december): 58-62.
2. Gebre A, Mulugeta A. Prevalnce of anemia and associated factors among women in north western zone of tigray, north ethopia: Acroos sectional study. J NutrMetab 2015;(May2013).
3. World Health Organization. (2017). Nutrition. Retrieved on January 3, 2017, from URL:http:// www.who.int/topics/nutrition/en/.
4. World Health Organization. (2017). Obesity and overweight factsheet. Retrieved on January 11, 2017, from URL:http://www.who.int/mediacentre/ factsheet/fs311/en/.
5. UpToDate. (2017). Obesity in adults. Retrieved on January 9, 2017,from URL:http://www.update.com / contents/obesity-in-adults-health-consequences.
6. Qin Y, Melse-Boonstra A, Pan X, Yuan B, Dai Y, Zhao J, et al. Anemia in relation to body mass index and waist circumference among Chinese women. Nutritional J 2013;12(1):10.
7. Akbari SAA, Toghiry M, Majid HA. Relationship between gestational anemia and Body mass index. J Nursing and Midwifery 2010;19(67):26-9.
8. Moafi A, Rahgozar S, Ghias M, ahar EV, et al. A Study on Body Mass Index, Blood Pressure, and Red Blood Cell Indices in New Entering Students of the University of Isfahan. Int J Prev Med 2011; 2(4): 280-285.
9. Kordas K, Centeno ZYF, Pachon H, Soto AZJ. Being overweight or obese is associated with lower prevalence of anemia among Colombian women of reproductive age. The J Nutrition 2013:143(2): 175-81.
10. Cepeda-Lopez AC, Aeberli I, Zimmermann MB. Does obesity increases risk of iron deficiency? A review of the literature and the potential mechanisms. Int J Vitamin and Nutrition Reserch 2010; 80(45):263-70.
11. Cepeda-Lopez AC, Osendarp SJ, Melse-Boonstra A, Aeberli I and Feskens E, et al. Sharply higher rates of iron deficiency in obese Mexican women and children are predicted by obesity related inflammation rather than by differences in dietary iron intake. Am J Clin Nutr 2011;93 (5):975-83.
12. World Health Organization. Obesity and Overweight (Fact Sheet).Geneva: World Health Organization. Obesity and Overweight (Fact Sheet).2015 Geneva. Available at:http://www.who. int/mediacenter/factsheets/fs311/en/index.html (last accessed on April 12, 2015).
13. Medline Plus Medical Encyclopedia: RBC indices (https://www.nlm.nih.gov/medlineplus/ency/article /00 48.htm).
14. Wang Y, Lobstein T. Worldwide trends in childhood overweight and obesity. Int J Pediatr Obes 2006;1:11-25.
15. Schwandt P, Bertsch T, Haas GM. Anthropometric screening for silent cardiovascular risk factors in adolescents: The PEP Family Heart Study. Atherosclerosis 2010;211: 667-671.
16. Neymotin F, Sen U. Iron and obesity in females in the United States Obesity (Silver Spring) 2011; 19: 191-199.
17. Shah SM, Nannan D, Rahber MH, Rahim M, Nowshad G. Assessing obesity and overweight in a high mountain Pakistani population. Trop Med Int Health 2004; 9(4):526-32.
18. Moafi A, Rahgozar S, Ghias M, Ahar EV, et al. A Study on Body Mass Index, Blood Pressure, and Red Blood Cell Indices in New Entering Students

of the University of Isfahan. Int J Prev Med 2011; 2(4):280-285.
19. Saxena Y, Shrivastava A, Saxena V. The effect of gender on the correlation of anaemia with body mass index in medical students, Ind J Physiol Pharmacol 2011; 55(4): 4–9.
20. Abdalla SM, Mohamed EY. Obesity Among Medical Students of The National Ribat University, Khartoum 2008. Sudan J Pub Heal 2010;5(2):16-9.
21. Siraj N, Issac J, Anwar M, Mehari T, Russom S, Kahsay S. Establishment of hematological reference intervals for healthy adults in Asmara. BMC Research Notes 2018;11:55.
22. Yalew A, Terefe B, Alem M, Enawgaw B. Hematological reference intervals determination in adults at Gondar university hospital, Northwest Ethiopia. BMC Res Notes 2016; 9:483.
23. Hirning DA, Allen GD. Heart rate variability and endogenous sex hormones during the menstrual cycle in young women. 2003;88 (ExpPhysiol) (3):441–446.
24. Gardner FH, Nathan DG, Piomelli S, Cummins JF. The erythrocythaemic effects of androgen. Br J Haematol 1968;14(6):611–5.
25. Didier M, Marie JM, Mesmin BT, et al. Immunohaematological reference ranges for adults from the Central African Republic. ClinDiagn Lab Immunol 2003; 10:443–5.

Original Article

Determination of the Positions of the Nutrient Foraminae in the Human Adult Lower Limb Long Bones

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ABSTRACT

Objective: To determine the positions of the nutrient foraminae (NF) in the human adult lower limb long bones.
Study Design: Descriptive study
Place and Duration of Study: This study was conducted at the Forensic Medicine and Anatomy Departments of Nowshera Medical College, Nowshera and Ayub Medical Colleges, Abbottabad, K.P.K. from March to July 2018.
Materials and Methods: Thisstudy was done on 90long bones of the lower limb. After inclusion and exclusion criteria, total number, position,and direction of all of the foraminae were observed macroscopically. The foraminal index was calculated by Hughes H formulae and divided into three types.
Results: In the case of femora, (79.61%) of NF were located along the middle third of the diaphysis. While rest was in Proximal 3rd, the distal 3rd had no foraminae. In cases of tibiae, 83.3% were located on the Proximal 3rd. The rest of NF were located in the middle 3rd. The distal3rd had no foraminae. In cases of fibulae, most of the NFwere located on the middle 3rd (97.2%). This distal 3rd of the bones had rest of the foraminae (2.8%).
Conclusion: Our study confirmed the previous reports regarding the number and position of the NF in the human long bones of the lower limbs. The variation in NF is also very important in forensic radiology, anthropometry, and differentiation of human and non-human bones.
Key Words: Femora, Tibiae, Fibulae, Nutrient Foraminae, Diaphysis.

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INTRODUCTION

Skeleton of the human body consists of two hundred and thirteen bones, not including the sesamoid bones[1]. The axial system consists of seventy-four bones; the appendicular system consists of hundred and twenty-six bones, ear bones which are six in number. During life each bone undergoes modeling and also helps to remove the old bone, which is damaged is replaced by the new and the strength of bone is preserved by producing mechanically stronger bone[2].
Four categories of bones are present; long bones, short bones, flat bones, and irregular bones.

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The lower limb bones are long bones; femur, tibia, fibula, metatarsals, and phalanges. Their formation is both by endochondral and membranous ossification, while flat bones develop by membranous bone formation[3].
Skeleton provides structural support to the body, acts as levers for the muscles by permitting movement, protects internal organs, maintain the mineral and acid-base balance in the body. The bones are also a reservoir for the cytokines and the factors that help in the growth. Blood cells are also produced by the marrow of shaft (diaphysis) of the long bone[4]. Primarily dense cortical bone makes the diaphysis while trabecular bone forms other parts, covered by a thin shell of dense cortical bone[5].
The blood circulation is necessary for the maintenance of bone vitality, osteogenesis, growth and repair after injuries[6]. The long bones blood supply is usually by three different vessels:the nutrient arteries and the periosteal vessels, epiphyseal-metaphyseal vessels at the ends of bones, one or more arteries that enter the diaphysis [7].The six groups of arteries of long bones are: proximal epiphyseal, proximal metaphyseal, distal metaphyseal, diaphyseal nutrient, periosteal arteries anddistal epiphyseal. The adjacent groups of arteries anastomose freely with each other and help in compensation[7]. A nutrient artery does 10% blood supply to the diaphyseal cortex and 90% to marrow.

Itdivides into ascending and descending branches after entering the diaphysis. The lateral branches radially extend outwards from the endosteal surface towards the diaphyseal cortex, supplying the Haversian canals and thus supplying the cortex. The terminal branches of the main ascending and descending branches of the nutrient artery supply ends of the bones.

All the bones possess either small or large foramina, and these serve asan entrance of the blood vessels. These foramina are called as the "Nutrient Foramina." They are larger, particularly in the long bone shafts where these lead into a nutrient canal,and then in the medullary cavity[9].The nutrient canals are found in both the long and the irregular bones.Nutrient arteries and veins pass through these canals. In long bones, these foramina are found in the shaft while in irregular bones these are found in other locations.

Variation in direction of nutirent foramina is well established. It is determined by the osteogenitically activeend of the bone. The nutrient vessels move away from the growing end of the bone. Besides, radiological, anthropological and anatomical, it is also important to know about the position, direction and foraminal index for surgeons and medico-legal cases[10,11.12]. For forensic anthropological cases, NF are used to determine gender and differentiate between human and non-human bones[13,14]. Even though, some novel forensic techniques like virtposy and CT imaging has beensuggested for measuring the circumference, area of the entrance, length and angle of the canal, of the foramen[15, 16].

Keeping its anatomical and forensic importance in view, it is a very subtle and vital to know variation of nutrient foramen in our setup, therefore, we attempt to determine the positions of the nutrient foraminae in the human adult lower limb long bones.

MATERIALS AND METHODS

This descriptive study, conducted on 90 (30 femora, 30 tibiae, 30 fibulae) lower limb long bones obtained from Bone collections and osteology sections of Forensic/AnatomyDepartments of Nowshera Medical College, Nowshera, and Ayub Medical College, Abbottabad, K.P. Pakistan after taking ethical approval from the said institutions. These bones were cleaned, dried and evaluated by the authors of respective departments and, then placed back into same collection/section.The age, race and sex of the bones were not determined. The NFwere included which were present on the diaphysis of the bones. All fractured bones and thosewith gross pathological deformities or NF not well-defined or present at the ends of bones orforamina smaller than a size 24 hypodermic needle were excluded. A magnifying lens(12X) was used in the macroscopic examination of the bones. Direction and Obliquity was confirmed with a stiff wire.The NFwere observed as related margins with a proximal groove. The position of the foramina in relation to specific borders on surfaces of the diaphysis was analyzed. Measurements were taken using an INOX sliding caliper.The foraminal index (FI) was calculated by applying the Hughes H formula.Total length of bones was taken as the distance between:

proximal part of head of femur and distal aspect of medial condyle--**Femur**

proximal margin of medial condyle and tip of medial malleolus--**Tibia**

apex of head of fibula and tip of lateral malleolus--**Fibula**

According to FI the subdivisions of position of foramina, it was divided into following three types:

Type 1: Up to 33.33, in proximal third of bone.

Type 2: From 33.33 up to 66.66, in the middle third of bone.

Type 3: Above 66.66, in distal third of bone.

The statistical analysis was carried out using SPSS-21. The descriptive statistical analysis was performed through frequency tables and the calculation of central tendency and variability measures

RESULTS

In femur, the NF were present along the middle third. The foramen index ranged between 29.71 and 62.50% of the bone length (Table-1).

Table No.1: The range, mean ±, standard deviation (SD) of foraminal indices of the Femur.

Position	Side	Range	Mean ± SD
Between the two lips of liean aspera	R L	36.06-62.50 37.06-38.30	46.00±11.55 37.63±00.75
Medial lip of liea aspera	R L	37.26-60.28 43.8-59.10	52.54±9.48 54.93±7.27
Lateral lip of linea aspera	R L	35.32-61.12 35.80-51.50	46.25±10.16 41.70±8.55
Posterio medial surface	R L	45.10-59.04 55.10-60.50	55.47±5.81 57.18±3.03
Medial to spiral line	R L	29.71-31.92 -	31.12±00.91 -
Gluteal Tuberosity	R L	31.70-34.20 31.80-37.25	33.07±1.26 34.06±2.87

Out of 48 NF of femur, 10 (20.8%) were in Type-1,and 38 (79.16%) were Type-2. No NFwere seen in the distal third (Type-3) (Table-2). Out of all femoral NFof femur, 10 (20.8%) were on the medial lip of the linea-aspera, & 7(14.5%) on the lateral lip of linea-aspera(Table-3).

Table No.2: According to Femoral Index, types of Position and direction of nutrient foramina in the long bones of lower limb

Bone	Position			Direc-tion
	Type-1	Type-2	Type-3	
Femur	10 (20.8%)	38 (79.16%)	-	Proxim ally
Tibia	25 (83.3%)	5 (16.6%)	-	Distally
Fibula	-	35 (97.2%)	1 (2.7%)	28 Distally 8 Proxim ally

Table No.3 Position, Number and Percentage of Nutrient Foramina observed in Femora

Position	Total number of foramina	%tage
Between the two lips of linea aspera	9	18.75%
Medial Lip of linea aspera	10	20.8%
Lateral Lip of linea aspera	7	14.5%
Posteromedial Surface	10	20.8%
Postero lateral Surface	3	6.25%
Medial to spiral line	3	6.25%
Gluteal Tuberosity	6	12.5%

Table No.4: The range, mean ± standard deviation (SD) of foraminal indices of the Tibia.

Position	Side	Range	Mean ± SD
Posterior Surface (midway between interosseous border and soleal line)	R L	27.90-31.48 27.79-34.14	29.47±1.43 31.24±2.62
Posterior Surface (close to interosseous border)	R L	28.50-32.10 26.47-35.48	30.25±1.45 30.56±3.06

The NF,in cases of tibiae were located with the foramen index ranging between 26.47 and 35.48% of the bone length (Table-4).Out of 30, 25 (83.3%) were Type-1 and 5 (16.6%) Type-2. No Type-3 NF were seen.(Table-2).All NF were present on the posterior surfaces of the tibiae, 17 (56.6%) closer to the interosseous border (Table-5)

All the NF of fibulae were present at the middle third of the bone. The foramen index ranged between 35.16 and 67.70% of the bone length (Table-6).

Out of 36 NF, 35 (97.2%) were in the middle third (Type-2) and 1 (2.7%) at the distal third (Type-3). No NF in the proximal third (Type-1) (Table-2).

Out of all the fibular NF, 26(72.2%) were at the medial crest of the posterior surface (Table-7).

Table No.5: Position, Number and Percentage of Nutrient Foramina observed in Tibiae

Position	Total number of foramina	%tage
Posterior Surface (midway between interosseous border & soleal line)	10	33.3%
Posterior Surface (close to interosseous border)	17	56.6%
Posterior Surface (close to the soleal line)	3	10%

Table No.6: The range, mean ±, standard deviation (SD) of foraminal indices of the Fibula

Position	Side	Range	Mean ± SD
Posterior Surface (on the medial crest)	R L	35.16-61.70 36.21-50.10	44.99±8.04 43.17±4.05
Posterior Surface (between medial crest and interosseous border)	R L	36.01-65.30 40.20-67.70	52.71±13.00 55.02±12.74

Table No.7: Position, Number and Percentage of Nutrient Foramina observed in Fibulae

Position	Total number of foramina	%tage
Posterior Surface (on the medial crest)	26	72.2%
Posterior Surface (between medial crest and interosseous border)	9	25%
Lateral Surface	1	2.77%

DISCUSSION

In our study, the nutrient foramina (NF) (79.61%) were located along the middle third of the femur, while the rest were located in the proximal third, while the distal third of the femur had no NF. These results fit with other studies[17,18,19,20]. Forriol Campos reported that the location in the linea-aspera is 93.4% of the bones

whereas NF is closer to the hip joint[21]. In our study, 54.05% of the NFwere located along the linea-aspera. In previous studies conducted by Longia, et al., Others also showed the familiar result[17,20,22]. In our study on Tibia, 83.3% of the NF were located on the proximal third of the tibiae, and the foramen index ranged between 26.47% and 35.48% of the bone length. The distal third of the tibiae did not have any foramina. This is in accordance to some previous studies[17,18,21]. However, one study reported that the most of the tibiae had NFin the middle third with the foramen index ranging from 27%to 63% of the bone length. In our study, all the NFwere located on the posterior surface of the tibiae. The distal third of tibiae have delayed healing when the fractures of this region occur. The reason for this is the decreased blood supply in this region [19].

In our study of the fibulae, most of the NFwere located on the middle third of the bone (97.2%) and the foramen index ranged between 35.17% and 67.78% of the bone length. The distal third of the bone had (2.8%) of the rest of the NF. This isin accordance with the previous studies by[17, 18, 19]. Contrary, Guo stated that the majority of the NF were present in the proximal third of the fibulae[23].

In our study, 72.2% of the NF were present on the medial crest and 25% on the posterior surface and is supported by many other authors [17,18,19,21,24]. However, one study showed that the majority of the foramina were present on the medial surface of the fibula[20].

Collipal and McKee stated that the NF were located in the middle third of the fibulae and this segment must be used for the transplant so that the implant includes endosteal vascularization and peripheral vascularization[18, 24].

In all bones, NF were mostly located on posterior surface. As Kizil Kanat stated that the area of the bone with maximum muscle attachment was directly relatedwith the requirement of a continuous blood supply[19]. The reason for this may be that the flexor muscles are stronger and more active and need increased blood supply as compared to the extensor muscles of upper and lower limbs.

CONCLUSION

Our study confirmed the previous reports regarding the number and position of the nutrient foramina in the human long bones of the lower limbs. It also provide further information on the morphology, foraminal index, and topography of the nutrient foramina. Its variation is also very important in forensic radiology, anthropometry and differentiation of human and non-human bones. So further studies are needed to acquire such objectives.A good understanding of the characteristic morphological features of the nutrient foramina by the orthopedic surgeons and forensic specialistis recommended.

Author's Contribution:

Concept & Design of Study:	Ejaz Afzal
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Data Analysis:	Zahid Irfan Marwat, Muhammad Junaid Khan, Anwar Khan Wazir
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REFERENCES

1. Hamilton WJ. Textbook of human anatomy / edited by WJ Hamilton. London: Macmillan; 1976.
2. Olszta MJ, Cheng XG, Jee SS, KumarR, Kim Yi-Y, Kaufman MJ, ET AL. Bone structure and formation: A new perspective, Materials Science and Engineering R Reports 2007;28:58(3-5): 77-116.
3. Wibowo D. Practical human anatomy / Daniel Wibowo ; Peter Chapman, editor. Chapman PD, editor. Acacia Ridge, Qld: Australian eBook Publisher;2014.
4. Taichman RS: Blood and bone: Two tissues whose fates are intertwined to create the hematopoietic stem cell niche. Blood 2005;105:2631–2639.
5. Götzen N, Cross AR, Ifju PG, Rapoff A J. Understanding stress concentration about a nutrient foramen. J Biomech 2003;36:1511–1521.
6. Grabowski P. Physiology of bone. In Calcium and Bone Disorders in Children and Adolescents 2009;16:32-48). Karger Publishers.
7. Nilsson O, Marino R, De luca, et al. Endocrine regulation of the growth plate. Horm Res 2005;64:157-165.
8. Wang Y, Gilbert SR, Clemens TL, Oxygen sensing and osteogenesis. Skeletal Biology and Medicine, Pt B 2007; 1117: 1-11.
9. Hadjidakis DJ, Androulakis II. Bone remodeling. Annals of the New York Academy of Sciences 2006;1092(1):385-96.
10. Datta M, Saha , Chakraborty S, Biswas S, Sharma S. Analytical and morphological study of nutrient foramina of human femur. Int J Anatomy, Radiology and Surg. 2017; 6(2): 10-14.
11. Mansur DI, Manadhar P, Haque MK, Mehta DK, Duwal S, Timalsina B. A Study on Variations of Nutrient Foramen of Humerus with its Clinical Implications. Kathmandu Univ Med J 2016;53(1): 78-83.

12. Rao VS, Kothapalli J. The Diaphyseal nutrient foramina architecture - a study on the human upper and lower limb long bones. IOSR J Pharmacy and Biological Sci 2014;9(1):36-41.
13. Šlaus M, Bedić Z, Strinović D, Petrovečki V. Sex determination by discriminant function analysis of the tibia for contemporary Croats. Forensic Sci Int 2013;226:302.e1–302.e4.
14. Hauser G, De Stefano G. Epigenetic variants of the human skull. Stuttgart: E. Schweizerbart'sche Verlagsbuchhandlung (Nägele u. Obermiller); 1989.
15. Johnson V, Beckett S, Márquez-Grant N. Differentiating human versus non-human bone by exploring the nutrient foramen: implications for forensic anthropology. Int J Legal Med 2017; 131(6):1757-63.
16. Dedouit F, Savall F, Mokrane F-Z, Rousseau H, Crub´ezy E, Roug´e D, et al. Virtual anthropology and forensic identification using multidetector CT. Br J Radiol 2014;87:20130468.
17. Gumusburun E, Yucel F, Ozkan Y, Akgun Z. A study of the nutrient foramina of lower limb long bones. Surg. Radiol Anat 1994; 16:409-12.
18. Collipal E, Vargas R, Parra X, Silva E, Del Sol M. Diaphyseal nutrient foramina in the femur, tibia and fibula bones. Int J Morphol 2007;25:305-8.
19. Kizil Kanat E, Boyan N, Ozsahin ET, et al., Location, number and clinical significance of nutrient foramina in human long bones. Ann. Anat 2007;189: 87-95.
20. Sendemir E, Cimen A. Nutrient foramina in the shafts of lower limb long bones: situation and number. Surg Radiol Anat 1991;13(2):105-8.
21. Forriol CF, Gomez PeL, Gianonatti AM, Fernandez-Valencia R. A study of the nutrient foramina in human long bones. Surg Radiol Anat. 1987;9(3):251-5.
22. Longia GS, Ajmani ML, Saxena SK, Thomas RJ. Study of diaphyseal nutrient foramina in human long bones. Acta Anat (Basel) 1980;107(4): 399-406.
23. Guo F. Fibular blood supply. Chin Med J 1981; 94:396-400.
24. Mckee NH, Haw P, Vettese T. Anatomic study of the nutrient foramen in the shaft of the fibula. Clin Orthop Rel Res 1984;184:141-144

Original Article

Topiramate for Migraine Prophylaxis in Children

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ABSTRACT

Objective: To determine the efficacy and safety of topiramate (TPM) for profylaxis of migraine in children
Study Design: Quasi-experimental study
Place and Duration of Study: This study was conducted at the Pediatric Department, Bahawal Victoria Hospital affiliated with Quaid e Azam Medical College, Bahawalpur from January 2018 to November 2018.
Materials and Methods: A total of 60 children with migraine, aged 5 to 15 years, fulfilling the inclusion and exclusion criteria, were enrolled. TPM as 2 mg / kg / day was used twice a day in equally divided dosage. Monthly frequency, headache's duration along with its severity and pedMIDAS score were noted prior and after three month of TPM therapy.
Results: Out of a total of 60 children, majority of the children, 35 (58.3%) were female, had migraine type without aura 37 (61.7%) and family history of migraine in 49 (81.7%). Mean age of the children was 9.77+2.8 years whereas mean age of migraine onset amongst all the children was 7.43+ 2.9 years. When children with good response of TPM were compared with no good response, headache frequency (monthly), headache severity, duration of headache and headache disability (pedMIDAS) was significantly decreased after TPM treatment (p value < 0.05).
Conclusion: TPM was found to be effective and safe in children for prophylaxis of migraine. TPM reduced frequency, severity along with duration and disability of migraine headache with very few side effects.

Key Words: Headache, severity, frequency, topiramate, Migraine

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INTRODUCTION

In children, migraine is considered as a frequent neurological disorder. Prevalence of migraine varies from 5 to 17% while both male and female children are affected equally before puberty, but following puberty, its prevalence increases 2 to 3 folds in girls.[1-3]

In the last few decades, numerous diagnostic criteria for migraine have been in practice but International Classification of Headache Disorders (ICHD-II) for children migraine published in 2004 stands well accepted around the world.[4]

Over the years, lifestyle changes have been advised including avoiding those foods along with practices and environmental factors that may initiate attack of migraine.[5,6] It has been stated multiple times that epilepsy and migraine share some common features.[9,10] Some new antiepileptic options like topiramate (TPM) and levetiracetam are showing reduction in frequency of headache. TPM is proving efficient in adult populations for the prevention of migraine. Very few studies are available assessing the efficacy and safety aspects of TPM in children. [7] Exact mechanism of action of TPM is still not clear.[8] As TPM is given in low doses for prophylaxis of migraine, some uncontrolled trials confirmed the efficacy of TPM for prophylaxis of migraine[7,11,12] but more work is needed to establish the efficacy and safety of TPM, especially in pediatric population so this study was planned.

The objective of the study was to determine the efficacy and safety of TPM for prophylaxis of migraine in children.

MATERIALS AND METHODS

This was a quasi-experimental trial, conducted from 1st January 2018 to 30th November 2018 at Pediatric Department, Bahawal Victoria Hospital, affiliated with Quaid e Azam Medical College, Bahawalpur. The study was approved by local ethical committee. Verbal consent was acquired from parents / guardians of all the children participating in this study.

A total of 60 children with migraine headache as per ICHD-II criteria[4] for a minimum period of 6 months prior to study, aged 5 to 15 years, history of no migraine treatment, had 1 or more migraine episodes per week, or those children who had disabling (PedMIDAS > 20) headaches, were enrolled for this study. Children with metabolic acidosis, any type of renal dysfunction or kidney stones, any type of

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systemic illness, other headache types that were not migraine were excluded from this study.

Children were given TPM as 2 mg per kg per day in equally divided 2 doses. All children enrolled in the study were asked to visit for consecutiver 3 months. Information regarding frequency as well as severity, along with duration of headache (pedMIDAS scoring),[13] duration were noted prior to the start of study period as well as after 3 months of TPM treatment. Headache's severity was evaluated by enquiring from every child as per visual analogue acale (VAS)[14] according to a ten point scaling where no pain was considered as a score of zero and most severity of pain was recorded as a score of 10. A monthly pain reduction of > 50% was taken as a "good" response. The side effects of TPM during the study period were also noted. Children's parents or guardians were interviewed to collect all the relevant information.

SPSS version 20 was used for data entry and analysis. Chi square test was applied to analyze qualitative data and t test was used to analyze quantitative data. Thep value < 0.05 was considered as statistically significant.

RESULTS

Out of a total of 60 children, 35 (58.3%) were female. There were 37 (61.7%) children having migraine type without aura and family history of migraine was positive in 49 (81.7%). Mean age of the children was 9.77 years with standard deviation of 2.8 years whereas mean age of migraine onset amongst all the children was 7.43 years with standard deviation of 2.9 years.

Amongst all the children, 44 (73.3%) children had good response (reduction of > 50% headache frequency monthly). There were 17 (38.6%) male and 27 (61.4%) female with good response in comparison to 8 (50.0%) male and 8 (50.0%) female children with no good response. This difference was not statistically significant (p value = 0.430)as shown in table No-1.

When children of both groups were compared for age, the mean age of children with good response was 9.64 with standard deviation of 2.7 years in comparison to 10.13 years with standard deviation of 2.9 years (p value = 0.567) as shown in table No-1.

The mean age of migraine onset in children with good response was 7.41 years with standard deviation of 2.8 years in comparison to mean of 7.50 years with standard deviation of 3.2 years in children with no good response (p value = 0.920). Type of migraine and family history of migraine amongst children of both group were also not statistically significant (p value > 0.05) as shown in table No-1.

When headache characteristics of children in both groups were compared, headache frequency (monthly) was significantly decreased after treatment with TPM (p value = 0.0001). Similarly, headache severity, duration of headache and headache disability (pedMIDAS) was also significantly decreased after TPM treatment (p value = 0.0001) as shown in table No-2.

Hyperthermia was found to be the most frequent side effects that was experienced by 8 (13.3%), followed by anorexia in 5 (8.3%), weight loss in 4 (6.7%) and paresthesias in 1 (1.67%) but these side effects resolved 4-7 days and did not cause interference in daily activities of life.

Table No.1: Frequency of Good response with regards to different characteristics studied

Characteristics		Good Response		P value
		Yes (n=44%)	No (n=16)	
Gender	Male	17 (38.6%)	8 (50.0%)	0.430
	Female	27 (61.4%)	8 (50.0%)	
Age in Years (mean+SD)		9.64 + 2.7	10.13 + 2.9	0.567
Age of Migraine onset (mean+SD)		7.41 + 2.8	7.50 + 3.2	0.920
Type of Migraine	With Aura	16 (34.6%)	7 (43.8%)	0.603
	Without Aura	28 (63.6%)	9 (56.3%)	
Family History of Migraine	Yes	37 (84.1%)	12 (75.0%)	0.421
	No	7 (15.9%)	4 (25.0%)	

Table No.2: Headache Characteristics of the children before and after TPM treatment

Headache Characteristics	Time (Mean + Standard Deviation)		P value
	Before Treatment	After Treatment	
Headache Frequency (Monthly)	13.85 + 6.2	6.10 + 2.3	0.0001
Headache Severity	7.20 + 1.6	3.97 + 1.8	0.0001
Duration of Headache (in hours)	2.06 + 0.8	1.34 + 0.7	0.0001
Headache Disability: pedMIDAS	32.28 + 5.9	17.30 + 4.5	0.0001

DISCUSSION

Prophylactic treatment of migraine has been proposed by many researchers but best treatment consists of an individual approach tailored for an individual child including both pharmacological and non pharmacological options.[15,16] Non pharmacologic options include following specific patterns of sleep,

diet, reduction of stress and doing recommended exercises, all these can prove helpful.[15,17] Pharmacological options for prophylaxis of migraine include beta blockers, calcium channel as well as serotonin antagonists, anti epileptics and different anti depressants.[18,19] TPM belongs to anti epileptics that has been found to have effectiveness and safe in the last few years.[7, 11, 12, 18,19] Most of the trials assessing safety and efficacy of TPM in migraine prophylaxis has been conducted in adults so this study was planned to share our local experience.

Studies from around the world have noted good response of TPM varying from 55-100%.[11, 20-23] In the current work, we noted the good response of TPM in 73.3% children. Our findings were very similar to what Fallah R et al[24] found where they noted the good response in 74% patients. Varying results in response to TPM could possibly be due to variation in demographic as well as difference in sample size and study methodologies.

In the present study, headache duration dropped from 2.06±0.8 hours to 1.32 + 0.7 hours. Our results in this aspect were very similar to another study conducted in Iran[24] where they noted it to decrease from 2.28 to 0.94 hours. It has been documented that migraine duration in children is shorter in comparison to adults.[4]

We found TPM to reduce pedMIDAS scoring significantly thus improving headache disability as well as severity of headache as per VAS scoring. These results were very similar to what Unalp A et al[25] and Lakshmi CV et al found in their studies.[26]

Hyperthermia was found to be the most frequent side effects in this study that was experienced by 8 (13.3%) children with TPM, followed by anorexia in 5 (8.3%) and weight loss (6.7%). This pattern was very similar to what Fallah R and colleagues found in 2013[24] but our results were different from other two trials[21, 28] where weight loss was turned out to be the commonest side effect. In another study comparing TPM with placebo found upper RTI and paresthesia as the commonest occurring side effects with TPM but none of these were of any serious concern.[21, 23]

Our study had some limitations as it did not have placebo or any comparable group. We also did not assess the cognitive aspects of children in this study. More studies with bigger sample size are required to further establish the effectiveness and safety of TPM.

CONCLUSION

TPM was found to be effective and safe in children for prophylaxis of migraine. TPM reduced frequency, severity along with duration and disability of migraine headache with very few side effects.

Author's Contribution:

Concept & Design of Study:	Syed Fawad Saleem
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Data Analysis:	Abdul Rehman
Revisiting Critically:	Syed Fawad Saleem, Imran Qaisar
Final Approval of version:	Syed Fawad Saleem

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

REFERENCES

1. Hershey AD. Migraine. In: Kliegman RM, Stanton BF, Schor NF, St. Geme JW, Behrman RE, editors. Nelson Textbook of Pediatrics. 19th ed. Philadelphia: Saunders; 2011. p. 2040-5.
2. Barnes N, Millman G, James E. Migraine headache in children. Clin Evid 2006;15:469-75.
3. Ottman R, Hong S, Lipton RB. Validity of family history data on severe headache and migraine. Neurol 1993;43:1954-60.
4. The International Classification of Headache Disorders: 2nd ed. Headache Classification Subcommittee of the International Headache Society. Cephalalgia 2004;24 Suppl 1:9-160.
5. Hershey AD, Winner PK. Pediatric migraine: Recognition and treatment. J Am Osteopath Assoc 2005;105:2S-8.
6. Lewis DW, Scott D, Rendin V. Treatment of pediatric headache. Expert Opin Pharmacother 2002;3:1433-42.
7. Winner P. Overview of pediatric headache. Curr Treat Options Neurol 2004;6:471-87.
8. Ginger CM, April MD, Brandon PB, Bryan LL. Topiramate: Safety and efficacy of its use in the prevention and treatment of migraine. J Cent Nerv Syst Dis 2011;3:155-68.
9. Pietrobon D. Migraine: New molecular mechanisms. Neuroscientist 2005;11:373-86.
10. Faught E. Efficacy of topiramate as adjunctive therapy in refractory partial seizures: United States trial experience. Epilepsia 1997;38:S24-7.
11. Cruz MJ, Valencia I, Legido A, Kothare SV, Khurana DS, Yum S, et al. Efficacy and tolerability of topiramate in pediatric migraine. Pediatr Neurol 2009;41:167-70.
12. Fallah R. Topiramate as a new antiepileptic drug in epileptic children in Iran. Indian J Pediatr 2006;73(12):1073-5.
13. Hershey AD, Powers SW, Vockell ALB, LeCates SL, Kabbouche MA, Maynard MK. PedMIDAS: Development of a questionnaire to assess disability of migraines in children. Neurology 2001;57 (11):2034-9.
14. Wewers ME, Lowe NK. A critical review of visual analogue scales in the measurement of clinical phenomena. Res Nurs Health 1990;13(4):227-36.

15. Eiland LS. Anticonvulsant use for prophylaxis of the pediatric migraine. J Pediatr Health Care 2007;21:392‑5.
16. Lewis D, Diamond S, Scott D, Jones V. Prophylactic treatment of pediatric migraine. Headache 2004;44:230‑7.
17. Freitag FG, Schloemer F, Schumate D - Recent Developments in the Treatment of Migraine in Children and Adolescents; J headache & pain management 2016;1:9.
18. French JA, Kanner AM, Bautista J, Abou‑Khalil B, Browne T, Harden CL, et al. Efficacy and tolerability of the new antiepileptic drugs II: Treatment of refractory epilepsy: Report of the Therapeutics and Technology Assessment Subcommittee and Quality Standards Subcommittee of the American Academy of Neurology and the American Epilepsy Society. Neurol 2004;62:1261‑73.
19. Valencia I, Fons C, Kothare SV, Khurana DS, Yum S, Hardison HH, et al. Efficacy and tolerability of topiramate in children younger than 2 years old. J Child Neurol 2005;20:667‑9.
20. Winner P, Pearlman EM, Linder SL, Jordan DM, Fisher AC, Hulihan J; Topiramate Pediatric Migraine Study Investigators. Topiramate for migraine prevention in children: a randomized, double-blind, placebo-controlled trial. Headache 2005;45(10):1304-12.
21. Lewis D, Winner P, Saper J, Ness S, Polverejan E, Wang S, et al. Randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of topiramate for migraine prevention in pediatric subjects 12 to 17 years of age. Pediatr 2009; 123(3):924-34.
22. Borzy JC, Koch TK, Schimschock JR. Effectiveness of topiramate in the treatment of pediatric chronic daily headache. Pediatr Neurol 2005;33(5):314-6.
23. Campistol J, Campos J, Casas C, Herranz JL. Topiramate in the prophylactic treatment of migraine in children. J Child Neurol 2005; 20(3):251-3.
24. Fallah R, Akhavan Karbasi S, Shajari A, Fromandi M. The Efficacy and Safety of Topiramate for Prophylaxis of Migraine in Children. Iran J Child Neurol 2013 Autumn; 7(4):7-11.
25. Unalp A, Uran N, Oztürk A. Comparison of the effectiveness of topiramate and sodium valproate in pediatric migraine. J Child Neurol 2008;23 (12):1377-81.
26. Lakshmi CV, Singhi P, Malhi P, Ray M. Topiramate in the prophylaxis of pediatric migraine: a double-blind placebo-controlled trial. J Child Neurol 2007;22(7):829-35.

Original Article

Rectus Recessions with Rectus Resection in Pts having Large Angle Exotropia

Comparison of Bilateral Lateral Rectus Recession versus Unilateral Rectus Recession Along With Medical Rectus Resection in Patient with Large Angle Exotropia: A Randomized Controlled Trial

Sidra Naseem[1], Fuad Ahmad Khan[1] and Rehana Gull[2]

ABSTRACT

Objective: To compare outcome of bilateral lateral rectus recession (BLR) versus unilateral lateral rectus recession along with medial rectus resection (RR) in patients with large angle exotropia.
Study Design: Randomized control trial
Place and Duration of Study: This study was conducted at the Department of Ophthalmology Unit, Holy Family Hospital, Rawalpindi from January 2017 to November 2017.
Materials and Methods: A total of fifty patients (25 in each group) were finally enrolled and underwent surgical correction of extropia. Patients with large angle exotropia of > 100 PD were enrolled and were randomly assigned to two treatment groups. Group A underwent BLR and Group B underwent RR procedures. Patients were followed for 6 months and successful alignment rate was estimated.
Results: At six month after surgery, 14 patients (56%) in the BLR group achieved successful alignment, while in RR group, 18 patients (72%) patients achieved successful alignments. A total of 10 patients (40%) had under correction of 10-14 PD and 1 patient (4%) had under correction of 25 PD in the BLR group; while RR group showed 4 patients (16%) had under correction of 10-14 PD; 2 patients (8%) had under correction of 25PD and 1 (45) had under correction of 40PD *(P*=0.221).
Conclusion: There is no significant difference in successful alignment rate at six month after surgery in both groups. We suggest further longitudinal studies with larger samples size and with longer duration of follow up.
Key Words: Intermittent exotropia, bilateral lateral rectus recession, Unbilateral lateral rectus recession

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INTRODUCTION

The incidence of intermittent exotropia (IXT) is 32.1 per 100,000 children under 19 years of age and it is one of the most common type of exotropia in adolescents and children. Intermittent exotropia occurs more frequently in Asian populations and in females.[1,2] A variety of treatments have been proposed for intermittent exotropia. However, no single treatment has proven superior for all cases, and long-term follow-up demonstrates a high recurrence rate regardless of initial therapy.[3] There are no clear clinical guidelines for management of intermittent distance exotropia. The current literature is lacking large randomized prospective trial for IXT. Most of the research on this problem consists of retrospective reviews, which are difficult to analyze and compare due to variations in definition, intervention criteria and outcome measures.[4] Various Studies have been done to assess the best treatment option for intermittent exotropia. The conclusion derived from the reports showed that preoperative orthoptic/occlusion therapy followed by surgery yields superior results in comparison to surgery only.[5] there seems to be a consensus that non-surgical measures are better in small angle deviations or as an adjunct to surgery.[6] however, the controversy exists for appropriate surgical method. Two different methods have been described i.e. bilateral lateral rectus recession (BLR) and unilateral lateral rectus recession-medial canthal resection (RR). Different studies have shown different results while comparing RR with BLR

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procedure to improve the angle of deviation for treatment of IXT in children. The BLR success rate varies from 41% to 83%,[7-10] whereas that of RR varies from 32.3% to 85.1%.[11]

Although non-surgical options are less effective to improve angle of deviation, they have less associated adverse effects.[12] Up till now the mainstay of treatment adopted to achieve redundant ocular alignment and binocular single vision is surgery, however, there is still a debate on appropriate surgical method. As discussed earlier, there is limited clear cut evidence to prove superiority of either of procedures (BLR vs RR) for treatment of IXT in children, present study was designed to compare the two different types of surgeries for the treatment of large angle exotropia (>45PD) in our local population. Several studies have been conducted in different parts of world comparing outcomes of RR and BLR but data on this subject is minimal in our country. Our main aim was to compare outcomes of bilateral lateral rectus recession with unilateral lateral rectus recession-medial rectus resection in patients with large angle exotropia.

MATERIALS AND METHODS

It was a Randomized controlled trial conducted at Department of Ophthalmology, Holy Family Hospital, Rawalpindi between 1st January 2017 to 30th November 2017. A total of fifty (n=50) patients of all age groups irrespective of gender presented with large angle exotropia of >100PD were enrolled. All the patients were randomly assigned to two treatment groups using lottery method. Group A underwent bilateral lateral rectus recessions (BLR group) or the unilateral recess/resect procedure (RR group) based on the largest angle measured at distance or near were included. Patients were followed for 6 months. Final successful alignments rates, visual acuity, diplopia and other factors associated with under correction or over correction were evaluated. Statistical software SPSS 21 was utilized for data description and analysis.

RESULTS

At six month after surgery, 14 patients (56%) in the BLR group achieved successful alignment, while in RR group, 18 patients (72%) patients achieved successful alignments. A total of 10 patients (40%) had under correction of 10-14 PD and 1 patient (4%) had under correction of 25 PD in the BLR group; while RR group showed 4 patients (16%) had under correction of 10-14 PD; 2 patients (8%) had under correction of 25PD and 1 (45) had under correction of 40PD (table 1). The difference was not statistically significant *(P*=0.221) (Table 1).

Table No.1: Outcomes at six month post-surgery in both groups

Alignment	Group		P value
	BLR	RR	
Successful	14 (56.0%)	18 (72.0%)	0.221
Under correction of 10-14PD	10 (40.0%)	4 (16.0%)	
Under correction of 15-25PD	1(4.0%)	2 (8.0%)	
Under correction of 26-40PD	0 (.0%)	1 (4.0%)	

DISCUSSION

As clinical guidelines to manage intermittent distance exotropia were lacking, so, the present study was designed to compare outcomes of BLR vs RR procedures in patients with large angle exotopia in our population. Our study results showed at six month after surgery, 14 patients (56%) in the BLR group achieved successful alignment, while in RR group, 18 patients (72%) achieved successful alignments. A total of 10 patients (40%) had under correction of 10-14 PD and 1 patient (4%) had under correction of 25 PD in the BLR group, while RR group showed 4 patients (16%) had under correction of 10-14 PD, 2 patients (8%) had under correction of 25PD and 1 (4%) had under correction of 40PD *(P*=0.221). In a similar study, **Kim et al** aimed to evaluate the long-term results of 2-muscIe surgery in children with primary large-angle exotropia, comparing BLR with RR. They found successful alignment in 60.4% of the patients, recurrence rate of 33.3% and overcorrection in 6.3% of the patients in which bilateral lateral rectus recession was performed. On the other hand, in RR group, 68.4 % of the patients showed successful alignment, 26.3% recurrence and overcorrection in 5.3%. Recurrence rates and successful alignment were not statistically significant in both groups (P=0.640 and 0.31 respectively) however overcorrection was significant in RR group (P=0.014) until two years after surgery, but after that duration there was no significant difference (P=1.000). The patients having exodeviation of >45PD, the RR procedure showed better alignment at the final examination (P=0.006).[14] The results are similar to our study, however the difference in successful alignment between RR and BLR group was not statistically different in our study. This may be attributed to difference in the sample size, which was smaller in our study as compared to their study (50 vs 86). Moreover, they reported their findings on final examination at two years after surgery while we presented our resuIts at six months.

Choi reported that outcomes of their surgery were measured according to postoperative angle of deviation as overcorrection (esophoria/tropia >5PD), success

(esophoria/tropia <5PD to exophoria/tropia <10PD), or under correction/recurrence (exophoria/tropia >10PD). The comparative results of both groups were assessed at first post operative day, at one month, six months, one year, two years and at final examination. They found no statistical difference in both the groups with P>0.05. These results are quite similar to present study results. However, if the final results are compared between the two groups at a mean of 3.8 years after surgery, Choi J found that success rate in BLR group was significantly higher i.e. 58.2% than in the RR group 27.4% (P<0.01). The possible reason may be high recurrence rate in RR group.[8] We did not follow the patients beyond six months and did not measure the recurrence rate. In another similar study, Bang SP, et al compared long-term surgical outcomes after BLR and RR procedures for the basic-type intermittent exotropia. They enrolled patients for five years duration who underwent ≥5 years of foIIow-up. Successful outcome was defined as (esophoria/tropia ≤8PD to exophoria/tropia ≤8PD), and under correction/recurrence (exophoria/tropia >8PD). Results were compared at the end of first post operative week, at one and six months, one, two, three, four and five years. They found that the results of BLR group were statistically better than that of other group at six months after surgery (97.3% vs 82.3%, P=0.045) and at one year (91.9% vs 74.2%, P=0.040) respectively.[15] From the results, author concluded that the recurrence rate of exotropia was high in RR group as compared to BLR group, six months after surgery and lower success rate in RR group at the end of five years after procedure. We, however, in our study did not measure recurrence rates and measured final outcomes at six months. At six months our results are similar to Bang SP et al, however, the difference between both groups was not statistically significant likely due to relatively smaller sample size in our study.

In contrast to our study results, Jeoung et al[13] reported higher rate of satisfactory outcomes in RR group when compared with BLR (83.3% vs 48.3% respectively). They also reported that cumulative probability of surgical success was significantly higher in the RR group than in the BLR group (P = 0.012). These contrasting results from our study are likely due to difference in defining the satisfactory outcomes. They defined an outcome was considered satisfactory in relative terms (a difference of 10 prism diopters of exophoria/tropia and 10 prism diopters of esophoria/tropia from baseline at 6 months after surgery). On the other hand we defined successful outcome in absolute terms i.e. <10 PD. Wang L studied the results of both procedures in 85 patients aged between 3 to 15 years and did follow up for 6 months. Surgical outcomes were defined as successful (esophoria/tropia <5PD to exophoria/ tropia <8PD). Their mean follow up was of 14.8+9.5 months. They found successful results in RR group (85.1%) vs BLR group (65.8%). They found that RR is more effective than BLR procedure for basic type IXT in children.[9] The possible explanation for recurrence in patients with IXT after RR procedures was identified as age of deviation onset, was described recently by Lim et al.[16] However there was no explanation of the relevance of onset age to recurrence of problem in that study. The prognostic factor for the recurrence after BLR procedure to treat IXT were also studied by the same group.[17] They found that the onset age of deviation was not significantly predictive of recurrence therefore further studies are necessary to evaluate the predictive value of onset age with respect to deviation. We did not take into account the age of onset of deviation in the present study. However, we suggest further studies in this regard.

CONCLUSION

Present study did not show any significant difference in successful alignment rate at six month after surgery in both groups. We suggest further longitudinal studies with larger samples size and with longer duration of follow up.

Author's Contribution:

Concept & Design of Study:	Sidra Naseem
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Revisiting Critically:	Sidra Naseem, Fuad Ahmad Khan
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Present study did not show any significant difference in successful alignment rate at six month after surgery in both groups. We suggest further longitudinal studies with larger samples size and with longer duration of follow up.Govindan M, Mohney BG, Diehl NN, Burke JP. Incidence and types of childhood exotropia: a population-based study. Ophthalmol 2005; 112: 104–8.
2. Pan CW, Zhu H, Yu JJ, Ding H, Bai J, Chen J, et al. Epidemiology of Intermittent Exotropia in Preschool Children in China. Optom Vis Sci 2016;93(1):57-62.
3. Buck D, Powell CJ, Sloper JJ. Surgical intervention in childhood intermittent exotropia: current practice and clinical outcomes from an observational cohort study. Br J Ophthalmol 2012 96:1291-8.
4. Bergholz R, Salchow DJ. Intermittent Exotropia. KlinMonblAugenheilkd 2015;232(10):1165-73.

5. Figueira EC, Hing S. Intermittent exotropia: comparison of treatments. Clin Exp Ophthalmol 2006;34(3):245-51.
6. Gnanaraj L, Richardson SR. Interventions for intermittent distance exotropia: review. Eye (Lond) 2005;19(6):617-21.
7. Yam JC, Wu PK, Chong GS, Wong US, Chan CW, Ko ST. Long-term ocular alignment after bilateral lateral rectus recession in children with infantile and intermittent exotropia. J AAPOS 2012;16: 274–9.
8. Choi J, Chang JW, Kim SJ, Yu YS. The long-term survival analysis of bilateral lateral rectus recession versus unilateral recession-resection for intermittent exotropia. Am J Ophthalmol 2012; 153:343–51.
9. Wang L, Wu Q, Kong X, Li Z. Comparison of bilateral lateral rectus recession and unilateral recession resection for basic type intermittent exotropia in children. Br J Ophthalmol 2013; 97:870–3.
10. Yang X, Man TT, Tian QX, Zhao GQ, Kong QL, Meng Y, et al. Long-term postoperative outcomes of bilateral lateral rectus recession vs unilateral recession-resection for intermittent exotropia. Int J Ophthalmol 2014;7:1043–7.
11. Saleem QA, Cheema AM, Tahir MA. Outcome of unilateral lateral rectus recession and medial rectus resection in primary exotropia. BMC Res Notes 2013;6:257-63.
12. Joyce KE, Beyer F, Thomson RG, Clarke MP.A systematic review of the effectiveness of treatments in altering the natural history of intermittent exotropia. Br J Ophthalmol 2015; 99(4):440-50.
13. Jeoung JW, Lee MJ, Hwang JM. Bilateral lateral rectus recession versus unilateral recess-resect procedure for exotropia with a dominant eye. Am J Ophthalmol 2006;141(4):683-8.
14. Kim KE, Yang HK, Hwang JM. Comparison of long-term surgical outcomes of 2-muscle surgery in children with large-angle exotropia: bilateral vs unilateral. Am J Ophthalmol 2014;157(6):1214-20-5.
15. Bang SP, Cho SY, Lee SY. Comparison of Long-term Surgical Outcomes of Two-muscle Surgery in Basic-type Intermittent Exotropia: Bilateral versus Unilateral. Korean J Ophthalmol 2017;31(4):351-9.
16. Lim SH, Hong JS, Kim MM. Prognostic factors for recurrence with unilateral recess-resect procedure in patients with intermittent exotropia. Eye (Lond) 2011;25:449–54.
17. Lim SH, Hwang BS, Kim MM. Prognostic factors for recurrence after bilateral rectus recession procedure in patients with intermittent exotropia. Eye (Lond) 2012;26:846–52.

Original Article

Comparison of Topical Versus Peribulbar Anaesthesia during Phacoemulsification for Cataract

Qasim Latif Chaudry[1], Sidra Naseem[2] and Rehana Gull[3]

ABSTRACT

Objective: To determine the outcome of topical versus peri-bulbar anesthesia in cataract surgery.
Study Design: Randomized control trial.
Place and Duration of Study: This study was conducted at the Department of Ophthalmology Unit 1, Jinnah Hospital , /Allama Iqbal Medical College Lahore from January 2013 to January 2014.
Materials and Methods: Total 200 patients were divided randomly in two groups by the help of random number table; Group A patients were given topical anaesthesia and group B peribulbar anaesthesia. Pain assessment was done 10 minutes after the anaesthesia by Visual Analogue Scale. All the patients were operated by phacoemulsification technique. On 1st post operated day patient satisfaction was assessed by asking that whether he / she like same anaesthesia in future in terms of yes or no.
Results: Out of 100 cases with topical anaesthesia, 51% of the patients experience no pain while 49% were with mild pain but in case of peri-bulbar anaesthesia, 66 % of the patient felt no pain to mild pain. Similarly, in comparison to topical anaesthesia where all of the patients were satisfied with the anaesthesia, up to 72% of patients were satisfied with peri-bulbar anaesthesia.
Conclusion: Good level of anaesthesia and more patients' satisfaction could be achieved by topical anaesthesia as compared to peribulbar anaesthesia.

Key Words: Topical anaesthesia, Peribulbar anaesthesia, Phacoemulsification.

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INTRODUCTION

Based on WHO's study over the global population in 2002 (updated in 2004), results showed that thirty seven million people are blind globally. The number of new cases of blindness in Pakistan is 1.0%.[1] Most of the factors responsible for this blindness are related with eye problems. Out of these, cataract causes loss of vision in 17.6 million people which is approximately thirty percent of all global blindness.[2,3] In a survey conducted by Dineen et al [4] in 2007, the most common cause of loss of vision in Pakistan is cataract (51.5%; defined as <3/60 in the better eye on presentation) with corneal opacity, uncorrected aphakia and glaucoma to follow by 11.8%, 8.6% and 7.1% respectively.

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Surgery is the mainstay of treatment for cataract and comprises of removal of opacified lens material along with placement of intraocular lens. After surgery nearly 90% of cataract patients can have a corrected vision of 20/40 or more.[5] Anesthesia for cataract surgery varies from eye drops (topical) to peri-bulbar (next to eyeball) or retro-bulbar (behind the eye). The associated patient anxiety can be reduced by additional oral or intravenous sedation or rarely general anesthesia. General anesthesia is mostly required in children and adults having psychiatric or medical problems. Retro-bulbar block provides akinesia of extra-ocular muscles. The mechanism of retro-bulbar anesthesia involves blocking of cranial nerve II, III and VI (the nerves responsible for globe movements). This block remained popular for ages but had been replaced by peri-bulbar anesthesia since 1986 due to its higher complication rate (hematoma, optic nerve damage, globe perforation and blindness). [6,7]

Peri-bulbar anesthesia is a safe replacement of retro-bulbar anesthesia for cataract surgery. In peri-bulbar anesthesia the anesthetic agent is injected outside the muscle cone, resulting in less complications as caused by retro-bulbar anesthesia. The direct injury to optic nerve or hemorrhage in intra-conal area is avoided in peri-bulbar anesthesia. [8] Although it provides excellent anesthesia but there are risks of injection related complications like chemosis (10 %), sub-conjunctival hemorrhage (8 %), bleeding in the orbit (4 %),

perforation in the eye, direct trauma to the optic nerve, intravascular injection of anesthetic agent and dysfunction of extra ocular muscle have been reported. These complications can be avoided using topical anaesthesia.[7, 8]

Fichman was the first who described topical anesthesia in 1927 and since then this technique has improved tremendously.[6] In different studies, the experienced surgeons found topical anesthesia to be safe and satisfactory as compared to peri-bulbar and retro-bulbar anesthesia for phacoemulsification and intraocular lens implantation in selected cataract patients.[9] As a result the usage of topical anesthesia has progressively risen from 8% in 1995 to 63% in 1998.[6]

Studies conducted in the past to compare the outcome of peri-bulbar and topical anaesthesia showed variable results. Siad k at al[11]observed effective pain control (mild or no pain) up to 90 % by topical anaesthesia while Ahmad S[6] found lower efficacy of topical anaesthesia to 78% and 22% of the patient need addition subconjunctival local anaesthesia supplement along with topical anaesthesia. Similarly, peri-bulbar anaesthesia outcomes were also different in different studies. Peri-bulbar anaesthesia is effective in controlling pain (no pain to mild pain) to 75% in Siad K[11] studies while its efficacy increase to 100 % in Said TME[7]study. Similarly, patient's satisfaction was also assessed by Said K. In his study 90% of the patients were satisfied with topical anaesthesia and 72 % were satisfied with peribulbar anaesthesia. Although in Pakistan, the topical anaesthesia is not very popular but due to increase in frequency of phacoemulsification surgery, it is the time to switch to topical anaesthesia which is cost effective, saves time and satisfactory for both surgeon and the patient.The only published study to compare peri-bulbar versus topical anaesthesia in Pakistan was done only in 2007 by Naeem et al.[12] They measured the variables in term of pain and akinesia. But results of their study were given in terms of mean value instead of percentages.

MATERIALS AND METHODS

This randomized control trial was conducted at Ophthalmology Unit 1, Jinnah Hospital, Lahore. The duration of study was from 1st January 2013 to 31st January 2014. Two cases of patients undergoing cataract surgery were included. Outcome were measured in terms of pain (score 0-1) and patient satisfaction. Pain assessment was subjective and categorized according to visual analogue scale (VAS) into no pain = 0, mild pain = 1 (tolerated pain), moderate pain (needs help or interference like more anesthesia) and severe pain = 3 (not tolerated need to stop the surgery). Frequency of patients was recorded with pain (score 0-10)

Patients were asked whether he/ she like same anesthesia in future in terms of yes or no, on first post-operative day**.** Yes was considered positive for patients satisfaction. All the patients with senile cataract (diagnosed on slit lamp examination) and age more than 30 years were included in the study. Patient who refused informed consent, was difficult to communicate, suffering from dementia, nystagmus, unable to understand pain scale and hazy cornea were excluded from the study. After Ethical committee approval from our hospital, 200 patients for cataract surgery fulfilling the selection criteria were included in the study. An informed consent was obtained from them. Patients were divided randomly in two groups by the help of random number table; Group A was the patients of topical anesthesia and group B of peribulbar anesthesia. 100 patients were given peribulbar anesthesia with 3 ml of mixed bupivacain 50mg/10ml (1.5 ml) and lidocain 2 % (1.5 ml). Single injection was injected in lower temopral area. 100 patients were given topical drops of proparacaine hydrochloride 0.5%. Pain assessment was done 10 minutes after the anesthesia by touching the needle to conjunctiva and limbus and asking the patient whether he feel no pain (0), mild pain (1), moderate pain (2) or severe pain. All the patients were operated by phacoemulsification technique. Both anesthesia infiltration and surgery was done by the same surgeon. On 1st post operated day patient satisfaction was assessed by asking that whether he / she like same anesthesia in future in terms of yes or no. All the collected data was analyzed with SPSS 20.

RESULTS

In group A, patients having topical anaesthesia, mean age was 66.67±6.39 years. In comparison, peribulbar group mean age of patients was 66.36±6.26 and gender distribution in both groups were shown in Table 1. Table 2 is a pain score comparison between patients of peribulbar and topical anaesthesia. In case of topical anaesthesia, 59% of the patients were having no pain. However, in peribulbar group patients and 34% patients felt moderate to severe pain. Patient satisfaction comparison is shown in table 3. At one end, all the patients were satisfied with topical anaesthesia. On the other hand, only 28% of the patients were not satisfied with peribulbar anaesthesia.

Table No.1: Age & gender distribution among groups

Variable	Topical anaesthesia		Peri-bulbaranaesthesia	
	No.	%	No.	%
Age (years)				
50-65	57	57.0	58	58.0
66-80	43	43.0	42	42.0
Gender				
Male	67	67.0	62	62.0
Female	33	33.0	38	38.0

Table 4 shows p value in individual pain groups in case of peribulbar and topical anaesthesia. In no pain group, 59 % of patients felt no pain in topical anaesthesia and 11% in peribulbar anaesthesia and p value was highly significant (P=.000). P value was also significant in mild, moderate and severe pain group as shown in the table. Table 5 shows p value in individual level of

patient satisfaction in each group. In both groups the p value was highly significant.

Table No.2: Pain score among groups

Pain score	Topical anaesthesia		Peri-bulbaranaesthesia	
	No.	%	No.	%
No pain	59	59.0	11	11.0
Mild pain	41	41.0	55	55.0
Moderate pain	-	-	30	30.0
Severe pain	-	-	4	1.0

Table No.3: Patient satisfactions among groups

Patient satisfaction	Topical anaesthesia		Peri-bulbaranaesthesia	
	No.	%	No.	%
Yes	110	110.0	72	72.0
No	-	-	28	28.0

Table No.4: Cross tabulation in pain groups

Pain Score	Topical anaesthesia		Peri-bulbaranaesthesia		P value
	No.	%	No.	%	
No pain	59	59.0	11	11.0	P=0.000
Mild pain	41	41.0	55	55.0	P=0.033
Moderate pain	-	-	30	30.0	P=0.000
Severe pain	-	-	4	4.0	P=0.061

Table No.5: Cross tabulation among patient satisfaction groups

Patients satisfaction	Topical anaesthesia		Peri-bulbaranaesthesia		P value
	No.	%	No.	%	
Yes	100	100.0	72	72.0	P=0.000
No	-	-	28	28.0	P=0.000

DISCUSSION

Couching was the first treatment documented for cataract surgery in India during fifth century BC. This was the procedure in which lens was displaced into the vitreous cavity from its normal pupillary position. Jacques Daviel devised the first method of cataract extraction (removal of lens outside the iris) after failure to perform couching procedure in 1947. After its success, the cataract extraction surgery has gone through major revolution from intra-capsular to extra-capsular lens extraction and now a day's phacoemulsification technique, throughout the history.[13]

At the same time anaesthesia for cataract surgery has also gone through many stages of evolution. General anaesthesia was used by many surgeons as it is convenient to perform surgery with it, without any patient discomfort. Although general anaesthesia is still being practiced in children and non-cooperative patients but there are risks associated with it. The retro-bulbar (RB) anaesthesia supplemented by facial nerve block has remained the gold standard for many years and recommended by many surgeons (Atkinson, Van Lint, O'Brien, etc)[13]. In RB anaesthesia 3-4 ml of local anaesthetic agent is injected into the muscle cone of eye. Since it is a blind injection, there are potential chances of causing perforation of eye globe hematoma formation, intrathecal/ central nervous system spread or intravascular spread.[14, 15]

Due to high chances of complications in retro-bulbar anaesthesia, ophthalmologist and anaesthetist switched onto another method of anaesthesia known as per-bulbar anaesthesia. In this method the anaesthetic agent is injected in extra-conal space instead of intra-conal injection as in retro-bulbar anaesthesia. The peri-bulbar anaesthesia was first described in 1986 and is based on "tissue compartment principle". According to this principle, the local anaesthetic agent spreads by virtue of its volume and pressure throughout the compartment once injected in the intra-compartmental space so that large volume of local anaesthesia (8-12ml) can be injected into the extra-conal space from which it must spread to the intra-conal space resulting in adequate akinesis and analgesia of the globe.[16] The technique of peri-bulbar anaesthesia has also evolved during the last few years. The classic technique of two injections was described by Bloomberg et al[17] in 1986. They described that the first injection should be injected at inferior and temporal area of the orbit which is the same site as for retro-bulbar injection but with a smaller up-and-in angle. The second injection site should be superior and nasal part of orbit between the medial third and the lateral two third of the orbital roof edge. Different comparative studies have shown that if the sufficient amount of anaesthetic agent is injected at the single site it will be equally effective and there is no need for second injection. So, it is recommended that a single injection technique should be opted and second injection should be preserved as a supplement option provided the first injection has failed.[18]

Recently topical anaesthesia has been introduced to overcome the complications of peri-bulbar anaesthesia, like chemosis (10%), subconjunctival haemorrhage (8%), orbital bleeding (4%), ocular perforation, optic nerve trauma, intravascular injection of anaesthetic agent and extra ocular muscle dysfunction have been reported. The technique of topical anaesthesia is based on method to block sensory nerves supplying the conjunctiva and the cornea (nasociliary nerve, lacrimal nerve, long and short ciliary nerves).[6,7]

Although peribulbar anaesthesia is considered a good anaesthesia for eye surgery but, different studies conducted claims different outcomes. In a study conducted by Said TME [7], the efficacy of peribulbar anaesthesia was 100 % as an anesthetic agent. On the other hand, Siad k et al [16] found that the efficacy of peribulbar anaesthesia was 25 % less as claimed Said TME. If we compare our results we found that the results regarding efficacy of peribulbar anesthesia was similar to that of Siad TME et al. we found 66 % of the

patients felt no to mild pain and remaining 34 % moderate to severe pain.

In case of topical anesthesia for phacoemulsification surgery, Ahmad[11] found that the there was no pain to mild pain in 78 % of patients. In the remaining patients, surgeon has to give a sub-conjunctival local anesthesia in order to achieve complete analgesia. However, Said et al[11] reported the incidence of addition anaesthesia much lower and 90 % of the patients felt good analgesia with topical anaesthesia. In our study, the results were much better and we found no pain in 59% of the patient and mild pain in 49 % of the patient. So, our study supports the results of Said et al[11] study that no addition sedation is required after topical anaesthesia in cataract surgery.

Our results regarding patient satisfaction were very much similar to Said K et al findings. They found 90% patient satisfaction level for topical anaesthesia and 72% for peribulbar anaesthesia.[11]All our patients were satisfied with topical anaesthesia and 72% patient were satisfied with peribulbar anesthesia. One of the study comparing result of peribulbar versus topical anesthesia for cataract surgery was conducted by Naeem et al [12] in 2005 .They found topical anaesthesia a good replacement for peribulbar anaesthesia but the study was statistically weak as values were measured in terms of mean instead of percentages. In our study we found significant p values for pain control and patient satisfaction while comparing topical anaesthesia with peribulbar anaesthesia.

CONCLUSION

Good level of anaesthesia and more patients' satisfaction could be achieved by topical anaesthesia as compared to peribulbar anaesthesia. Patients may have more eye movements in topical anaesthesia than in peribulbar, but if the surgeon is more experienced and patient is cooperative, topical is more safe and effective anaesthesia.

Author's Contribution:

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REFERENCES

1. Resnikoff S, Pascolini D, Etya'ale D, et al. Global data on visual impairment in the year 2002. Bull World Health Organ 2004;82:844–51.
2. Foster A, Gilbert C, Johnson G. Changing patern in global blindness:1988–2008. Community Eye Health 2008;21(67):37-9.
3. Rehman A, Yahya K, Shaikh A, Fasih U, Zubari BF. Risk factor associated with pre-senile cataract. Pak J Med Sci 2011;27(1):145-8.
4. Dineen B, Bourne RR, Jadoon Z, Shah SP, Khan MA, Foster A, et al. Cause of blindness and in Pakistan. The Pakistan National Blindness and visual impairment Survey. Br J Ophthalmol 2007; 91:1-16.
5. Jadoon Z, Shah SP, Bourne R, Dineen B, Khan MA, Gilbert CE, et al. Cataract prevalence, cataract surgical coverage and barriers to uptake of cataract surgical services in Pakistan: the Pakistan national blindness and visual impairment survey. Br J Ophthalmol 2007;91:1296-73.
6. Bollinger KE, Langston RH. What can patients expect from cataract surgery? Cleveland Clin J Med 2008;75 (3): 193–6.
7. Ahmad S. Cataract Surgery: Is it time to convert to topical anaesthesia. Pak J Ophthalmol 2008; 24(2):62-67.
8. Said TME, Kabeel MM. Comparison of classic peribulbaranaesthesia and new entery point (single percutanous injection technique) in vitroretinal surgery. SJA 2010;4(2):80-85.
9. Davis II DB, Mandel MR. Posterior peribulbaran aesthesia: an alternative to retrobulbar anaesthesia. Indian J Ophthalmol 1989;37:59-61.
10. Waheeb S. Topical anaesthesia in phacoemulsification. Oman J Opthalmol 2010; 3(3): 136-9.
11. Said K, Hassan H, Qahtani FA, Mansoori FA. A comparative study of topical versus peribulbaranaesthesia in phacoemulsification and implantation of foldable intraocular lens in cataract surgery.The internet J Ophthalmol Visual Sci 2003; 2:1-10.
12. Naeem BA, Raja A, Bashir R, Iftikhar S, Akhtar KN, Jaffri RH, Akbar MK. Comparison of peribulbarvs topical anaesthesia for phacoemulsification. JRMC 2007;11(2):79-81
13. Grizzard WS, Kirk N, Pavan PR et al. Perforating ocular injuries caused by anaesthesia personnel. Ophthalmol 1991; 98:1011-4.
14. Straus JG. A new retrobulbar needle and injection technique. Ophthalmol Surg 1988; 19:134-7.
15. Ripart J, Lefrant JY, de La Coussaye JE, Prat-Pradal D, Vivien B, Eledjam JJ. Peribulbar versus retrobulbar anaesthesia for ophthalmic surgery: An anatomical comparison of extraconal and intraconal injections. Anesthesia 2001; 94: 56-62.
16. Davis DB, Mandel MR. Posterior peribulbar anaesthesia: an alternative to retrobulbar anaesthesia. J Cataract Refract Surg 1986;12: 182–4.
17. Bloomberg LB. Administration of periocularan anaesthesia. J Cataract Refract Surg 1986;12: 677–9.
18. Leonardo R, Maurizio M, Chiara R, Italo C, Michela N, Roberto R et al. Peribulbar anaesthesia: a percutaneous single injection technique with a small volume of anesthetic. Anesth Analgesia 2005;100(1):94-6.

Original Article

Smartphone Use and its Health Related Problems in Undergraduate Students of Sialkot

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ABSTRACT

Objective: To investigate the Smartphone use and health related problems among undergraduate students
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Various educational institutions of Sialkot during the month of October 2018.
Materials and Methods: Undergraduate students were approached. Non-probability convenience sampling technique was used to get a sample size of 417. Students from 14th year of study and having Smartphone were included. Exclusion criteria were students suffering from severe illnesses, delirious or refusing written informed consent. A data sheet contained information about demographics, Smartphone use and problem faced. The data was analyzed by SPSS v 23.
Results: Of the 417 students 194 (46.52%) were males and 223 (53.48%) were females. Majority were from urban middle income class. 356 (85.37%) student's family members had Smartphone. Students were from four study groups, 106 (25.42%) from arts, 105 (25.18%) from general science, 104 (24.94%) from medical and 102 (24.46%) from computer & IT. Three most common application used by the students were Facebook 397 (95.20%), web browser 389 (93.28%) and WhatsApp 368 (88.25%). By average daily use YouTube was 2.1 hours, WhatsApp 1.9 hours and video gaming 1.8 hours. Three most common problems were day time sleepiness 208 (49.64%), insomnia 193 (46.28%) and fatigue 178 (42.68%).
Conclusion: Three most common application used were Facebook 397 (95.20%), web browser 389 (93.28%) and WhatsApp 368 (88.25%). Three most common problems reported were day time sleepiness 208 (49.64%), insomnia 193 (46.28%) and fatigue 178 (42.68%).
Key Words: Smartphone, Students, Health problems, Cell Phone, addiction,

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INTRODUCTION

Smartphone is a gadget with highly developed features. Mobile phone and cellular phone are synonyms of smartphone. In the past a device with connected wires was used for communication purpose and a specific device was used for specific purpose. With the innovation of smartphone, revolutionary changes have occurred in technology era and now a single smartphone is used for multipurpose. Multiple applications have been developed and can be installed when needed.

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One can easily communicate with others through text message, voice call, and video call. It is an easiest mean for professionalism, information access and workplace organization. In the health field smartphones play a pivotal role because health care provider and patients strive for better patients' health.[1] However, in present situation negative impacts of smartphones are getting public interest. A study conducted on medical students of Saudi Arabia revealed that 44.4% medical students suffered from decreased concentration, fatigue, hearing loss, memory problem and headaches due to excessive use of smartphones.[2] In Sakarya University Turkey and Isfahan University of Medical Sciences Iran both studies showed that worsening of sleep quality was due to increasing addiction of smartphone.[3,5] Another study declared that smartphone addiction makes the person nervous and depress when he/she is away from his/her smartphone.[4] A study in Pakistan showed that, smartphone addiction had negative affect on participants' relationship with families because they didn't bear any interference while using smartphones.[6] To our knowledge no such study has been conducted in Sialkot. The objective of the current study was to investigate the smartphone use and health related

problems among the students of various educational institutions of Sialkot.

MATERIALS AND METHODS

The study was conducted at various educational institutions of Sialkot city during the month of October 2018. Non probability convenience sampling technique was used. It was a cross sectional study. Ethical approval was taken from ethical review committee. Guidelines in the Declaration of Helsinki were followed. Title and purpose of the study were explained to students. Written informed consent was taken. Sample size was calculated by open pie calculator. Initially 423 students were approached. Six students refused to give informed consent. The demographics of these students were not very different from rest of the students. So 417 students were included in the final study. Inclusion criteria were students in their 14th year of study and having smartphone. Exclusion criteria were students suffering from severe physical or psychiatric illness, unconscious students or students who were in delirium or refused to give written informed consent. A data sheet was made. It contained three parts. In the first part demographic information of the students was recorded. In the second part information about smartphone use and its applications and the average daily duration of use of each application by the students were recorded. In the third part, there was a list of different health problems and students were asked to tick mark the problems they thought, they faced due to the use of smartphone. The data sheet was collected from all the students of medical, arts, general science and computer & IT. The data was analyzed by SPSS v 23.

RESULTS

Of the 417 students who were included in the study, there were 194 (46.52%) males and 223 (53.48%) females. Mean age of the male students was 20.11 ± 1.23 years with range from 19-21 years. Mean age of the female students was 19.8 ± 1.36 years with range from 18-21 years. All students were in their 14th year of study. 67 (16.07%) students had family monthly income of less than 30000, 249 (59.71%) were from income group 30000-75000 and 101 (24.22%) belonged to above 75000 income group. Most of the students 191 (45.81%) belonged to urban background while 89 (21.34%) students were from semi-urban background. 137 (32.85%) students belonged to rural background. Most of the students 231 (55.40%) were day scholar while 186 (44.60%) students were living in hostel. 356 (85.37%) student's family members had smartphone while only 61 (14.63%) student's family members did not have smartphone. The students were from four professional study groups. Out of the total 417 students, 106 (25.42%) students were from arts group, 105 (25.18%) students belonged to general science group, 104 (24.94%) students were from medical group while 102 (24.46%) students belonged to computer & IT. Table 1.

Table No.1. Demographics of the students N=417.

Variable	Number	Percentage %
Gender		
Male	194	46.52%
Female	223	53.48%
Family monthly income in Pak Rs		
Less than 30000	67	16.07%
30000-75000	249	59.71%
Above 75000	101	24.22%
Family background		
Urban	191	45.81%
Semi-urban	89	21.34%
Rural	137	32.85%
Residence		
Hostel	186	44.60%
Day scholar	231	55.40%
Other family members having smartphone		
Yes	356	85.37%
No	61	14.63%
Subjects of study		
Arts	106	25.42%
General science	105	25.18%
Medical	104	24.94%
Computer & IT	102	24.46%

Table No.2. Smartphone applications used by students N=417

Sr. No.	Applications	Number	%age	Average daily use in hours
1	Facebook	397	95.20 %	1.5
2	WhatsApp	368	88.25%	1.9
3	Instagram	193	46.28%	0.6
4	Twitter	115	27.57%	0.15
5	YouTube	278	66.66%	2.1
6	Web browser	389	93.28%	0.8
7	Video gaming	285	68.34%	1.8
8	Study purpose	171	41.00%	0.5
9	Text message	207	49.64%	0.2
10	Others	86	20.62%	0.3

Out of the total 417 students, 397 (95.20%) students were using Facebook with average daily duration of 1.5 hours. 368 (88.25%) students were communicating through WhatsApp with 1.9 hours average daily usage.

193 (46.28%) students were spending their average daily 0.6 hours with Instagram. Twitter users were 115 (27.57%) with average daily duration of 0.15 hours. 278 (66.66%) students were watching dramas, movies, seasons and news channels with average 2.1 hours daily usage. 389 (93.28%) students with average 0.8 hours daily usage, 285(68.34%) students with average 1.8 hours daily usage, 171 (41.00%) students with average 0.5 hours were spending their time with web browser, video gaming and study purpose respectively. Table 2.

Table No.3. Problems reported after Smartphone use by students N=417

Serial number	Problems	Number	Percentage %
1	Fatigue	178	42.68%
2	Headache	157	37.65%
3	Irritability	165	39.57%
4	Insomnia	193	46.28%
5	Weight gain	127	30.45%
6	Eye problems	85	20.38%
7	Day time sleepiness	207	49.64%
8	Impaired concentration	103	24.70%
9	Ear problems	67	16.06%
10	No problems	45	10.80%

178 (42.68%) students complained of fatigue in daily life. Headache was present among 157 (37.65%) students. 165 (39.57%) were noted with irritability. Insomnia and day time sleepiness were present among 193 (46.28%) and 207 (49.64%) respectively. The preponderance of day time sleepiness was due to use of smartphone at night time. 127(30.45%) students were caught with reduced physical activity and reported a complain of weight gain. 85(20.38%) students thought that their eye problem was due to smart phone use. Impaired concentration was reported by 103 (24.70%) students. Only 45 (10.80%) students did not report any complain while 67 (16.06%) students suffered from ear hearing related problems. Table 3.

DISCUSSION

The results of our study show that the three most common application used by the students were Face book 397 (95.20%), web browser 389 (93.28%) and WhatsApp 368 (88.25%). By average daily use, three most common applications being used were YouTube 2.1 hours, WhatsApp 1.9 hours and video gaming 1.8 hours. Three most common problems reported by the student were day time sleepiness 208 (49.64%), insomnia 193 (46.28%) and fatigue 178 (42.68%).

In a Saudi Arabian study on students, three most commonly used applications were WhatsApp (41%), Twitter (18.5%) and Instagram (12.5%)[7], while in our study Facebook 397 (95.20%), web browser 389 (93.28%), and WhatsApp 368 (88.25%) are three most commonly used applications. Studies conducted in Turkey and Iran reported that sleep quality worsens with increasing use of smartphone. The results of our study show that almost half 208 (49.64%) reported day time sleepiness and insomnia was reported by 193 (46.28%) students. These results corroborate with our results.[3,5] Fatigue was reported by 178 (42.68%) students. Another Saudi Arabian study on students reported 44.4% of students suffered from fatigue. The results are similar to our findings.[2] Decreased sleeping hours and weight gain were present among 43% and 30% of study participants of Saudi Arabian study which are similar to our study.[7]

A survey from doctors about their patients in Karachi Pakistan revealed that 80% of patients suffered from hearing problems while in our study 16.06% students faced hearing problems which contrasts with our result. This may be because sample was different. We conducted the study on students rather than patients.[8] A study done on students in Multan Pakistan reported that 52.7% participants used text message application.[9] In our study 49.64% used text message app which is quite similar to our data. The strengths of our study are its easy methodology and a common public health problem faced by the students was addressed. The limitations are small sample size, cross sectional nature of study and recall bias on the part of the students. In future studies, with standardized questionnaire and more rigorous methodology are needed.

CONCLUSION

Three most common applications used by students were Facebook 397 (95.20%), web browser 389 (93.28%) and WhatsApp 368 (88.25%). By average daily use three most common applications were YouTube 2.1 hours, WhatsApp 1.9 hours and video gaming 1.8 hours. Three most common problems reported by the student were day time sleepiness 208 (49.64%), insomnia 193 (46.28%) and fatigue 178 (42.68%).

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Final Approval of version:	Muhammad Faisal

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

REFERENCES

1. Bert F, Giacometti M, Gualano MR, Siliquini R. Smartphones and health promotion: a review of the evidence. J Med Syst 2014;38:9995.
2. Khan MM. Adverse effects of excessive mobile phone use. Int J Occup Med Environ Health 2008;21:289–293.
3. Sahin S, Ozdemir K, Unsal A, Temiz N. Evaluation of mobile phone addiction level and sleep quality in university students. Pak J Med Sci 2013;29(4):913-918.
4. Ishfaq A, Tehmina F, Khadija A. Mobile phone to youngsters: necessity or addiction. Afri J Business Management 2001;5:12512-9 .
5. Amra B, Shahsavari A, Shayan-Moghadam R, Mirheli O, Moradi-Khaniabadi B, Bazukar M, et al. The association of sleep and late-night cell phone use among adolescents. J Pediatr (Rio J) 2017;93:560-7.
6. Shahzad M, Shahzad MN, Ahmed T, Hussain S, Riaz F. Mobile phones addiction among university students: evidence from twin cities of Pakistan. J Social Sci 2016;1(11):416-420.
7. Alosaimi F, Alyahya H, Alshahwan H, MahyijariN, Shaik S. Smartphone addiction among university students in Riyadh, Saudi Arabia. Saudi Med J 2016; 37(6): 675-683.
8. Suhag AK, Larik RS, Mangi GZ, Khan M, Abbasi SK, et al. Impact of Excessive Mobile Phone Usage on Human. J Comput Sci Syst Biol 2016;9: 173-177.
9. Ali S, Rizvi SAA, Qureshi MS. Cell phone mania and Pakistani youth: Exploring the cell phone usage patterns among teenagers of South Punjab. FWU J Social Sci 2014;8(2):42-50.

Original Article

Histomorphological Spectrum of Breast Diseases - An Experience of 5 Years at a Tertiary Care Hospital

Urfa shafi, Zarghoona Jafar, Nausheen Henna and Farooq Aziz

ABSTRACT

Objective: To study the histomorphological spectrum of breast diseases at a tertiary care hospital of Lahore.

Study Design: Descriptive Study

Place and Duration of Study: This study was conducted at the Shalimar Institute of Health Sciences, Lahore from August 2012 to August 2017.

Materials and Methods: Five hundred and fifty nine breast specimens sent for histopathology at Shalamar Hospital Laboratory over a span of five years were studied. The specimens include mastectomies, lumpectomies, incisional biopsies and core biopsies. The specimens are then fixed in 10% buffered formalin and paraffin sections are made and stained with Hematoxyline and Eosin for evaluation of histopathological changes.

Results: Among 559 cases of breast masses, (age range 10-76 yr.), benign cases comprised of 413 cases (73.88%) and malignant lesion comprised of 146 cases (26.11%).Among the benign lesions Fibroadenoma was the most common benign breast disease (BBD) comprising of 223 cases (39.89 %). Fibrocystic disease was the second most common BBD 34 cases (6.08 %) and breast mastitis was third most common accounting for 26 cases (4.6%).Among the malignant lesions breast carcinoma was the most common lesion accounting for 146 cases (26.11%). The most common type of carcinoma was infiltrating ductal carcinoma NOS 124 cases (22.18%) and second most common was infiltrating lobular carcinoma comprised of 10 cases (1.7%).

Conclusion: The most commonly presenting breast disease in our locality is fibroadenoma and it is two times more common than carcinoma. Breast carcinoma is second most common disease and it is a growing health problem among Pakistani females.

Key Words: Benign breast disease.Fibroadenoma , Fibrocystic disease , Infiltrating ductal carcinoma NOS.

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INTRODUCTION

Breast diseases encompasses a diverse group of disorders which includes neoplastic (benign as well as malignant) and non-neoplastic (inflammatory, traumatic) disorders. There is a continuous rise in the frequency of breast diseases worldwide due to increasing consciousness regarding breast diseases.[1,2]

Breast carcinoma is now the most common malignancy in women and the leading cause of death among women comprising of 23 % (1.38 million) of total cancer cases and 14% (458,400) of cancer deaths.[3] The incidence of breast cancer increases with age; however it is more prevalent in young females as compared to lung cancer.[4] In Asia, Pakistan has the highest rate of breast cancer.[5] Young women also present at advanced stage of breast cancer, which has negative effect on prognosis.[6]

The common presenting complaints of patient with breast diseases are breast mass or lump, followed by pain or any discharge from nipple. Risk factors that are thought to be involved in the pathogenesis of these neoplasms are germ line mutations in tumor suppressor genes, family history, early menarche, young age at first child birth, delayed menopause, nulliparity, low parity, breast feeding and prolonged estrogen exposure.[7]

The majority of breast diseases are composed of benign breast diseases (BBDs) including non-neoplastic lesions, proliferative breast diseases, and epithelial and stromal tumors. BBDsare about 10 times more common than malignant diseases. Majority of benign diseases do not have any risk of malignant transformation,so unnecessary surgeries can be avoided. However, some benign diseases like proliferative breast diseases have relative risk (risk as compared to females with no risk factor) of 1.5-2.0% of developing breast carcinoma and the proliferative diseases that reveal some atypia

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(atypical ductal hyperplasia, ADH and atypical lobular hyperplasia ALH) have 4.0-5.0 % relative risk of developing invasive breast carcinoma.[8,9]

Awareness of BBs and their early diagnosis can help reducing the unnecessary stress of breast carcinoma. In Pakistan much work has been done related to breast malignancies[10,11] but only a few studies are done on the whole spectrum of breast diseases. The purpose of this study was to provide a baseline data of breast diseases to help accurate diagnosis and treatment in Pakistan.

MATERIALS AND METHODS

It was a descriptive study conducted from 1st August 2012 to 1stAugust 2017 at Shalamar Institute of Health Sciences. The laboratory of Shalamar Hospital received about 110 cases of breast specimens on average per year. Breast specimens of patients of both gender and any age were included. Normal breast tissues removed due to some cosmetic reasons were excluded from the study.The samples received includedcore biopsies, incisional biopsies, lumpectomies and mastectomies. These samples were received in 10% buffered formalin for fixation purpose. After careful macroscopic examination color, size, margins etc. were noted and then representative sections from the tissue were taken and then processed. Paraffin embedded sections were prepared and the slides were cut and then stained with the routine Hematoxylin and Eosin stain. The slides were analyzed and categorized according to morphologies. Tumors were graded according to Modified Bloom and Richardson grading.

RESULTS

Of the total 559 breast cases studied over the period of five years, benign cases comprised of 413 cases (73.88%) out of 559 cases and malignant lesion comprised of 146 cases (26.11%). So the benign to malignant ratio came out to be 3:1 approximately. Of these 559 cases 539 (96.42%) were female and 20 (3.57%) were male. So the female to male ratio was 27:1. Benign lesions were more common in young age and age range was 12-42 years (mean age 32 years), while the age range of malignant lesions was 28-72 years (mean age 42 years).

Among the benign lesions Fibroadenoma was the most common lesion 223 cases (39.89%). Fibrocystic disease was the second most common BBD 28 cases (6.4%) and mastitis was third most common accounting for 26 cases (4.65%) Pie chart 1.

Among the malignant lesions breast carcinoma was the most common lesion accounting for 141 cases (25.22%). The most common type of carcinoma was infiltrating ductal carcinoma NOS 117 cases (20.9%) and second most common was infiltrating lobular carcinoma comprising of 10 cases (1.78%). Pie chart 2.

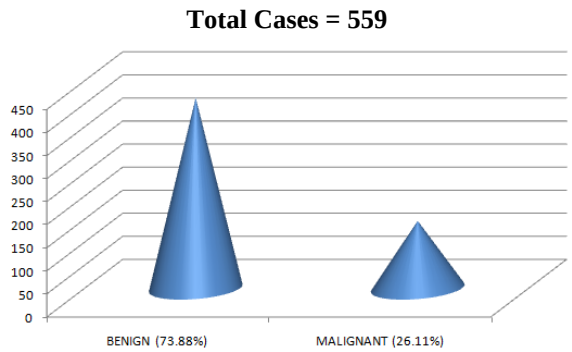
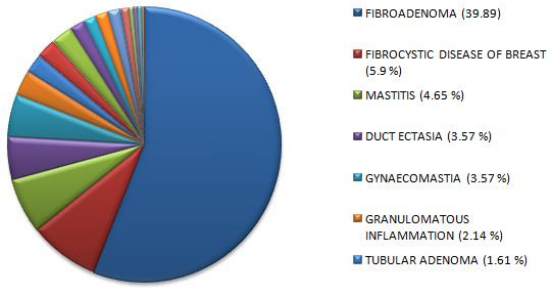
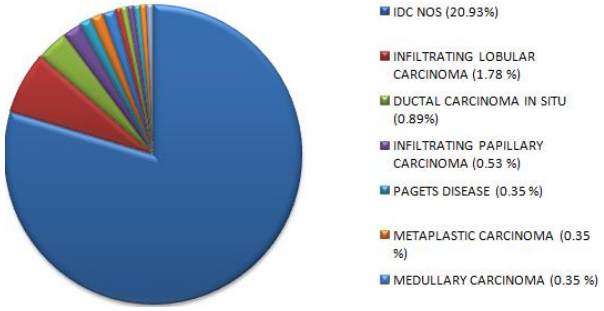


Figure No.1: Number of cases



Pie Chart No.1: Benign Breast Diseases (73.88%) n=413



Pie Chart No.2: Malignant Breast Diseases (26.11%) n=146

DISCUSSION

Breast diseases are a matter of great concern now a day as it is the leading cause of death among females. The number of patients in outdoor departments presenting with breast diseases are on a continuous rise because of increasing awareness[12]. In Pakistan many studies have been done regarding breast cancer, however very less data is available about the whole spectrum of breast diseases. Our study emphasizes to collect the baseline data regarding the histomorphological spectrum of breast diseases.

In this study 413 (73.88%) cases are benign and 146 (26.11%) are malignant. This shows that most commonly encountered lesions of breast are benign. This contrast with the study done by Siddique et al at Agha Khan University hospital , Karachi in which most common breast lesions were breast carcinoma. However our findings are consistent with Chalya et al,[12]

Ochicha et al[13] and Aslam et al[14] showing benign breast diseases as most common diseases with 73.7%, 73% and 75.3% respectively. In our study Fibroadenoma was the most common BBD, comprising of 39.89 % of all cases. With respect to frequency of Fibroadenoma our study is comparable to Gabriel et al 39%[15], Amrr et al in Saudi Arabia 30.7%[16] and Perwin et al in Bangladesh, 31%[17]. This frequency is much higher than study conducted by Isaac et al showing 24 %[18] and less than studies done in Africa by Edo et al 43.1 %[19] and Albasri 45.3 %[20].

Breast carcinoma was second most common lesion in our study constituting 25.22 % of all cases. This is consistent with the studies done by Amrr et al 21.4%[16] and Amin TT et al 21.4 % in Saudi Arabia[21]. However this percentage is much less than the studies conducted by Jamal et al, 32.5 %[22] and Albasri et al in Saudi Arabia, 40.5 %[23], however it is less in study conducted by Aslam et al, 11.8%[24] and Gabriel et al 16.9%[15], Different factors like age, genetic factors, social, cultural and dietary habits may play role in explaining these differences.

The third most common disease was fibrocystic disease of breast 6.08%which is much lower than the study conducted by Ochicha et al 34.3%[13] Isaac et al 20%[18]. The most common lesion among males is gynae-comastia 3.57 % comparable with Ochicha et al 4%[13].

CONCLUSION

Benign breast diseases are much more common than malignant breast diseases. Fibroadenoma is the most common BBD presenting to our hospital and it is three times more common than carcinoma. Breast carcinoma is second most common disease and it is a growing health problem among Pakistani females.

Author's Contribution:

Concept & Design of Study:	Urfa shafi
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Data Analysis:	Nausheen Henna, Farooq Aziz
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Rungruang B, Kelley JL. Benign breast diseases: epidemiology, evaluation, and management. Clin Obstet Gynecol 2011;54(1):110-24.
2. Siddiqui MS, Kayani N, Pervez S, Aziz SA, Muzaffar S, Setna Z, et al. Breast Diseases; a histopathological analysis of 3279 Cases at a Tertiary Care Center in Pakistan. JPMA 2003; 53(3): 94-97.
3. McPherson K, Steel CM, Dixon JM. Breast cancer—epidemiology, risk factors, and genetics. BMJ 2000;321(7261): 624–628.
4. Jemal A, Bray F, Ferlay J, Ward E, Forman D. Global Cancer Statistics. CA: Cancer J Clin 2011; 61: 69-90.
5. Sohail S, Alam SN. Breast cancer in Pakistan: awareness and early detection. J Coll Phys Pak 2007; 11-712.
6. Menhas R, Umer S. Breast Cancer among Pakistani Women. Iran J Public Health 2015; 44(4): 586–587.
7. Lester SC. The breast. In: Kumar V, Cotran R, Robbins SL, editors. Robbins Basic Pathology. 9th ed. Philadelphia: Sanders;2015.p.1043-1054.
8. Okoth C, Galukande M, Jombwe J, Wamala D. Benign proliferative breast diseases among female patients at a sub Saharan Africa tertiary hospital: a cross sectional study. BMC Surg 2013; 13:9.
9. Uwaezuoke SC, Udoye EP. Benign breast lesions in Bayelsa State, Niger Delta Nigeria: a 5 year multicentre histopathological audit. Pan Afr Med J 2014;19: 394.
10. Malik IA. Clinco-Pathological features of breast carcinoma in Pakistan. JPMA 2002;52:100.
11. Mamoon N, Sharif MA, Mushtaq S, Khadim MT, Jamal S. Breast carcinoma over three decades in northern Pakistan- Are we getting anywhere? JPMA 2002; 59: 835.
12. Chalya PL, Manyama M, Rambau PF, Kapesa A, Nballaba SE, Masalu N, et al. Clinico pathological pattern of benign breast diseases among female patients at a tertiary health institution in Tansania. Tanzania J Health Research 2016; 18:1.
13. Ochicha O, Odino ST. Muhammad AZ, Amin ST. Benign Breast lesions in Kano. Nig J Surg Res 2002;4(1-2):1-5.
14. Khan ZM, Jamal S, Khaliq T, Shabbir S. The frequency of various causes of breast lumps presenting to surgical OPD in a Tertiary care Hospital in females. Ann Pak Inst Med Sci 2013;9 (1):26-29.
15. Gabriel EN. Breast Lumps: A 21-Year Single-Center Clinical and Histological Analysis. Niger J Surg 2014;20(1):38–41.
16. Amr SS, Sa'di ARM, Ilahi F, Sheikh SS. The Spectrum of breast diseases in Saudi Arab Females: a 26 year pathological survey at Dhahran Health center. Ann Saudi Med 1995;15(2):125-132.
17. Pervin MS, Al Amin MM, Ahmed A, Rehman M. Clinicopathological Study of Carcinoma Breast in Females Presenting with Breast Lumps. Asian J Cancer 2014; 13(1): 13-20.

18. Isaac U, Memon F, Zohra N. Frequency of breast diseases at a tertiary hospital of Karachi. JLUMHS 2005.
19. Olu-Eddo AN, and Ugiagbe EE. Benign breast lesions in an African population: A 25-year histopathological review of 1864 cases. Niger Med J 2011; 52(4): 211–216.
20. Albasri AM, Profile of benign breast diseases in western Saudi Arabia. An 8- year histopathological review of 603 cases. Saudi Med J 2014: 35(12); 1517-1520.
21. Amin TT, Al-Mulhim ARS, Chopra R. histopathological Patterns of Female Breast Lesions at a Secondary Level Care Centre in Saudi Arabia. Asian Pacific J Cancer Prev 2009; 10: 1011-1016.
22. Jamal AA. Pattern of breast disease in a teaching hospital in Jeddah, Saudi Arabia. Saudi Medical Ournal 2001; 22(2):110-113.
23. Albasri A, Hussainy AS, Sundkiji I, Alhujaily A. Histopathological features of breast cancer in Al-Madinah region of Saudi Arabia. Saudi Med J 2014; 35 (12): 1489-1493.
24. Aslam H M, Saleem S, Shaaikh HA, Shahid N, Mughal A, Umah R. Clininco-pathological profile of patients with breast diseases. Diagnostic Pathol 2013; 8:13.

Original Article

Early Refractive and Clinical Outcomes of High Myopic Photorefractive Keratectomy as an Alternative to LASIK Surgery in Eyes with High Preoperative Percentage of Tissue Altered

Abdul Ghafoor[1], Mohammad Asad Faraz[2] and Muhammad Jahan Zaib Khan[2]

ABSTRACT

Objective: To assess the effectiveness of high myopic photorefractive keratectomy as an alternative to LASIK surgery in terms of early refractive and clinical outcomes in eyes with high preoperative percentage of tissue altered.
Study Design: Retrospective / observational study
Place and Duration of Study: This study was conducted at the Ophthalmology Department, Bahawal Victoria Hospital Bahawalpur from January 2018 to December 2018.
Materials and Methods: In this study 130 patients were included after getting informed consent from each patient. Medical records of 130 patients were studied in this study.PTA for LASIK surgery, PTA for photorefractive surgery, mean gain in visual acuity, was the outcome variables studied in this research.Postoperative follow up was planned at day 1, week 1 and week 6, month 3 and month 12 after the procedure, at each follow up CDVA, UDVA, slit lamp biomicroscopy and manifest refraction were evaluated at each follow up visit. On the other hand corneal topography was performed at follow up visit at six weeks, three and twelve months.The data was recorded and measured by the researcher himself. Data included age, sex, simulated average PTA , spherical equivalent, average keratometry, pachymetry, preoperative CDVA, actual average PTA with PRK (%), final SE within ±0.50D, final SE within ±1.00D, postoperative CDVA (Snellen decimal), postoperative UDVA (Snellen decimal), safety index, efficacy index, stromal haze.
Results: Actual average PTA was 30.88±2.29% in group-A, 32.25±1.86% in group-B, and 31.08±2.23% in whole cohort (p<0.001). Final SE, which was within ±0.50D of the expected SE, was achieved in 78 (80%) of group-A, 50 (75%) in group-B and 103 (79%) on the whole cohort (p=0.707). Final SE, which was within ±1.00D of the expected SE, was achieved in 90 (92%) of group-A, 58 (87%) in group-B and 118 (91%) on the whole cohort (p=0.511). Mean postoperative CDVA was 0.88 in group-A, 0.89 in group-B, and 0.88 in the whole cohort (p=0.001). Mean postoperative UDVA was 0.83 in group-A, 0.82 in group-B, and 0.83 in the whole cohort (p=0.689). Mean safety index was 1.047 in group-A, 1.046 in group-B, and 1.047 in the whole cohort (p=0.121). Mean efficacy index was 1.017, 1.018 and 1.017 in group-A, group-B and whole cohort, respectively (p=0.352). Stromal haze was observed in 10 (10%) of group-A eyes, 6 (9%) of group-B eyes and 11 (8.5%) of the total 130 eyes (p=0.901). Table-2
Conclusion: It can be concluded that photorefractive keratectomy is effective and safe in the treatment high myopia eyes thus it can be applied as safe alternative to LASIK in cases where there is risk of development of high ectasia due to high PTA score.

Key Words: Myopic Photorefractive, Keratectomy, LASIK, Ectasia

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INTRODUCTION

Excimer LASER refractive surgery leads to an increased rate of complication in patients suffering from high myopia [1]. There is a raised iatrogenic ectasia risk if LASIK (Laser assisted in situ keratomileusis) is used in high myopic patients[2]. Lately, percent tissue altered (PTA) value was declared as a strong indicator for post-LASIK ectasia risk, and PTA values>40% specifying high eyes ectasia risk using normal preoperative topography[3]. Preoperative topography if abnormal is itself a risking element, regardless of the PTA value. PKR is granted as more protective than LASIK in respect of iatrogenic ectasia risk[4]. Yet, there are many drawbacks of PKR in high myopia; it has

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been linked with reduced effectiveness, lesser predictability, and an increased stromal haze rate[5]. In high myopic photorefractive keratectomy, higher stromal haze rates can be attributed to the deep stromal ablation carried out[6]. Besides, a shorter diameter of ablation is a conventional hazard for stromal haze.

Faster rate of ablation, more advanced laser supply techniques and algorithms, best profiles of ablation, and exact eye tracking are being given by laser platforms of present generation[7]. Besides, the everyday appliance of mitomycin-C (MMC) has considerably reduced stromal haze forming rates[8]. However, refractive surgeons face a persisting photorefractive keratectomy challenge in patients suffering from high myopia. Photorefractive keratectomy in high myopic patients has been formerly examined by many large series (>100 eyes), using an older generation LASER platform[9]. As it came out to be secure and efficient, the result of photorefractive keratectomy was not contrasted to the photorefractive keratectomy result in low to moderate myopia. Not many studies have been performed on this topic in local settings that begs us to study the comparison between the two techniques of treating the high myopia. In this research, we assessed the effectiveness and security of the existing photorefractive keratectomy, using Wave Light® EX500 excimer LASER, in a big string of patients suffering from high myopia. Contrarily these patients would have a PTA>40% and, if operated using LASIK would be dealt with high risk for ectasia.

MATERIALS AND METHODS

It is a retrospective study. The study was carried out in Ophthalmology Department, Bahawal Victoria Hospital Bahawalpur. in the duration from 1st January 2018 to 31st December 2018. Study was conducted after taking the ethical approval. The reference study conducted by Nir Sorkin et al[22] was used to calculate the sample size. Consecutive (non probability) type of sampling technique was used. In this study 130 patients were included after getting informed consent from each patient. Medical records of 130 patients were studied in this study. Inclusion criteria were set as follows; eyes which had normal preoperative topography and underwent photorefractive keratectomy for > -6D the high myopia with at least three months of follow up, eyes which were defined as symmetric and regular patterns for instance, round, symmetric bowtie patterns or ovals or if eyes were mildly asymmetric based on if patients had expected PTA of more than 40 percent preoperatively and Placido disk analysis. Patient unwilling to participate, patients with systemic diseases such as diabetes, ischemic heart diseases and patients with low to mild myopia were excluded from the study. Every patient was examined preoperatively that included uncorrected distance visual acuity (UDVA) measurements and CDVA (corrected distance visual acuity) measurements, slit lamp biomicroscopy, cycloplegic and manifest refraction, pupillometry, applanation tonometry, pachymetry, corneal topography and dilated fundoscopy. Patients wearing soft contact lenses or rigid gaspermeable contact lenses had removed those 1 to 2 weeks before the preoperative examination. Out of the 130 patients whose records were studied, 98 underwent photorefractive keratectomy while 67 underwent LASIK surgery.

PTA for LASIK surgery, PTA for photorefractive surgery, mean gain in visual acuity, was the outcome variables studied in this research.All the photorefractive keratectomy procedures were performed by an ophthalmic surgeon with the experience of at least 5 years. Postoperatively 0.5% moxifloxacin 4 times daily for 1 week, 0.1% dexamethasone 4 times daily for 4 weeks and artificial tears were prescribed for several months. Postoperative follow up was planned at day 1, week 1 and week 6, month 3 and month 12 after the procedure, at each follow up CDVA, UDVA, slit lamp biomicroscopy and manifest refraction were evaluated at each follow up visit. On the other hand corneal topography was performed at follow up visit at six weeks, three and twelve months.

A designed performa was used to record the data regarding every patient. The data was measured and recorded by the researcher himself. Data included age, sex, simulated average PTA , spherical equivalent, average keratometry, pachymetry, preoperative CDVA, actual average PTA with PRK (%), final SE within ±0.50D, final SE within ±1.00D, postoperative CDVA (Snellen decimal), postoperative UDVA (Snellen decimal), safety index, efficacy index, stromal haze. Statistical analysis was done by putting the data in the computer software SPSS version 16. Qualitative variables were analyzed by taking their frequency and percentage while for quantitative variables mean and standard deviation was calculated. A one way ANOVA test was applied in case of multiple independent comparisons. P value <0.05 was taken as significant.

RESULTS

Total 130 eyes were examined. Of which 98 (75.4%) would have had PTA more than 40% with 110 micron LASIK and were designated as group-A while 67 (51.5%) would have had PTA more than 40% with 100 micron LASIK and were designated as group-B. Simulated average PTA was 43.11±1.71% with 110 micron LASIK while 42.07±1.27% with 100 micron LASIK (p<0.001). Mean age was 29.66±8.69 years of group-A while 31.22±8.36 years of group-B (p=0.252). Spherical equivalent was 8.12±3.09 D in group-A and 8.47±2.88 D in group-B (p=0.458). Average keratometry was 44.86±2.04 D in Group-A and 44.76±2.13 D in group-B (p=0.771). Pachymetry was 516.48±32.15µm in group-A and 513.72±31.46µm in group-B (0.585). Mean preoperative CDVA (Snellen

equivalent) was 0.85 in group-A while 0.83 in group-B (p<0.001). Table-I

Table No.1:

Factor	Group-A 110 micron LASIK (n=98)	Group-B 100 micron LASIK (n=67)	p-value
Simulated average PTA (%)	43.11±1.71	42.07±1.27	<0.001
Age, years	29.66±8.69	31.22±8.36	0.252
Spherical equivalent (D)	8.12±3.09	8.47±2.88	0.458
Average keratometry (D)	44.86±2.04	44.76±2.13	0.771
Pachymetry (µm)	516.48±32.15	513.72±31.46	0.585
Preoperative CDVA (Snellen equivalent)	0.85	0.83	<0.001

Table No.2:

Variable	PTA >40% with 110 micron LASIK (n=98)	PTA >40% with 100 micron LASIK (n=67)	Entire PRK cohort (n=130)	p-value
Actual average PTA with PRK (%), mean ± S.D	30.88± 2.29	32.25± 1.86	31.08± 2.23	<0.001
Final SE within ±0.50D, n (%)	78 (80%)	50 (75%)	103 (79%)	0.707
Final SE within ±1.00D, n (%)	90 (92%)	58 (87%)	118 (91%)	0.511
Postoperative CDVA (Snellen decimal)	0.88	0.89	0.88	0.001
Postoperative UCDVA (Snellen decimal)	0.83	0.82	0.83	0.689
Safety index	1.047	1.046	1.047	0.121
Efficacy index	1.017	1.018	1.017	0.352
Stromal haze, n (%)	10 (10%)	6 (9%)	11 (8.5%)	0.901

Actual average PTA was 30.88±2.29% in group-A, 32.25±1.86% in group-B, and 31.08±2.23% in whole cohort (p<0.001). Final SE, which was within ±0.50D of the expected SE, was achieved in 78 (80%) of group-A, 50 (75%) in group-B and 103 (79%) on the whole cohort (p=0.707). Final SE, which was within ±1.00D of the expected SE, was achieved in 90 (92%) of group-A, 58 (87%) in group-B and 118 (91%) on the whole cohort (p=0.511). Mean postoperative CDVA was 0.88 in group-A, 0.89 in group-B, and 0.88 in the whole cohort (p=0.001). Mean postoperative UDVA was 0.83 in group-A, 0.82 in group-B, and 0.83 in the whole cohort (p=0.689). Mean safety index was 1.047 in group-A, 1.046 in group-B, and 1.047 in the whole cohort (p=0.121). Mean efficacy index was 1.017, 1.018 and 1.017 in group-A, group-B and whole cohort, respectively (p=0.352). Stromal haze was observed in 10 (10%) of group-A eyes, 6 (9%) of group-B eyes and 11 (8.5%) of the total 130 eyes (p=0.901). Table-I

DISCUSSION

Comparison between conventional photorefractive keratectomy with Excimer laser platform and LASIK was performed in this study in treatment of eyes with high myopia and PTA greater than 40%. When results of this study were compared to the past it was seen that efficacy of photorefractive keratectomy is almost similar in all the studies[10-12]. Results of our study have shown that photorefractive keratectomy has a higher efficacy when compared to the results of the previous literature. This can be attributed the routine use of mitomycin-C (MMC) andto the innovation in the Excimer laser.In a recent study where they studied 77 eyes in which either PKR or LASIK were performed and results showed that 84.45 eyes had UCVA of 20/20 postoperatively or better [13]. This is in contrast to our study.

The results of this study show that PKR has predictability which is comparable to current high myopic LASIK as shown by the data review. UCVA data postoperatively was more improved in case of LASIK as compared to the PKR[14-16]. Even though efficacy of LASIK in curing the high myopia might be higher than PKR but the risk of development of ectasia is very high as there is deeper stromal alteration. PTA value of greater than 40% percent is considered as the risk factor to the development of ectasia. In this study no patient undergone PKR had a PTA value greater than 40%.

In previous studies PKR has been reportedly associated with the development of stromal haze but in this study stromal haze was reported in only 4.8% of the eyes and it was clinically insignificant. As compared to the previous literature this ratio is very low[17-19 and 10-12]. This can also be attributed to the use of MMC. Recent studies in which MMC was used with PKR, the ratio of stromal haze were reported in 3 to 12.12% of the cases [13, 20-22].

CONCLUSION

It can be concluded that photorefractive keratectomy is effective and safe in the treatment high myopia eyes

thus it can be applied as safe alternative to LASIK in cases where there is risk of development of high ectasia due to high PTA score.

Author's Contribution:

Concept & Design of Study:	Abdul Ghafoor
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. O'brart DP. Excimer laser surface ablation: a review of recent literature. Clin Experim Optometr 2014;97(1):12-7.
2. Tatar MG, Aylin Kantarci F, Yildirim A, Uslu H, Colak HN, Goker H, et al. Risk factors in post-LASIK corneal ectasia. J Ophthalmol 2014;2014.
3. Santhiago MR, Smadja D, Wilson SE, Krueger RR, Monteiro ML, Randleman JB. Role of percent tissue altered on ectasia after LASIK in eyes with suspicious topography. J Refract Surg 2015; 31(4):258-65.
4. Giri P, Azar DT. Risk profiles of ectasia after keratorefractive surgery. Current Opinion Ophthalmol 2017;28(4):337-42.
5. Shalchi Z, O'Brart DP, McDonald RJ, Patel P, Archer TJ, Marshall J. Eighteen-year follow-up of excimer laser photorefractive keratectomy. J Catar Refract Surg 2015;41(1):23-32.
6. Margo JA, Munir WM. Corneal haze following refractive surgery: a review of pathophysiology, incidence, prevention, and treatment. Int Ophthalmol Clin 2016;56(2):111-25.
7. Niparugs M, Tananuvat N, Chaidaroon W, Tangmonkongvoragul C, Ausayakhun S. Outcomes of LASIK for myopia or myopic astigmatism correction with the FS200 femtosecond laser and EX500 excimer laser platform. Open Ophthalmol J 2018;12:63.
8. Majmudar PA, Schallhorn SC, Cason JB, Donaldson KE, Kymionis GD, Shtein RM, et al. Mitomycin-C in corneal surface excimer laser ablation techniques: a report by the American Academy of Ophthalmology. Ophthalmol 2015; 122(6):1085-95
9. O'Brart DP, Shalchi Z, McDonald RJ, Patel P, Archer TJ, Marshall J. Twenty-year follow-up of a randomized prospective clinical trial of excimer laser photorefractive keratectomy. Am J Ophthalmol 2014;158(4):651-63.
10. Alió JL, Muftuoglu O, Ortiz D, Artola A, Pérez-Santonja JJ, De Luna GC, Abu-Mustafa SK, Garcia MJ. Ten-year follow-up of photorefractive keratectomy for myopia of more than− 6 diopters. Am J Ophthalmol 2008;145(1):37-45.
11. Cennamo G, Rosa N, Breve MA, di Grazia M. Technical improvements in photorefractive keratectomy for correction of high myopia. J Refract Surg 2003;19(4):438-42.
12. Steinert RF, Hersh PS. Spherical and aspherical photorefractive keratectomy and laser in-situ keratomileusis for moderate to high myopia: two prospective, randomized clinical trials. Summit technology PRK-LASIK study group. Transact Am Ophthalmolog Soci 1998;96:197.
13. Sia RK, Ryan DS, Edwards JD, Stutzman RD, Bower KS. The US Army Surface Ablation Study: comparison of PRK, MMC-PRK, and LASEK in moderate to high myopia. J Refract Surg 2014;30(4):256-64.
14. Li H, Sun T, Wang M, Zhao J. Safety and effectiveness of thin-flap LASIK using a femtosecond laser and microkeratome in the correction of high myopia in Chinese patients. J Refract Surg 2010;26(2):99-106.
15. Schallhorn SC, Venter JA, Hannan SJ, Hettinger KA. Outcomes of wave front-guided laser in situ keratomileusis using a new-generation Hartmann-Shack aberrometer in patients with high myopia. J Catar Refract Surg 2015;41(9):1810-9.
16. Kanellopoulos AJ, Asimellis G. Refractive and keratometric stability in high myopic LASIK with high-frequency femtosecond and excimer lasers. J Refract Surg 2013 ;29(12):832-7.
17. Vestergaard AH, Hjortdal JØ, Ivarsen A, Work K, Grauslund J, Sjølie AK. Long-term outcomes of photorefractive keratectomy for low to high myopia: 13 to 19 years of follow-up. J Refract Surg 2013;29(5):312-9.
18. Shojaei A, Mohammad-Rabei H, Eslani M, Elahi B, Noorizadeh F. Long-term evaluation of complications and results of photorefractive keratectomy in myopia: an 8-year follow-up. Cornea 2009;28(3):304-10.
19. Pietilä J, Mäkinen P, Pajari T, Suominen S, Keski-Nisula J, Sipilä K, et al. Eight-year follow-up of photorefractive keratectomy for myopia. J Refract Surg 2004;20(2):110-5.
20. Gambato C, Ghirlando A, Moretto E, Busato F, Midena E. Mitomycin C modulation of corneal wound healing after photorefractive keratectomy in highly myopic eyes. Ophthalmol 2005;112(2): 208-18.
21. Bedei A, Marabotti A, Giannecchini I, Ferretti C, Montagnani M, Martinucci C, et al. Photorefractive keratectomy in high myopic defects with or without intraoperative mitomycin C: 1-year results. EuroJ Ophthalmol 2006;16(2):229-34.
22. Sorkin N, Kaiserman I, Domniz Y, Sela T, Munzer G, Varssano D. Risk assessment for corneal ectasia following photorefractive keratectomy. J Ophthalmol 2017.

Original Article

Effect of Pre-Emptive Gabapentin on Anaesthetic and Analgesic Requirements in Patients Undergoing Rhinoplasty

Muhammad Usman Mohsin[1], Malik Jamil Ahmed[2], Muhammad Shahid[3] and Aamir Furqan[4]

ABSTRACT

Objective: to investigate the role of preemptive oral gabapentin (1200mg) to reduce the anesthetic requirement and pos operative analgesia.

Study Design: Randomized Control Trial study.

Place and Duration of Study: This study was conducted at the Anaesthesia, Intensive Care and Pain Control Department of Nishtar Hospital Multan, Bakhtawar Amin Hospital Multan, CPEIC Hospital Multan and DHQ teaching Hospital Sahiwal from March 2017 to March 2018.

Materials and Methods: Hospital ethical board approves the study protocol and gives permission for study. Written consent was obtained from all patients. Patients were divided into two groups (group I and II) by lottery method. Main variables of study were duration of anesthesia, post operative pain, use of ondesteron, nausea vomiting, and Tramadol and diclofenac requirement. SPSS version 24 was used for data analysis.

Results: mean total intra-operative Nalbuphine, time to first analgesic request, total Tramadol consumption in 24 hours and total diclofenac consumption in 24 hours of Group I was 0.98±0.15 mg, 7.57±1.72hours, 81.82±2.41 mg and 52.35±3.16 mg, respectively. While, the mean total intra-operative Nalbuphine, time to first analgesic request, total Tramadol consumption in 24 hours and total diclofenac consumption in 24 hours of Group II was 2.11±0.38 mg, 2.86±0.51 hours, 139.53±5.15 mg and 90.01±2.53 mg, respectively.

Conclusion: Oral gabapentin 1.2g reduce the postoperative analgesic requirement and postoperative pain score to a significant level. Postoperative complications like nausea and vomiting are also low with use of gabapentin.

Key Words: Gabapentin, Analgesia, Anesthesia, Rhinoplasty, Tramadol, Diclofenac.

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INTRODUCTION

Head and neck surgeries are the major surgical procedures that can be made clear and satisfactory for the surgeon by providing hypotensive anaesthesia in intra operative time, it also reduces the duration of surgery[1]. Many pharmacological agents are available that provides hypotensive anaesthesia during surgery by administrating alone or in combination with other pharmacological agents[2].

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Among them Nalbuphine and sub fentanil are common that provide hypotensive effect when given with high dose of banzodiazepam[3].

Pain management in acute post operative phase is a challenge for clinicians, if it is inadequate may affect patient's quality of life and increase the number of morbidity and mortality[4]. Opioids have many adverse effects like bradycardia, respiratory distress, nausea, vomiting and hypotension which requires multimodal techniques of analgesia, to overcome the post operative opoids consumption[5]. All types of adverse effects induced by opioids analgesic may lead the patients to a serious complication that can ends at death[6].

Another drug is gabapentin is an anticonvulsant agent which also provides the antinociceptive and antihyperalgesic properties[7]. Chemical action of gabapentin modulates the central and peripheral response to painful stimulus and acts at dorsal rout ganglia and spinal cord[8], it also prevents the C fibers response to painful stimulus by changing the calcium channel gate and blocking the N methyl D aspirate receptors[9]. In previous literature it was also documented that gabapentin blocks the alpha amino methyl prop ionic acid[10].

In our study we investigate the analgesic effect of gabapentin and its effects on anaesthetic and rescue

analgesia requirement by augmenting the hypotension in intra operative time during rhinoplasty.

MATERIALS AND METHODS

This study is prospective randomized trial conducted in the anaesthesia, intensive care and pain control department of Nishtar Hospital Multan, Bakhtawar Amin Hospital Multan, CPEIC Hospital Multan and DHQ teaching Hospital Sahiwal completed in one year duration from March 2017 to March 2018. Hospital ethical board approves the study protocol and gives permission for study. Written consent was obtained from all patients. Ninety patients of age more than 18 years, both genders, ASA physical status I and II and who were selected for rhinoplasty were included in the study. Patients with Coronary heart disease, poor coagulation profile, hepatic or renal functions, allergy to any study drugs, and hypertension and who were not given consent were excluded from the study.

Patients were divided into two groups (group I and II) by lottery method. Patients in group I were given oral gabapentin (1.2g) and patients in group II were given placebo capsules 2 hours before surgery. Patients were fasted before 8 hours of surgery baseline monitoring of mean arterial pressure and heart rate was recorded. Patients were given midazolam 0.05mg per kg through intravenous rout before half hour of surgery, arterial line was inserted into the radial artery for standard monitoring of mean arterial pressure. Six leads electrocardiogram, pulse oximetery, invasive blood pressure monitoring and neuromuscular monitoring was attached before induction of anaesthesia.

Patients were included general anaesthesia with atracurium 0.15 mg per kg, 2 to 3 mg per kg propofol and Nalbuphine 1microgram per kg intravenously. Endotracheal tube was inserted and patients were ventilated to maintain co2 between 31 to 35 mmhg. Sevoflurane 1.5% and nitrous oxide 70% was used for maintenance of general anesthesia. During continuous monitoring of MAP Nalbuphine infusion was started when MAP was more than 60mmhg. Total dose of Nalbuphine was calculated and recorded at the end of surgery. Neostigmine 0.04mg per kg, Tramadol 0.5 mg per kg and atropine 0.01 mg per kg was given and patient was extubated after complete consciousness and achievement of normal breathing.

SPSS version was used for analysis of recorded data. Main outcome variables were effect of oral gabapentin on anaesthetic requirement and total intraoperative Nalbuphine needed for anaesthetic hypotension. Mean and standard deviation were calculated for numerical variable like mean arterial pressure and postoperative analgesic requirement. Frequency percentages were calculated for qualitative data. Chi-square test and student T test was applied to see association between variables and P value less than or equal to 0.05 was labeled as significant.

RESULTS

Ninety patients were included in this study, both genders. The patients were divided into two Groups as n=45 in Group I and n=45 in Group II. The mean age, height and weight of Group I was30.44±3.21 years, 64.37±2.66 cm and 162.03±2.01 kg, respectively. There were n=32 (71.1%) males and n=13 (28.9%) females. ASA grades was noted I as n=36 (80%) and II as n=9 (20%). The mean age, height and weight of Group II was 29.65±3.33 years, 65.31±2.62 cm and 162.20±2.02 kg, respectively. There were n=33 (73.3%) males and n=12 (26.7%) females. ASA grades was noted I as n=33 (73.3%) and II as n=12 (26.7%).The difference was statistically insignificant. (Table. I).

The mean duration of surgery, duration of anesthesia, pre-operative HR, pre-operative MAP, estimated intra-operative blood loss and time to intended MAP of Group I was 81.64±3.01 minutes, 91.53±4.28 minutes, 81.48±3.27 b/m, 75.08±2.3 mmHg, 85.17±2.31 ml and61.64±1.88 (s), respectively. While, the mean duration of surgery, duration of anesthesia, pre-operative HR, pre-operative MAP, estimated intra-operative blood loss and time to intended MAP of Group II was 81.66±2.77 minutes, 91.48±4.18 minutes, 82.57±2.98 b/m, 74.91±2.15 mmHg, 108.95±3.07 ml and75.77±3.84 (s), respectively. The difference was statistically significant for estimated intra-operative blood loss (p=0.000) and time to intended MAP (p=0.000). (Table. 2).

Table No. I: Demographic Data

Variables	Group I n=45	Group II n=45	P-value
Age (years)	30.44±3.21	29.65±3.33	0.061
Height (cm)	162.03±2.01	162.20±2.02	0.097
Weight (kg)	64.37±2.66	65.31±2.62	0.677
Gender			
Male	n=32 (71.1%)	n=33 (73.3%)	0.814
Female	n=13 (28.9%)	n=12 (26.7%)	
ASA Grades			
I	n=36 (80%)	n=33 (73.3%)	0.455
II	n=9 (20%)	n=12 (26.7%)	

The mean total intra-operative Nalbuphine, time to first analgesic request, total Tramadol consumption in 24 hours and total diclofenac consumption in 24 hours of Group I was 0.98±0.15 mg, 7.57±1.72hours, 81.82±2.41 mg and 52.35±3.16 mg, respectively. While, the mean total intra-operative Nalbuphine, time to first analgesic request, total Tramadol consumption in 24 hours and total diclofenac consumption in 24 hours of Group II was 2.11±0.38 mg, 2.86±0.51 hours, 139.53±5.15 mg and 90.01±2.53 mg, respectively. The difference was statistically significant. (Table. 3).

Table No. 2: Pain assessment parameters.

Variables	Group I n=45	Group II n=45	P-value
Duration of surgery (minutes)	81.64±3.01	81.66±2.77	0.971
Duration of anaesthesia (minuntes)	91.53±4.28	91.48±4.18	0.960
Pre-operative HR (b/m)	81.48±3.27	82.57±2.98	0.103
Pre-operative MAP (mmHg)	75.08±2.3	74.91±2.15	0.688
Estimated intra-operative blood loss (ml)	85.17±2.31	108.95±3.07	0.000
Time to intended MAP (s)	61.64±1.88	75.77±3.84	0.000

Table No. 3: Rescue analgesic

Variables	Group I n=45	Group II n=45	P-value
Total intra-operative Nalbuphine (mg)	0.98±0.15	2.11±0.38	0.000
Time to first analgesic request (hours)	7.57±1.72	2.86±0.51	0.000
Total tramadol consumption in 24 hours (mg)	81.82±2.41	139.53±5.15	0.000
Total diclofenac consumption in 24 hours (mg)	52.35±3.16	90.01±2.53	0.000

Table No. 4: Complications

Variables	Group I n=45	Group II n=45	P-value
Nausea	n=1 (2.2%)	n=3 (6.7%)	0.306
Vomiting	n=8 (17.8%)	n=10 (22.2%)	0.598
Use of ondansetron	n=6 (13.3%)	n=8 (17.8%)	0.561

Nausea, vomiting and use of ondesteron of patients of Group I was observed as n=1 (2.2%), n=8 (17.8%) and n=6 (13.3%), respectively. While, nausea, vomiting and use of ondesteron of patients of Group II was observed as n=3 (6.7%), n=10 (22.2%) and n=8 (17.8%), respectively. The difference was statistically insignificant. (Table. 4).

DISCUSSION

Gogna RL et al[11] conducted a study on role of gabapentin for postoperative analgesia and anesthesia in patients undergoing surgeries under spinal anesthesia and reported that oral dose of gabapentin before two hours of surgeries enhance the duration of post operative analgesia and pain control is also better as compared to placebo group. Difference between both groups was statistically significant in pain control and analgesia requirement. This study is comparable with our study.

In another study conducted by Bhatia U et al[12] on effect of gabapentin as preemptive analgesia in abdominal hysterectomy patients and reported that use of 600mg gabapentin preemptive prolongs the duration of analgesia and reduce the postoperative pain. He also reported that gabapentin shortens the onset of sensory and motor blockade. He use this experiment in comparison with placebo drug, results of this study were also identical to our setting and conclusion.

Premkumar RJ et al[13] also conducted a study on preemptive analgesic effect of gabapentin in patients of abdominal hysterectomy. Visual analogue score scale VAS scale was used in his study to assess the pain intensity in postoperative period. Required group was compared with placebo and reported that use of 300 mg gabapentin orally reduce the postoperative pain and reduce the Tramadol consumption. Value of his study was statistically significant. In this point of view gabapentin is effective and superior to placebo.

In a study conducted by Doha NM et al[14] and reported that use of 1200 mg gabapentin two hours before surgery reduce the Isoflurane and fentanyl consumption during surgical procedure, reduce the postoperative pain and rescue analgesia requirement. Complications of surgery like postoperative nausea and vomiting are also less with use of gabapentin but dizziness is much higher after use of gabapentin. We can compare this study with our study in all aspects.

Here is another study conducted by Salama ER et al[15] and reported that preoperative administration of gabapentin reduces the sevoflurane and fentanyl consumption along with post operative analgesic requirement. Duration of analgesia was also increased to a significant level with reduction in dose of diclofenac and Tramadol. This study also goes in favor of our study. Another study was conducted by Parikh HG et al[16] on comparison of placebo and gabapentin in reduction of postoperative analgesic requirement and duration of analgesia prolongation and reported that rescue analgesia with diclofenac can be reduced with use of gabapentin oral preoperatively and postoperative analgesia duration can also be enhanced.

Turan et al[17] used 1200mg gabapentin oral in his study before one hour of surgery and reported significant decrease in analgesic requirement, post operative pain score can also be reduced by administration of gabapentin in abdominal hysterectomy patients. Another study was conducted by Türe H et al[18] and reported that use of preoperative gabapentin reduce intraoperative fentanyl and propofol consumption as compared to placebo in patients of throat and nose surgery. One common side effect of gabapentin use was dizziness induced by gabapentin that can be covered ambulatory use.

In a study Pandey CK et al[19] evaluate the role of gabapentin in lumber surgery for reduction in postoperative pain and reported that reported that preoperative use of gabapentin reduced the pain score to a significant level and also reduced the post operative pain and analgesia requirement. Nausea and vomiting was also minimum in this group as compared to placebo. Mahoori A et al[20] conducted a study in 2014 and used gabapentin in patients undergoing herniorrhaphy and reported minimum side effects with mark able reduction in post operative analgesia and pain score. These studies are comparable with our studies in all aspects..

CONCLUSION

Result of our study reveals that oral gabapentin 1.2g reduce the postoperative analgesic requirement and postoperative pain score to a significant level. Postoperative complications like nausea and vomiting are also low with use of gabapentin**.**

Author's Contribution:

Concept & Design of Study:	Muhammad Usman Mohsin
Drafting:	Malik Jamil Ahmed
Data Analysis:	Muhammad Shahid, Aamir Furqan
Revisiting Critically:	Muhammad Usman Mohsin, Malik Jamil Ahmed
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Mireskandari SM, Karvandian K, Jafarzadeh A, Makarem J, Samadi S, Hajipour A, et al. The effectiveness of intravenous magnesium sulfate for deliberate hypotension in rhinoplasty. Arch Anesth Crit Care 2015;1:112-5.
2. Hadavi MR, Zarei Y, Tarogh S. Comparison of effects of labetalol and nitroglycerine on intraoperative blood loss and surgical field quality in rhinoplasty surgery. World J Plast Surg 2015;4:60-5.
3. Arumugam S, Lau CS, Chamberlain RS. Use of preoperative gabapentin significantly reduces postoperative opioid consumption: A meta-analysis. J Pain Res 2016;9:631-40.
4. Joshi SS, Jagadeesh AM. Efficacy of perioperative pregabalin in acute and chronic post-operative pain after off-pump coronary artery bypass surgery: A randomized, double-blind placebo controlled trial. Ann Card Anaesth 2013;16:180-5.
5. Chang CY, Challa CK, Shah J, Eloy JD. Gabapentin in acute postoperative pain management. Biomed Res Int 2014;2014:631756.
6. Khan MA, Siddiqi KJ, Aqeel M. Effect of gabapentin on opioid requirements in patients undergoing total abdominal hysterectomy. Anaesth Pain Intensive Care 2013;17:131-5.
7. Khademi S, Ghaffarpasand F, Heiran HR, Asefi A. Effects of preoperative gabapentin on postoperative nausea and vomiting after open cholecystectomy: A prospective randomized double-blind placebo-controlled study. Med Princ Pract 2010;19:57-60.
8. Alayed N, Alghanaim N, Tan X, Tulandi T. Preemptive use of gabapentin in abdominal hysterectomy: A systematic review and meta-analysis. Obstet Gynecol 2014;123:1221-9.
9. Bharti N, Bala I, Narayan V, Singh G. Effect of gabapentin pretreatment on propofol consumption, hemodynamic variables, and postoperative pain relief in breast cancer surgery. Acta Anaesthesiol Taiwan 2013;51:10-3.
10. Montazeri K, Kashefi P, Honarmand A. Pre-emptive gabapentin significantly reduces postoperative pain and morphine demand following lower extremity orthopaedic surgery. Singapore Med J 2007;48:748-51.
11. Gogna RL, Dwivedi D, Tandon U, Sarin K, Bhatnagar V. Role of oral gabapentin as preemptive adjuvant with spinal anesthesia for postoperative pain in patients undergoing surgeries under spinal anesthesia. Ind J Pain 2017;31:133-7.
12. Bhatia U, Panchal M, Gupta N. To evaluate the role of Gabapentin as preemptive analgesic in patients undergoing total abdominal hysterectomy in spinal anesthesia. Eur J Gen Med 2016; 13(4):97–100.
13. Premkumar RJ, Biju ML, Wilson MP. Effect of pre-emptive analgesia with Gabapentin on post-operative pain relief after total abdominal hysterectomy. J Biomed Res 2016;7(9):638-46.
14. Doha NM, Rady A, El Azab SR. Preoperative use of gabapentin decreases the anaesthetic and analgesic requirements in patients undergoing radical mastectomy. Egypt J Anaesth 2012;26: 287-91.

15. Salama ER, Amer AF. The effect of pre-emptive gabapentin on anaesthetic and analgesic requirements in patients undergoing rhinoplasty: A prospective randomised study. Ind J Anaesth 2018;62:197-201.
16. Parikh HG, Dash SK, Upasani CB. Study of the effect of oral gabapentin used as preemptive analgesia to attenuate post-operative pain in patients undergoing abdominal surgery under general anesthesia. Saudi J Anaes 2010;4(3): 137-141.
17. Turan A, Karamanlioğlu B, Memiş D, Usar P, Pamukçu Z, Türe M. The analgesic effects of gabapentin after total abdominal hysterectomy. Anesth Analg 2004;98:1370–3.
18. Türe H, Sayin M, Karlikaya G, Bingol GA, Aykac B, Türe B. The analgesic effect of gabapentin as a prophylactic anticonvulsant drug on post-craniotomy pain: a prospective randomized study. Anesth Analg 2009;109:1379-81.
19. Pandey CK, Navkar DV, Giri PJ, Raza M, Behari S, Singh RB, Singh U, Singh PK: Evaluation of the optimal preemptive dose of gabapentin for postoperative pain relief after lumbar diskectomy. J Neurosurg Anesthesiol 2005;17(2): 65-68.
20. Mahoori A, Noroozinia H, Hasani E, Hosainzadeh S. The effect of pre-operative administration of gabapentin on post-operative pain relief after herniorrhaphy. Saudi J Anaes 2014;8(2):220-223.

Original Article

Assessment of Low Concentration and High Volume Intraperitoneal Bupivacaine in Producing Analgesia Following Laparoscopic Cholecystectomy

Shabbir Ahmed, Muhammad Fazal ur Rehman and Movahid Anwer

ABSTRACT

Objective: To assess low-concentration and high volume intraperitoneal bupivacaine in producing analgesia following laparoscopic cholecystectomy.

Study Design: A prospective randomized controlled trial.

Place and Duration of Study: This study was conducted at the Department of General Surgery at Bakhtawar Amin Hospital and Medical College, Multan from March 2018 to July 2018.

Materials and Methods: All 110 patients were distributed into two equal groups. Peritoneal cavity was irrigated with a mixture of 480ml normal saline and 20ml of 0.5% bupivacaine in group-B and with 500ml normal saline in group-S. Analgesia duration, total analgesic requirement in first 24hours and NRS score recorded at extubation, 30minutes, 1, 3, 6, 12 and 24 hour postoperatively, were compared. Data was put in SPSS v.23 and compared with independent t-test and Chi square test, as applicable. $P \leq 0.05$ was considered statistically significant.

Results: Age, weight, gender distribution, surgery duration, propofol requirement and MAC of isoflurane were not significantly different ($p>0.05$).The duration of analgesia was 17.64±3.54 hours in group-B and 0.83±0.49 hours in group-S ($p<0.001$). Total tramadol requirement within postoperative 24 hours was significantly more in group-S ($p<0.001$). The NRS score was significantly better in group-B at extubation, 30minutes, 1, 3, 6 hours ($p<0.05$) while at 12 and 24 hours, the difference was not statistically significant ($p>0.05$).

Conclusion: Bupivacaine in low concentration and high volumes is significantly effective in prolonging analgesia duration and improving NRS score after LC.

Key Words: bupivacaine, postoperative analgesia, laparoscopic cholecystectomy (LC).

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INTRODUCTION

For the treatment of benign diseases of gall bladder, laparoscopic cholecystectomy has become an ideal procedure. This procedure is associated with shorter hospital stay and reduced postoperative pain as compared to the conventional method[1-3]. However, pain is still a major complaint after LC with first 24 hours postoperatively [4, 5]. Variety of analgesics and opioids have been tried to decrease the pain following LC. The success rate of these drugs have been variable so far.

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In conventional approach, the pain is parietal in origin while in LC, the pain is of variety of origins such as incisional pain (somatic pain), shoulder pain (visceral pain due to irritation of phrenic nerve) and deep intra-abdominal pain (visceral pain)[6,7]. Pain is the chiefcause in 17-41% of the patients undergoing laparoscopic cholecystectomy for overnight stay at the hospital and the major reason for prolonged rehabilitation in these patients [8].

As the postoperative pain for laparoscopic cholecystectomy is very complex, multi modal treatment approach is suggested by the specialists. Empathy building with the patients, explanation of the procedure and its complications to the patients, making the patients feel confident and administration of NSAIDs before the procedure are the modalities included in the comprehensive treatment approach for the treatment of post laparoscopic cholecystectomy approach. Administration of peri operative opioids, infiltration of local anesthetics and irrigation of the peritoneal cavity with the local anesthetics are some other modes of action for the treatment of pain. However, provision of effective analgesia following laparoscopic cholecystectomy still remains a challenge.

For postoperative analgesia after laparoscopic cholecystectomy, instillation of various local anesthetic agents in peritoneal cavity has become popular recently. Low volume (20 cc in 100 cc normal saline) and high concentration (0.5% - 0.125%) of bupivacaine has been used in some studies but the duration of their analgesia lasted only for few hours postoperatively [9-12]. In another study, high volume (20 cc in 500 cc normal saline) and low concentration (0.02%) of bupivacaine was used for irrigating the peritoneal cavity after laparoscopic cholecystectomy and their results were promising in producing prolonged and more effective analgesia [13]. The reason behind that might be that larger volumes are able to irrigate large sub hepatic areas and can produce more effective analgesia.

Data regarding the efficacy of low concentration and high volume of bupivacaine for irrigating the peritoneal cavity after laparoscopic cholecystectomy and producing effective analgesia is not sufficient. We planned to conduct this study on a relatively larger population to get better and more precise results about the efficacy of irrigation of peritoneal cavity with large volumes of diluted bupivacaine following laparoscopic cholecystectomy in producing postoperative analgesia..

MATERIALS AND METHODS

After getting approved from the hospital ethics committee, this prospective randomized controlled trial was carried out in the Department of General Surgery at Bakhtawar Amin Hospital and Medical College, Multan, from March 2018 to July 2018. The study by Jain S et al. [13] was taken as reference and sample size was calculated. With non-probability consecutive sampling technique, we selected 110 patients of American Society of Anesthesiologists physical status I or II and age being between 18 – 60 years. All these patients were planned for elective cholecystectomy under general anesthesia. All the patients who were pregnant, diagnosed cases of acute pancreatitis or choledocholithiasis, currently using opioids, had chronic pain or allergy to local anesthetics, and required conversion of laparoscopic cholecystectomy to open cholecystectomy were not involved in our study.

All the patients were randomly assigned into two groups with equal number of patients, after taking written informed consent. Numeric pain rating scale (0 = no pain and 10 = extremely severe pain) was explained to all the patients. All the patients were kept nil per oral for minimum eight hours prior to surgery. Premedication was done 0.025 mg /kg midazolam, 2 µg /kg fentanyl and 0.1 mg /kg ondansetron and all these drugs were given intravenously. Propofol 2 mg/kg was given intravenously to induce general anesthesia. Vecuronium 0.1 mg/kg was given by intravenous route to achieve muscle relaxation and endotracheal intubation was done. Isoflurane 0.8 to 1% in a mixture of air and nitrous oxide was used to sustain anesthesia. During surgery, intra-abdominal pressure was maintained below 12mmHg. Heart rate and mean arterial pressure were logged at 5 minutes interval. During surgery, analgesia was achieved with 1.5 mg/kg intravenous diclofenac sodium and no further analgesics were administered during the procedure. Post operatively, 1.5 mg/kg intravenous diclofenac sodium was given at 8 hours and then at 16 hours. All the patient were randomly distributed into two groups. Each group consisted of 55 patients. In Group B, a mixture of 480 ml normal saline and 20 ml of 0.5% bupivacaine was used for irrigation of peritoneal cavity, while in group S, we used 500 cc of normal saline to irrigate the peritoneal cavity. The irrigation fluids were used during the dissection of gall bladder and were then aspirated after the completion of dissection. Some of the irrigation fluid was used to irrigate the surgical bed and the peritoneal cavity after the extraction of the gall bladder. For facilitation of dispersing the drugs to the sub hepatic area, patients were placed in Trendelenburg's position with right lateral tilt for a minimum of five minutes. Irrigation was performed with the help of subcostal trocar under direct laparoscopic control. After this, irrigation fluid was aspirated. All the surgical ports were closed after placing the drain in sub hepatic area. The inhalational anesthetics i.e. nitrous oxide and isoflurane were stopped and 0.04 mg/kg neostigmine along with 0.01 mg/kg glycopyrrolate was given intravenously for the reversal of neuromuscular blockade. Patients were extubated when the sufficient muscle power had returned. After awakening of the patient and observing the verbal response, patients were moved to PACU. Rescue analgesia was provided with intravenous injection mg 2 mg/kg tramadol according to the patients' requirement. The time for first rescue analgesic administration was noted and was noted as duration of analgesia. Numeric rating scale score was recorded by postoperative nursing staff at 30 minutes, 1 hour, 3 hour, 6 hour, 12 hour and 24 hour postoperatively. NRS ≥4 was the criteria for administering the analgesics.

The primary objective of the study to compare the analgesia duration between the groups. Secondary objective included the comparison of total analgesic requirement in first 24 postoperative hours and NRS score recorded at various intervals. All the data was collected on a performa by the researchers themselves. The data was put in SPSS version 23 and compared. Continuous data was compared with independent t-test and Chi square test was applied on nominal data. P ≤0.05 was considered to be significant, statistically.

RESULTS

Mean age of the patients was 42.96 ± 10.85 years and 43.61 ± 10.06 years in group B and S, respectively (p =0.750). Mean weight of the patients was 58.01 ± 8.29

kg and 54.62 ± 9.64 kg in group B and S, respectively (p =0.051). Out of 55 patients, 17 were males in group B and 26 were males in group S (p =0.079). The deration of surgery was 60.76 ± 5.29 minutes in group S and 59.45 ± 5.57 minutes in group B (p =0.209). Propofol requirement and MAC of isoflurane were 107.53 ± 2.32 mg and 0.91 ± 0.03 in group B; and 107.09 ± 1.89 mg and 0.92 ± 0.02 in group S (p-value 0.283 and 0.204), respectively. Table-I

Table No.I: Baseline and operative data.

Variable	Group B (n=55)	Group S (n=55)	P value
Age, years	42.96 ± 10.85	43.61 ± 10.06	0.750
Weight, kg	58.01 ± 8.29	54.62 ± 9.64	0.051
Gender (male / female)	17 / 38	26 / 29	0.079
Surgery duration, min	59.45 ± 5.57	60.76 ± 5.29	0.209
Propofol requirement, mg	107.53 ± 2.32	107.09 ± 1.89	0.283
MAC of isoflurane	0.91 ± 0.03	0.92 ± 0.02	0.204

Data is mentioned as mean ± standard deviation or Ratio.

Table No.2: Outcome Data

Variable	Group B (n=55)	Group S (n=55)	P value
Analgesia duration, hours	17.64 ± 3.54	0.83 ± 0.49	<0.001
Total tramadol requirement within 24 hours, mg	29.82 ± 14.33	122.38 ± 23.54	<0.001
Numeric Pain Rating Scale Score			
At extubation	0.73 ± 0.33	4.86 ± 0.71	<0.001
30 min	1.06 ± 0.49	2.39 ± 0.98	<0.001
1 hour	1.34 ± 0.41	1.67 ± 0.75	0.005
3 hour	2.12 ± 0.68	2.53 ± 1.13	0.023
6 hour	1.77 ± 0.41	2.08 ± 0.76	0.011
12 hour	2.14 ± 0.92	2.36 ± 1.08	0.254
24 hour	2.03 ± 0.71	2.10 ± 0.74	0.624

Data is mentioned as mean ± standard deviation.

The duration of analgesia was 17.64 ± 3.54 hours in group B and 0.83 ± 0.49 hours in group S (p<0.001). Total tramadol requirement in the first 24 hours was 29.82 ± 14.33 mg and 122.38 ± 23.54 mg in group B and S, respectively (p<0.001). The NRS score in group B and S was 0.73 ± 0.33 and 4.86 ± 0.71 at extubation (p<0.001); 1.06 ± 0.49 and 2.39 ± 0.98 at 30 minutes (p<0.001); 1.34 ± 0.41 and 1.67 ± 0.75 at 1 hour (p =0.005); 2.12 ± 0.68 and 2.53 ± 1.13 at 3 hours (p =0.023); 1.77 ± 0.41 and 2.08 ± 0.76 at 6 hours (p =0.011); 2.14 ± 0.92 and 2.36 ± 1.08 at 12 hours (p =0.254); and 2.03 ± 0.71 and 2.10 ± 0.74 at 24 hours (p =0.624). Table-2

DISCUSSION

We observed in our study that irrigation of peritoneal cavity with low concentration high volume bupivacaine is effective in reducing postoperative pain, decreasing postoperative opioid analgesic need and prolonging the duration of analgesia. Postoperative pain a complex and can be managed with multimodal approach in which opioids consumption is less and recovery is fast[14,15]. We gave diclofenac sodium and fentanyl to the patients in perioperative period along with irrigation of peritoneal cavity with bupivacaine in group B. Parietal pain can be treated with diclofenac sodium while bupivacaine is effective in visceral pain. Bupivacaine belongs to amide group of local anesthetics and is known for prolongation of analgesia[16]. The researchers who instilled highly concentrated low volume bupivacaine in the bed of gall bladder found it to be ineffective in producing sufficient analgesia [17-19] as compared to short acting analgesics[9-12].

Cochrane review concluded that instillation of local anesthetics into the peritoneal can is not an effective method in producing post LC analgesia [20]. This could be due to the use of small volumes of the local anesthetics which was unable to cover most of the intraperitoneal area. We used large volumes of diluted bupivacaine in our research which was effective in prolonging the time of analgesia and similar results were observed by Gupta PK et al.[21] and Jain S et al.[13]. Nunez et al.[22] observed large volumes of diluted levobupivacaine to be more effective than small volume of highly concentrated levobupivacaine in producing brachial plexus block. NRS score was found to be significantly betterin group B, in our study. Tramadol requirement in postoperative period was considerably greater in group S than in group B.

Boddy et al[23] and Gupta A et al[24] did not find any substantial difference in analgesics requirement even after irrigating the peritoneal cavity with bupivacaine. However, the volumes of bupivacaine used in various studies included in above mentioned reviews were 10 ml to 200 ml with 0.1% to 0.5% concentration in contrast to our study where we used 500 ml with low concentrations. According to some studies, shoulder pain is reduced after irrigating the peritoneal cavity with bupivacaine[25] while some did not observe any promising results[26]. We maintained intraperitoneal pressure below 12 mmHg and it is known to

significantly reduce postoperative shoulder pain following laparoscopic cholecystectomy[27]. As far as the frequency of nausea and vomiting is concerned, we found no significant difference. Preoperative administration of ondansetron can be a noteworthy cause of similar occurrence of nausea and vomiting [28]. Yari M et al[29] demonstrated in their study that there is no effect of instilling bupivacaine in peritoneal cavity on the frequency of nausea and vomiting.

CONCLUSION

Bupivacaine in low concentration and high volumes is significantly effective in prolonging the analgesia duration and improving NRS score in the patients who underwent laparoscopic cholecystectomy.

Author's Contribution:

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

REFERENCES

1. Gurusamy K, Junnarkar S, Farouk M, Davidson BR. Meta-analysis of randomized controlled trials on the safety and effectiveness of day-case laparoscopic cholecystectomy. Brit J Surg 2008;95(2):161-8.
2. Xu B, Xu B, Zheng WY, Ge HY, Wang LW, Song ZS, He B. Transvaginal cholecystectomy vs conventional laparoscopic cholecystectomy for gallbladder disease: A meta-analysis. World J Gastroenterol 2015;21(17):5393.
3. Buglass H. Open and laparoscopic cholecys-tectomy. Handbook of Clinical Anaesthesia E 2011;3:451.
4. Bisgaard T, Kehlet H, Rosenberg J. Pain and convalescence after laparoscopic cholecystectomy. Eur J Surg 2001;167(2):84-96.
5. Bisgaard T, Klarskov B, Rosenberg J, Kehlet H. Factors determining convalescence after uncomplicated laparoscopic cholecystectomy. Arch Surg 2001;136(8):917-21.
6. Bisgaard T, Klarskov B, Rosenberg J, Kehlet H. Characteristics and prediction of early pain after laparoscopic cholecystectomy. Pain 2001;90(3): 261-9.
7. Bisgaard T. Analgesic Treatment after Laparoscopic Cholecystectomy A Critical Assessment of the Evidence. Anesthesiol 2006;104(4):835-46.
8. Louizos AA, Hadzilia SJ, Leandros E, Kouroukli IK, Georgiou LG, Bramis JP. Postoperative pain relief after laparoscopic cholecystectomy: a placebo-controlled double-blind randomized trial of preincisional infiltration and intraperitoneal instillation of levobupivacaine 0.25%. Surgical Endsc 2005;19(11):1503-6.
9. Yeh CN, Tsai CY, Cheng CT, Wang SY, Liu YY, Chiang KC, Hsieh FJ, Lin CC, Jan YY, Chen MF. Pain relief from combined wound and intraperitoneal local anesthesia for patients who undergo laparoscopic cholecystectomy. BMC Surg 2014;14(1):28.
10. Yang SY, Kang H, Choi GJ, Shin HY, Baek CW, Jung YH, Choi YS. Efficacy of intraperitoneal and intravenous lidocaine on pain relief after laparoscopic cholecystectomy. J Int Med Res 2014;42(2):307-19.
11. Choi GJ, Kang H, Baek CW, Jung YH, Kim DR. Effect of intraperitoneal local anesthetic on pain characteristics after laparoscopic cholecystectomy. World J Gastroenterol 2015;21(47):13386.
12. Castillo-Garza G, Díaz-Elizondo JA, Cuello-García CA, Villegas-Cabello O. Irrigation with bupivacaine at the surgical bed for postoperative pain relief after laparoscopic cholecystect JSLS. 2012;16(1):105.
13. Jain S, Nazir N, Singh S, Sharma S. A prospective randomised controlled study for evaluation of high-volume low-concentration intraperitoneal bupivacaine for post-laparoscopic cholecystectomy analgesia. Ind J Anaesth 2018;62(2):109
14. Kehlet H. Postoperative Opioid sparing to hasten RecoveryWhat are the issues? Anesthesiol 2005;102(6):1083-5.
15. Marret E, Kurdi O, Zufferey P, Bonnet F. Effects of Nonsteroidal Antiinflammatory Drugs on Patient-controlled Analgesia Morphine Side EffectsMeta-analysis of Randomized Controlled Trials. Anesthesiol 2005;102(6):1249-60.
16. Gencer ZK, Özkiriş M, Gencer M, Saydam L. Comparison of ropivacaine, bupivacaine, prilocaine, and lidocaine in the management of pain and hemorrhage during nasal pack removal. Am J Rhinol Allerg 2013;27(5):423-5.
17. Elfberg BÅ, Sjövall-Mjöberg S. Intraperitoneal bupivacaine does not effectively reduce pain after laparoscopic cholecystectomy: a randomized, placebo-controlled and double-blind study. Surg Laparo Endo Per 2000;10(6):357-9.
18. Zmora O, Stolik-Dollberg O, Bar-Zakai B, Rosin D, Kuriansky J, Shabtai M, et al. Intraperitoneal bupivacaine does not attenuate pain following laparoscopic cholecystectomy. JSLS 2000; 4(4):301.

19. Jiranantarat V, Rushatamukayanunt W, Lert-Akyamanee N, Sirijearanai R, Piromrat I, Suwannanonda P, Muangkasem J. Analgesic effect of intraperitoneal instillation of bupivacaine for postoperative laparoscopic cholecystectomy. J Med Assoc Thai 2002;85:S897-903.
20. Gurusamy KS, Vaughan J, Toon CD, Davidson BR. Pharmacological interventions for prevention or treatment of postoperative pain in people undergoing laparoscopic cholecystectomy. Cochrane DB Syst Rev 2014(3).
21. Gupta PK, Hopkins PM. Effect of concentration of local anaesthetic solution on the ED50 of bupivacaine for supraclavicular brachial plexus block. Brit J Anaesth 2013;111(2):293-6.
22. Nuñez DA, López SA, Salamanca MM, Janeiro MA, Fernandez RF, Cobian JL. Brachial plexus block with levobupivacaine at the humeral canal: comparison of a small volume at high concentration with a large volume at low concentration. Rev Esp Anestesiol Reanim 2005;52(9):529-35.
23. Boddy AP, Mehta S, Rhodes M. The effect of intraperitoneal local anesthesia in laparoscopic cholecystectomy: a systematic review and meta-analysis. Anesth Analg 2006;103(3):682-8.
24. Gupta A. Local anaesthesia for pain relief after laparoscopic cholecystectomy-a systematic review. Best Pract Res Clin Anaesthesiol 2005;19(2):275-92.
25. Elhakim M, Elkott M, Ali NM, Tahoun HM. Intraperitoneal lidocaine for postoperative pain after laparoscopy. Acta Anaesthesiol Scand 2000;44(3):280-4.
26. Alam MS, Hoque HW, Saifullah M, Ali MO. Port site and intraperitoneal infiltration of local anesthetics in reduction of postoperative pain after laparoscopic cholecystectomy. Medicine Today 2009;22(1):24-8.
27. Barczyński M, Herman RM. A prospective randomized trial on comparison of low-pressure (LP) and standard-pressure (SP) pneumo-peritoneum for laparoscopic cholecystectomy. Surg Endosc 2003;17(4):533-8.
28. Paventi S, Santevecchi A, Ranieri R. Efficacy of a single-dose ondansetron for preventing post-operative nausea and vomiting after laparoscopic cholecystectomy with sevoflurane and remifentanil infusion anaesthesia. Eur Rev Med Pharmacol Sci 2001;5:59-64.
29. Yari M, Rooshani B, Golfam P, Nazari N. Intraperitoneal bupivacaine effect on postoperative nausea and vomiting following laparoscopic cholecystectomy. Anesthesiol Pain Med 2014;4(3).

Original Article

To Compare the Frequency of Unintended Durotomy in Open Discectomy Versus Endoscopic Discectomy

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ABSTRACT

Objective: To compare the frequency of unintended durotomy in open discectomy versus endoscopic discectomy.
Study Design: Randomized controlled trial study
Place and Duration of Study: This study was conducted at the Department of Neurosurgery, Bahawal Victoria Hospital Bahawalpur from January 2018 to December 2018.
Materials and Methods: A total 172 patients (86 patients in each group) were included in this study. Patients fulfilling the inclusion and exclusion criteria were divided into two groups (A and B). In Group A, patients underwent Endoscopic Discectomy and in Group B, patients underwent open discectomy.
Results: The mean age was 47.02±9.6 years in group a while in group B, 48.83±8.7 years. In group A, 14 (16.28%) patients had unintended durotomy while in group-B, 3 (3.49%) patients had unintended durotomy.
Conclusion: Although the frequency of unintended durotomy in endoscopic discectomy was high, it is one of ideal minimally invasive operative approaches for lumbar spinal region. Endoscopic discectomy is proposed as a safe and effective alternative to open back surgery.

Key Words: Unintended durotomy, Endoscopic discectomy, Open discectomy, Lumbar region, backache, low back pain.

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INTRODUCTION

Backache associated with sciatica is very common problem. One common reason for low back pain is lumbar disc herniation into spinal canal. Symptoms and Signs of sciatica and MRI findings of nerve root compression or displacement by herniated disc are correlated before invasive therapy isundertaken.[1,2]

Existing studies on endoscopic lumbar discectomy report similar outcomes to those of open discectomy but conflicting results on complications. Lumbar discectomy is usually done by standard open discectomy and endoscopic discectomy. The most common complication was dural tear between open and endoscopic discectomy.[3]

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Endoscopic Discectomy has advantages especially for recurrent disc herniation.[4,5] Incidental dural tears in spinal surgeries is one of the most important complication as reported in many previous studies regarding spine surgeries with frequency of 1.8% to 17.4%.[6] During the extraction of big disc extrusion excessive nerve root is one of the important intraoperative mechanism other than direct laceration of dura. If any unintended durotomy is not recognized intraoperatively, the majority of symptomatic patients with a CSF leak typically experience headache and photophobia as soon as they undertake and upright posture postoperatively. Teli et al[7] showed in a study that frequency of unintended durotomy in open discectomy is 3%.

For the treatment of ruptured or herniated discs of lumbar spine open discectomy is the most frequent performing surgical treatment. Vertebral discs are the cushioning and connecting materials that lie between the bones of the spine called “vertebrae.” When the outer wall of a disc, called the annulus fibrosus, becomes weakened through age or injury, it may tear allowing the soft inner part of the disc, the nucleus pulposus, to bulge out. This is called disc herniation, disc proplapse, or a slipped or bulging disc. Once the inner disc material extends out past the regular margin of the outer disc wall, it can press against very sensitive nerve tissue in the spine. The “bulging” disc can compress or even damage the nerve tissue, and this can cause weakness, tingling, or pain in the back area

and into one or both legs. Discectomy surgical procedure performed to extract the damaged disc and relieve the pressure on nerve tissue and alleviate the pain.[8] The surgery involves a small incision in the skin over the spine, the removal of some ligament and bone material and the removal of some of the discmaterial.[9,10].

MATERIALS AND METHODS

This randomized controlled trial was conducted at Department of Neurosurgery, Bahawal Victoria Hospital Bahawalpur from 1st January 2018 to 31st December 2018. A total number of 172 patients of lumbar disc herniation were selected and divided into two groups, A (n=86) and B (n=86). Open microdiscectomy was performed in Group A and endoscopic microdiscectomy was performed in Group B. Provisional diagnosis of herniated disc was confirmed by MRI findings i.e. bulging of lumbar intervertebral disc posterioly into the spinal canal causing compression of the contents of the canal or any nerve root. Patient's ages 18 to 60 years having persistent redicular pain from 6 to 8 weeks and to had disc herniation by MRI were included. Patients with previous history of same surgery with cauda equine syndromes spondylolytic or degenerative spondylolisthesis, with central spinal canal stenosis, pregnancy or having severe somatic or psychiatric illness were excluded. Double Halo sign is observed by pouring 1 ml of hemorrhagic fluid on a cotton gauze piece; if it spreads over the gauze in form of two rings, red in center and clear watery ring around it then sign is termed as positive. If only a single red or pink coloured ring is formed then Double Halo sign was termed as negative. For open discectomy, a small midline skin incision was made. Muscles were dissected sub-periosteally. Fenestration or hemilaminectomy was done. Flavectomy was done and dura and nerve roots were retracted. Discectomy was done and wound was closed in reverse order. For endoscopic discectomy, a relatively small para-median skin incision made. Muscles were split. Tubular retractor was inserted. Endoscope was passed and a key hole was made in the lamina. Flavectomy was done and nerve roots and dura retracted with tubular retractor. Discectomy was done and wound was closed. All the necessary information was recorded in data collection proforma. Patient was re-examined at 3rd postoperative day and final findings were recorded. The data collected was entered in computer software SPSS version 20. Chi-square test was used for unintended durotomy in both groups taken $P \leq 0.05$ as significant.

RESULTS

The mean age was 47.02± 9.6 years in group A while in group-B, it was 48.83±8.7 years. Ninety (52.33%) patients were female and 82 (47.67%) patients were male (Table 1). Fourteen (16.28%) patients had unintended durotomy in group A while 72 (83.72%) patients had no unintended durotomy in group B. In group-A (endoscopic discectomy), 3 patients in 18-30 years age group had unintended durotomy while 4 patients had no unintended durotomy, 6 patients in 31-45 years of age group had unintended durotomy while 23 patients had no unintended durotomy and 5 patients in 46-60 years of age group had unintended durotomy while 45 patients had no unintended durotomy with insignificant p value of 0.064. In group-A (endoscopic discectomy), 6 male and 8 female patients had unintended durotomy while 37 male and 35 female patients had no unintended durotomy with insignificant p value of 0.559. In group-B (open discectomy), 3 (3.49%) patients had unintended durotomy while 83 (96.51%) patients had no unintended durotomy. In group-B (open discectomy), 1 patients in 18-30 years age group had unintended durotomy while 3 patients had no unintended durotomy, 1 patients in 31-45 years of age group had unintended durotomy while 25 patients had no unintended durotomy and 1 patients in 46-60 years of age group had unintended durotomy while 55 patients had no unintended durotomy with insignificant p value of 0.050. In group-B (open discectomy), 2 male and 1 female patients had unintended durotomy while 37 male and 46 female patients had no unintended durotomy with insignificant p value of 0.450. Comparison of unintended durotomy between group-A (endoscopic discectomy) and group-B (open discectomy) came up with a significant p value of 0.005 (Tables 2-3).

Table No. 1: Unintended durotomy in age and gender of patients in endoscopic discectomy.

Variable	Unintended durotomy		p-value
	Yes	No	
Age (years)			
18 – 30	3 (42.9%)	4 (57.1)%	0.046
31 – 45	6 (20.7%)	23 (79.3%)	
46 – 60	5 (10%)	45 (90%)	
Gender			
Male	6 (6.98%)	37 (43.02%)	0.559
Female	8 (9.3%)	35 ((40.7%)	

Table No.2: Unintended durotomy in different age groups of patients in open discectomy

Variable	Unintended durotomy		p-value
	Yes	No	
Age (years)			
18 – 30	1 (1.16%)	3 (3.48%)	0.046
31 – 45	1 (1.16%)	25 (29.06%)	
46 – 60	1 (1.16%)	55 (63.95%)	
Gender			
Male	2 (2.33%)	37 (43.02%)	0.450
Female	1 (1.16%)	46 (53.59%)	

Table No.3: Comparison of unintended durotomy between endoscopic discectomy and open discectomy

Group	Unintended Durotomy		P value
	Yes	No	
Endoscopic discectomy	14 (16.3%)	72 (83.7%)	0.005
Open discectomy	3 (3.5%)	83 (96.5%)	

DISCUSSION

Incidental or unintended dural tear is one of the most common morbidity found in spine surgeries and microdiscectomy is considered a procedure of choice for dural tears.[1,2] This article describes the operative techniques and outcomes reported in the literature for both lumbar microdiscectomy and microendoscopic discectomy. Currently some of studies regarding spine surgeries, in which surgeons uses the less invasive micro-surgical procedure with advance endoscopic procedure. They have developed new systems for endoscopic posterior discectomy, either with a conic "freehand" working channel or with a tubularretractor.[11]

In the present study, the frequency of unintended durotomy was 16.28% in open discectomy and 3.49% in open discectomy. These results were comparable to the results of other studies. A study conducted by Desai et al[12] showed similarity to our study in which the incident rate of durotomy was 3.1% and the basis of differences analyzed between the groups, the durotomy group was found to have significantly increased operative duration, operative blood loss, and length of inpatient stay.

Another study regarding lumbar spine surgery showed the incidental rate of incidental durotomy was 9% and there was significant difference between durotomy group and other group in mean hospital stay, blood loss and operative time p-value >0.05[13] there were also no differences in incidence of nerve root injury, mortality, additional surgeries, or primary outcomes at yearly follow-ups to 4 years.

A study conducted by Wong et al[14] regarding laparoscopic discectomy group there were 15 CSF leaks (4.7%), and 49 CSF leaks (9.0%) in the open group. Patients undergoing the laparoscopic discectomy had significantly lower reoperation rates for CSF leak repairs (open = 25% of open CSF leak cases, the laparoscopic discectomy = 0%, P < .01).

Another study conducted by Cammisa et al[15] showed that total of 2144 patients were reviewed, and 74 were found to have dural tears occurring during laparoscopic surgery. Incidental durotomy occurred at the time of laparoscopic surgery in 66 patients (3.1% overall incidence). Jones et al[16] conducted a study and showed that unintended incidental durotomy is most common complication of laparoscopic spinal surgery (incidence, 0.3-13% reported). In this study patients were evaluated at long-term follow-up (mean, 25.1 months); and their results were compared with controls matched for age, diagnosis, procedure, and length of follow-up. No differences of statistical significance could be identified in comparing the outcomes of the two groups. Incidental durotomy, when recognized and repaired intraoperatively, does not increase perioperative morbidity or compromise final result.

Ruban et al[17] also showed that unintended durotomy occurred in 53 (9.4%) of 563 patients with open discectomy. The mean age at surgery was 60.7 years (range 30-85 years). These results showed a little difference to our study.

In modern era many of endoscopic techniques for lumbar spine herniation in term of minimal invasive spine surgeries shows better outcomes as compared to other conventional open surgeries. There have been few previous studies on the outcomes of endoscopic discectomy for recurrent lumbar disc herniation. The success rates are in general quite high with all surgical procedures for new herniated lumbar discs.[18]**.**

CONCLUSION

Endoscopic discectomy and open discectomy have the similar therapeutic effect, but endoscopic discectomy eliminates the shortcomings of traditional open discectomy. Although the frequency of unintended durotomy in endoscopic discectomy was high, it is one of ideal minimally invasive operative approaches for lumbar spinal region. Endoscopic discectomy is proposed as a safe and effective alternative to open back surgery. We believe that in few years the endoscopic approach will become the new "gold standard" for lumbar disc surgery.

Author's Contribution:

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Drafting:	Muhammad Feroz Nawaz
Data Analysis:	Habib Ullah, Muhammad Shahid Sameja
Revisiting Critically:	Mumtaz Ahmed, Muhammad Feroz Nawaz
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REFERENCES

1. Porchet F, Bartanusz V, Kleinstueck FS, Lattig F, Jeszenszky D, Grob D. Microdiscectomy compared with standard discectomy: an old problem revisited with new outcome measures within the framework of a spine surgical registry. Eur Spine J 2009;18(Suppl 3):360–66.

2. Franke J, Greiner-Perth R, Boehm H, Mahlfeld K, Grasshoff H, Allam Y. Comparison of a minimally invasive procedure versus standard microscopic discotomy: a prospective randomised controlled clinical trial. Eur Spine J 2009;18(7):992–1000.
3. Arts MP, Brand R, van den Akker ME, Koes BW, Bartels RH,Tan W. Tubular diskectomy vs conventional microdiskectomy for the treatment of lumbar disk herniation: 2-year results of a double-blind randomized controlled trial. Neurosurg 2011; 69(1):135–44.
4. Sørlie A, Gulati S, Giannadakis C et al. Open discectomy vs microdiscectomy for lumbar disc herniation – a protocol for a pragmatic comparative effectiveness study [version 1; referees: 2 approved] F1000Research 2016, 5:2170.
5. Kovačević V, Jovanović N, Miletić-Kovačević M, Nikolić R, Peulić M, Rotim K, et al. Standard Lumbar Discectomy Versus Microdiscectomy - Differences in Clinical Outcome and Reoperation Rate. Acta Clin Croat 2017;56(3):391-398.
6. Ahn Y, Lee HY, Lee SH, Lee JH. Dural tears in percutaneous endoscopic lumbar discectomy. Eur Spine J 2016;20:58–64.
7. Teli M, Lovi A, Brayda-Bruno M, Zagra A, Corriero A, Giudici F. Higher risk of dural tears and recurrent herniation with lumbar micro-endoscopic discectomy. Eur Spine J 2010;19(3): 443–50.
8. Cinotti G, Gumina S, Giannicola G. Contralateral recurrent lumbar disc herniation. Results of discectomy compared with those in primary herniation. Spine 1999;24:800–6.
9. Ahn SS, Kim SH, Kim DW, Lee BH, Comparison of outcomes of percutaneous endoscopic lumbar discectomy and open lumbar microdiscectomy for young adults: a retrospective matched cohort study. World Neurosurg 2016; 86:250–8.
10. Choi KC, Kim JS, Park CK. Percutaneous endoscopic lumbar discectomy as an alternative to open lumbar microdiscectomy for large lumbar disc herniation. Pain Physician 2016;19(2): E291–E300.
11. Zucherman JF, Hsu KY, Hartjen CA. A prospective randomized multi-center study for the treatment of lumbar spinal stenosis with the X STOP interspinous implant: 1-year results. Eur Spine J 2004;13:22.
12. Desai A, Ball PA, Bekelis K, Lurie JD, Mirza SK, Tosteson TD. Outcomes after incidental durotomy during first-time lumbar discectomy. J Neurosurg Spine 2011;14(5):647-53.
13. Desai A, Ball PA, Bekelis K, Lurie J, Mirza SK, Tosteson TD. SPORT: does incidental durotomy affect long-term outcomes in cases of spinal stenosis? Neurosurg 2011;69(1):38-44.
14. Wong AP, Shih P, Smith TR, Slimack NP, Dahdaleh NS, Aoun SG. Comparison of Symptomatic Cerebral Spinal Fluid Leak Between Patients Undergoing Minimally Invasive versus Open Lumbar Foraminotomy, Discectomy, or Laminectomy. World Neurosurg 2013;13:1878-80.
15. Cammisa FP, Girardi FP, Sangani PK, Parvataneni HK, Cadag S, Sandhu HS. Incidental durotomy in spine surgery. Spine 2000;25(20):2663-7.
16. Jones AA, Stambough JL, Balderston RA, Rothman RH, Booth RE. Long-term results of lumbar spine surgery complicated by unintended incidental durotomy. Spine 1989;14(4):443-6.
17. Ruban D, O'Toole JE. Management of incidental durotomy in minimally invasive spine surgery. Neurosurg Focus 2011;31(4):E15-7.
18. Kondrashov DG, Hannibal M, Hsu KY, Zucherman JF. Interspinous process decompression with the X-STOP device for lumbar spinal stenosis: a 4-year follow-up study. J Spinal Disord Tech 2006;19:323-4..

Original Article

Factors Leading to Declining Breastfeeding in Our Society

Anila Farhat[1], Mujeeb Ur Rehman[2], Hamayun Anwar[1], Sajid Shamim[1], Imran and Muhammad Athar Khalil[4]

ABSTRACT

Objective: To determine the factors leading to declining breastfeeding trends in our society.
Study Design: cross sectional study.
Place and Duration of Study: This study was conducted at the Pediatrics Department, King Abdullah Teaching Hospital, Mansehra from September 2018 to February 2019.
Materials and Methods: 260 children were included in this study with help of a predesigned questionnaire containing data like name, age, sex of the child, maternal education, father's income, exclusive breastfeeding, duration of total breast feeding and the reasons of not breastfeeding. The data was entered and analyzed using SPSS version 16.
Results: The mean age was 10.06 months. 164 (63%) were male and 96 (37%) were female. The frequency of exclusive breastfeeding was 55 (21%). The mean duration of breast feeding was 6 months. The most common reason for not breastfeeding was having 'Not enough breast milk' which was 68.5%. Other reason for not breastfeeding include maternal illness 5.8%, medical reason 1.9%, social myths 5%, working mothers 0.4%, baby not gaining weight 3.1%, Baby illness 8.5%, pregnancy 5.8% and advice from other women not to breastfed 0.4%.
Conclusion: The duration of exclusive breastfeeding in our region is low as compared to other areas of Pakistan. The most common reason for declining breastfeeding in our setup was 'not having enough breast milk'. We recommend that further studies should be undertaken to know the basic pathophysiology and reasons why these mother did not have enough breast milk.

Key Words: exclusive breastfeeding, factors, decline in breastfeeding.

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INTRODUCTION

should be introduced at 6 months of age and then the breast milk should be continued for two years of life and can be beyond.[1]Breast feeding is the best and the most natural way to provide ideal nutrition, immunity, optimum growth and development and ideal body metabolism for the infant.[2] Secretory IgA in the breastmilk act as anti-infective agent and provide protection against organism and it prevent attachment or penetration of intestinal tract by microorganism.[3] Bifidobacteria and lactobacilli in the breast milk protect the baby from infective pathogens, improve integrity of the GIT, and they reduce inflammatory process in the GIT and also these components of breast milk resist digestion of oligosaccharides which act as a fuel for the infective pathogens.[4,5] Breastfeeding can prevent deaths and improves the quality of life in developed countries. In a study in United states, it is reported that 911 deaths can be prevented if 90% of the infant can be exclusively breastfed for 6 months or longer.[6]There are studies which shows that breast feeding improves gut microbiota and reduces the risk of childhood asthma, sudden infant death syndrome, obesity[7] and acute lymphoblastic lymphoma[8]. There are several studies to suggest that breastfeeding is beneficial for mother also and it is associated with improved health of the mother in short-term and reduces the incidence of further diseases in the long-term.[9]

In Pakistan, the rate of exclusive breastfeeding is 38% while that of non-exclusive breastfeeding is 67% according to a demographic and health survey conducted in 2012-13.[10]

Despite the aforementioned well established benefits of breastfeeding to the infant and mother, the rate of exclusive breastfeeding is toward decline. There are several factors which are associated with decreased rate of exclusive breastfeeding throughout the world and specially in developing countries like Pakistan. In a study from Pakistan, the most common reason of

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nonexclusive breastfeeding was inadequate milk production (71%), other reasons of nonexclusive breastfeeding were working mothers (11.2%), inadequate weight gain (5.2%), constipation or loose stool (3.3%), mother related systemic diseases (3.6%), and twin deliveries (1.5%).[11]In another study Pakistan, some of the common reason of not exclusive breastfeeding were urbanization, western influences, improved socioeconomic conditions of people and increased advertisement and availability of commercial formulas.[12] In a study from Saudi Arabia, the major contributor to early cessation of breastfeeding were lack of breastfeeding knowledge, maternal employment, and also lower level of knowledge about breastfeeding benefits.[13]All these factor necessitate that regional studies should be conducted to determine the factor which leads to decline in breastfeeding trends so that effective interventional strategies can be devised based on the knowledge of ground realities.

This current study aimed to determine the factors leading to declining of breastfeeding in our society and also the duration of exclusive breastfeeding that could be useful for practitioners, planners and healthcare decision-maker and it will provide direction to develop effective breastfeeding promotion policies and campaign in our society and also to devise interventional steps to overcome these barriers.

MATERIALS AND METHODS

This cross sectional study was conducted in the pediatrics department King Abdullah Teaching Hospital, Mansehra. After approval from hospital ethical committee, Sample size was calculated using WHO software for sample size determination in health studies. Children of either gender between 0-24 months of age, admitted in ward or visiting Outpatient department were included. Children above 2 years of age were excluded from the study. Informed consent was taken from the caregiver of the participant. A structured questionnaire was used for the purpose of data collection. The questionnaire include data like name, age, sex of the child, maternal age, maternal education, address, father's income, duration of exclusive breastfeeding, duration of total breastfeeding, the time of initiation of breastfeeding after birth and the reason of not breastfeeding or exclusive breast feeding. To evaluate the association between the duration of breastfeeding and variables, the chi-squire test was applied. Mean±SD was calculated for numerical variable like age. Percentage and frequencies were calculated for categorical variables.The association was considered significant when the p value was less 0.05. The data was entered and analyzed using SPSS version 16**.**

RESULTS

A total of 260 patients were included. The mean age was 10.06 months. Of these 164 (63%) children were male and 96 (37%) were female. Children were divided in three age groups, less than 6 months, 6-12 months and more than 12 months. Regarding education status of the mothers, 153 (59%) were uneducated, 43 (17%) have primary education, 44 (17%) have matric and 20 (8%) have intermediate or higher education.107 (41%) children belong to urban area while 153 (59%) children belongs to rural areas. The monthly income of the father was divided into three categories, less than 20000, 20000-50000 and more than 50,000. 179 (68%) children's income was less than 20,000 , 74 (28%) children's income was between 20,000-50,000 and 7 (3%) children income was more than 50,000. The mean duration of breast feeding was 6 months with a maximum of 2 years and minimum of not given at all. The frequency of exclusive breastfeeding was 55 (21%). In our study 247 (95%) of the women practice breastfeeding for a variable period of time while 13(5%) women did not practice at all. According to time of initiation of breastfeeding, 54(21%) of the women start breastfeeding within the 1st hour after birth, 93(36%) start breastfeeding within 1-6 hours after birth while 112 (43%) women start breastfeeding after 6 hours of life.Among male children 70 patients were less than 6 months age group, 52 were between 6-12 month age group while 42 were more than 12 months age groups. Among female 44 were less than 6 months age groups, 26 were 6-12 months age groups and 26 were more than 12 months age groups as shown in table 1. Among male patients 29 children were exclusively breastfeed while among female patients 26 children were exclusively breastfeed and the p value was 3.208 which was statistically insignificant as shown in table 2. The most common reason for not breastfeeding was 'Not having enough breast milk' which was 178(68.5%). Other reason for not breastfeeding include maternal illness 15(5.8%), medical reason 5(1.9%), social myths (5 mothers have jinnat while 8 mothers have 'Hasba') 13(5%), working mothers 1(0.4%), baby not gaining weight 8(3.1%), Baby illness 22(8.5%), pregnancy 15(5.8%), advice and example from other women 1(0.4%) and in 2 (0.8%) children other causes were responsible as shown in table 4. The total duration of breastfeeding among male and female children was analyzed as shown in table 3 and the p value was 6.555 which was statistically insignificant. The effect of maternal education on the duration of breastfeeding was studied and the chi-square test was applied and the p value was 2.640 which was statistically insignificant as shown in table 5. Similarly the effect of Father's income on the duration of breastfeeding were studies and was found statistically insignificant as the p value was 5.432 as shown in table 6.

Table No.1: Age groups of children versus gender of children.

		Sex of Patients		Total
		Male	Female	
Age groups of children	6 months	70	44	114
	>6 -12 months	52	26	78
	More than 12 months	42	26	68
Total		164	96	260

Table No.2: Frequency of exclusive breastfeeding and gender of children.

		Sex of Patients		Total	P-value
		Male	Female		
Exclusive BF	Yes	29	26	55	3.208
	No	135	70	205	
Total		164	96	260	

Table No.3: Duration of breastfeeding and gender of children.

		Sex of the patients		Total	P-value
		Male	Female		
Duration of Breastfeeding Groups	Less than 6 months	109	62	171	6.555
	6-12 months	48	22	70	
	More than 12 months	7	12	19	
Total		164	96	260	

Table No.4: Frequency and percentage of Reasons of not breastfeeding.

S. No.	Reason of Not breastfeeding	Frequency	Percentage
1.	Not enough milk	178	68.5%
2.	Maternal illness	15	5.8%
3.	Medical Reason	5	1.9%
4.	Socail Myths	13	5.0%
5.	Working Mother	1	.4%
6.	baby not gaining wt after BF	8	3.1%
7.	Bab illness	22	8.5%
8.	Pregnancy	15	5.8%
9.	Advice and example from other mother	1	.4%
10.	Any other reason	2	.8%
	Total	260	100.0

Table No.5: Duration of breastfeeding versus education status of mothers.

		Maternal education status				Total	P-value
		Uneducated	Primary	Matric	Intermediate or Higher		
Duration of Breastfeedin	less than 6 months	99	29	30	13	171	2.640
	6-12 months	43	11	12	4	70	
	more than 12 months	11	3	2	3	19	
Total		153	43	44	20	260	

Table No.6: Duration of breastfeeding versus Father's Income.

		Father's Income			Total	P-value
		less than 20000	20000-50000	More than 50000		
Duration of breastfeeding Groups	less than 6 months	118	46	7	171	5.432
	6-12 months	50	20	0	70	
	more than 12 months	11	8	0	19	
Total		179	74	7	260	

DISCUSSION

It is very essential to provide adequate nutrition to the infant and young children to promote adequate growth and development of the children.[14] Breastfeeding is considered as the best source of nutrition for the young infant and its benefits to the infant and mother are well established throughout the world.[15]In our study the frequency of exclusive breastfeeding was 21% while in Pakistan, the rate of exclusive breastfeeding is 38% while that of non-exclusive breastfeeding is 67%.[10]In our study 247 (95%) women practice breastfeeding for a variable period of time while 13 (5%) women did not practice at all while in a study by Nasheed parveen et al. breast feeding was practiced in 97.54% of the women while only 2.45% women did not practiced breastfeeding. In a study in India by Bena kappa et al,

Similar results were observed in which the overall frequency of breastfeeding was 97.0%.[16] In one study in Sri Lanka the frequency of breastfeeding initiation at the time of birth was 100% but the proportion of exclusive breastfeeding upto 4 months of life was 61.6%.[17] . In our study the most common reason for not breastfeeding was 'Not having enough breast milk' which was 178(68.5%). Other reason for not breastfeeding include maternal illness 15(5.8%), medical reason 5(1.9%), social myths 13 (5%), working mothers 1(0.4%), baby not gaining weight 8(3.1%), Baby illness 22(8.5%), pregnancy 15(5.8%), advice and example from other women 1(0.4%) and in 2 (0.8%) children other causes were responsible. Our finding for factors leading to declining in breastfeeding were consistent with other studies conducted in Pakistan as in a study in Pakistan, the common reason of nonexclusive breastfeeding was inadequate milk production (71%), other reasons of nonexclusive breastfeeding were working mothers (11.2%), inadequate weight gain (5.2%), constipation or loose stool (3.3%), mother related systemic diseases (3.6%), and twin deliveries (1.5%).[11] Similarly Morisky DE et al, in a study conducted in pakistan reported some of the common reason of not exclusive breastfeeding were urbanization, western influences, improved socioeconomic conditions of people and increased advertisement and availability of commercial formulas.[12] In Saudi Arabia, the common reasons for early cessation of breastfeeding were lack of breastfeeding knowledge, maternal employment, and also lower level of knowledge about breastfeeding benefits.[13] In an international study the most common reason for not breastfeeding or exclusive breastfeeding was insuffient breast milk and it was reported by 80% of the women.[18] in our study maternal education shows no significant effect over the duration of breastfeeding while in a study by Kulsoom et al reported that the duration of total breast feeding was less in children of mother who were illiterate, having more female children and belonging to a poor socioecomic class.[19] In our study about 5% of the mothers have a social myths and false beliefs regarding breastfeeding which contribute significantly to decline in breastfeeding in our society, in a similar study by Afzal et al found that although most of the women have a good knowledge about the benefits of breastfeeding but a significant number of women also have a various beliefs that prevent exclusive breastfeeding**.**

CONCLUSION

Although the prevalence of breastfeeding is very common in our region but the duration of exclusive breastfeeding is low as compared to other areas of Pakistan. The most common reason for declining breastfeeding in our setup was having not enough breast milk. There were no significant effect of maternal education and economic status of the father over the total duration of breast feeding in our study. We recommend that further studies should be undertaken to know the basic pathophysiology and reasons why these mother did not have enough breast milk**.**

Author's Contribution:

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

REFERENCES

1. Eidelman Al, Schanler RJ, Johnston M, Landers S, Noble L, Szucs K, et al. Breastfeeding and the use of human milk. Pediatrics. 2012;129(3):e827-e41.
2. Goldman AS. Evolution of immune functions of the mammary gland and protection of the infant. Breastfeed Med 2012;7(3):132-42.
3. Brandtzaeg P. Mucosal immunity: integration between mother and the breast-fed infants. Vaccine 2003;21(24):3382-31s.
4. Newburg DS, Walker WA. Protection of the neonate by the innate immune system of developing gut and of human milk. Pediatr Res 2007;61(1):2-8.
5. Newburg DS, Ruiz-Palacios GM, Morrow AL. Human milk glycans protect infants against enteric pathogens. Annu Rev Nutr 2005;25(1):37-58.
6. Bartick M, Reinhold A. The burden of suboptimal breastfeeding in the united states: a pediatric cost analysis. Pediatr 2010;125(5):e1048-e56.
7. Isolauri E. Development of healthy gut microbiota early in life. J Paediatr Child Health 2012;48 (Suppl 3):1-6.
8. Kwan M, Buffler P, Abrams B, Kiley VA. Breastfeeding and the risk of childhood leukemia: a meta-analysis. Public Health Rep. 2004;119(6): 521-35.
9. Godfrey JR, Lawrence RA. Toward optimal health: the maternal benefits of breastfeeding. J Women's Health (Larchmt) 2010;19(9):1597-602.
10. National Institute of Population Studies (NIPS) Pakistan and Macro International Inc. Pakistan demographic and health survey 2012-13, Islamabad, Pakistan. National Institute of Population studies and Macro International Inc. 2009. Available at: http://www.nips.org.pk/abstract files/priliminary%20Report%20Final.pdf

11. Ibrahim S, Ansari NS. Factors associated with failure of exclusive breastfeeding. J Surg Pak 2006; 11(1):24-6.
12. Morisky DE, Kar SB, Chaudary AS, Chen KR, Shaheen M. Breastfeeding Practices in Pakistan. Pak J Nutr 2002;1:137-42.
13. Raheel H, Tharkar S. Why mothers are not exclusively breast feeding their babies till 6 months of age? Knowledge and practices data from two large cities of the kingdom of Saudi Arabia. Sudan J Pediatr 2018;18(1):28-38.
14. World Health Organization. Infant and young child feeding. France: WHO, 2009.
15. Ku CM, CHOW SK. Factors influencing the practice of exclusive breastfeeding among Hong Kong Chinese women: a questionnaire survey. J Clin Nurs 2010;19(17-18):2434-45.
16. Benakappa DG, Raju MS, Benakappa AD. Breast Feeding Practices in rural Karnataka (India) with special Reference to lactation failure. Pediatr Int 2007;31:391-8.
17. Agampodi SB, Agampdi TC, Pyas KD. Breastfeeding Practices in a public health field practice area in Sri Lanka: a survival analysis. Int Breastfeed J 2007;2:13.
18. Oddv WH, Sly PD, de Klerk NH, Landau LI, Kendall GE, Holt PG, et al. Breastfeeding and respiratory morbidity in infancy; a birth cohort study. Arch Dis Child 2003;88:224-8.
19. Kulsoom U, Saeed A. Breast feeding practices and beliefs about weaning among mothers of infants aged 0-12 months. J Pak Med Assoc 1997;47:54-0.
20. Afzal MF, Saleemi MA, Asghar MF, Manzoor M, Fatima M, Fazal M. A study of knowledge, Attitude and Practice of Mothers about Breast Feeding in Children. Ann King Edward Med Uni 2002;8:28-9.

Original Article

Clinical Presentations of Patients with Hep B & C among Chronic Liver Disease at a Tertiary Care Hospital of Bahawalpur

Shahbaz Ahmed Qureshi[1], Javeria Shahbaz[1] and Anas Ahmed[2]

ABSTRACT

Objective: The study was carried out to determine the different clinical presentations of patients with Hepatitis C and B related chronic liver disease.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Medical Unit III of Bahawal Victoria Hospital, Bahawalpur from January 2017 to December 2017.

Materials and Methods: Only patients with chronic hepatitis C and B, leading to Chronic liver disease (CLD) were included in this study. Patients with CLD other than Hepatitis B and C viruses and pediatric age group (less than 13 years) were excluded from the study. The diagnosis was made with the help of clinical, biochemical and sonographic findings. Presenting complaints were recorded and detailed physical examination was done to look for different clinical presentations.

Results: Total of 248 patients were studied. The most effected age group was between 50-59 years. Male gender was more commonly effected .The major presentations were of Upper Gastrointestinal bleeding (40.32%), abdominal distension (26.61%), and altered state of consciousness (11.29%), abdominal pain (10.48%), jaundice (7.25%), pedal edema (2.41%) and anorexia (1.61%). Chronic liver disease due to hepatitis C was greater than hepatitis B.

Conclusion: Chronic liver disease due to Hep C was more common than Hep B. Upper GI bleed was the most common clinical presentation.

Key Words: Hep B & C, Chronic liver disease, upper gastrointestinal bleed (Upper GI bleed).

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INTRODUCTION

Chronic liver disease is global burden all over the world[7] and spreading more rapidly in developing countries. According to WHO, approximately 3% of world's population is chronically infected with hepatitis C virus and 3 to 4 millions patients with Hepatitis C virus are newly diagnosed every year. Hepatitis C and B viruses contribute its major etiological factorsinPakistan.[1] In Pakistan 10 million people are infected with hepatitis C virus.[1]

Chronic liver disease secondary to hepatitis C and B virus leads to inflammatory injury to liver for six or more months without complete resolution.[2]

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Chronic liver disease may present as chronic hepatitis, liver cirrhosis and hepatocellular carcinoma.[3]

The prime route of spread of Hep C is parenteral. Risk factors include blood transfusion, IV drug abusers, surgical procedures, multiple sexual partners, from mother to fetus (least likely).[4] There are very less chances of HCV spread due to breast feeding because indigestive tract of baby this virus becomes inactivated.[5,6] There are 5% chances of spread of HCV by needle stick injury.[7] Improper sterilization techniques spread HCV by tattooing, ink pots and piercing. Repeated uses of same razors, scissors and syringes can spread HCV. Around the world, near about 350 to 400 million people are infected with hepatitis Bvirus.[8] Every year, about 4 million new cases of hepatitis B virus infection are diagnosed. The load of hepatitis B virus is decreased after the introduction of worldwide hepatitis B vaccination. Still, in different sections of world, burden of hepatitis B virus is high, especially in Asia.[10]

HBV spreads through parenteral route, vertical transmission and by close contact. Risk factors include multiple sexual partners, homosexual activity, IV drug abusers and hemodialysis.[10] Both hepatitis B and C cause acute and chronic liver disease and hepatocellular carcinoma.

MATERIALS AND METHODS

Study was carried out in the department of Medical unit III of Bahawal Victoria Hospital Bahawalpur from 1st January 2017 to 31 December 2017 after ethical committee's approval.

Only patients with chronic hepatitis C and B virus leading to CLD were included in this study. Patients with CLD other than hepatitis B and C viruses and pediatric age group (less than 13 years) were excluded from the study. The consent was taken from all patients included in study before further proceedings. The data of patients coming to above mentioned unit was recorded. The diagnosis of chronic liver disease was made with the help of clinical, biochemical and sonographic findings. Then physical examination of patients was carried out to determine the different clinical features of Hep C and B related CLD. The study was carried out to determine the different clinical presentations of patients with Hepatitis C and B related chronic liver disease**.**

RESULTS

A total of 248 patients were subjects of the study. Out of that, 154 were male and 94 were female. The ages were between 18 years and 92years.The maximum number of patients, 62 fell in age group of 50-59 year as in Table-1. Chronic liver disease due to hepatitis C was greater than hepatitis B. Out of 248; only 10 cases of CLD were due to hepatitis B. All remaining cases were due to Hep C.

Table No.1: Age distribution.

Age Groups (years)	Total (%)
<30	22 (8.9%)
30-39	20 (8.1%)
40-49	52 (21.0%)
50-59	62 (25.0%)
60-69	52 (21.0%)
>70	40 (16.1%)
Total	248

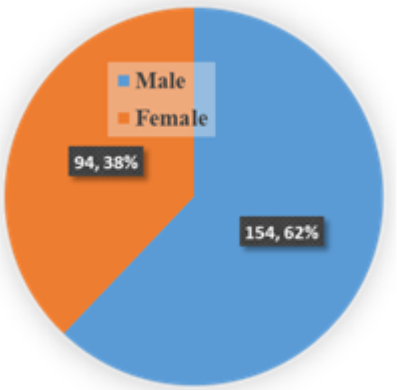

Figure No. 1: Gender distribution

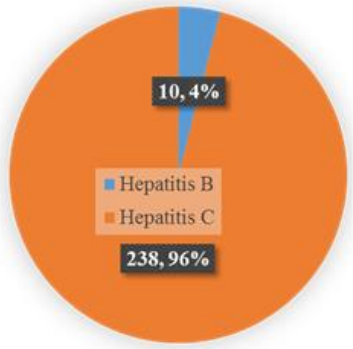

Figure No.. 2: Distribution according to prevalence of Hepatitis B and C

Table No.2: Age and Gender distribution of the patients with CLD.

Age Groups (years)	Males	Females	Total
<30	8 (5.2%)	14 (14.9%)	22 (8.9%)
30-39	14 (9.1%)	6 (6.4%)	20 (8.1%)
40-49	40 (26.0%)	12 (12.8%)	52 (21.0%)
50-59	34 (22.1%)	28 (29.8%)	62 (25.0%)
60-69	30 (19.5%)	22 (23.4%)	52 (21.0%)
>70	28 (18.2%)	12 (12.8%)	40 (16.1%)
Total	154	94	248

The most common clinical presentation was Upper Gastrointestinal bleeding. It was present in a total of 100 patients (40.32%). Then abdominal distension in 66 Patients (26.61%), altered state of consciousness in 28 (11.29%), abdominal pain in 26 (10.48%), jaundice in 18 (7.25%), pedal edema in 6(2.41%) and anorexia in 4 (1.61%) as shown in Table 2.

Table No. 2 Clinical Presentation of Patients with Chronic Liver Disease.

Clinical Presentation	**No. of Patients (%)**
Upper GI Bleeding	100 (40.3%)
Abdominal Distension	66 (26.6%)
Altered state of consciousness	28 (11.3%)
Abdominal Pain	26 (10.5%)
Jaundice	18 (7.3%)
Pedal Edema	6 (2.4%)
Anorexia	4 (1.6%)
Total	248

DISCUSSION

In our study we found that chronic liver disease due to hepatitis C was more common than that due to hepatitis B. This is due to hepatitis B vaccination. Recently birth dose Hep B vaccination has been included in EPI schedule of Pakistan. The major presentations in our study were Upper GI bleeding (40.32%), abdominal distension (26.61%), altered state of consciousness

(11.29%), abdominal pain (10.48%), jaundice (7.25%), pedal edema (2.41%) and anorexia(1.61%).Our findings are similar to that published by Khokhar et al[10] where GI bleeding (36%), ascites (27%), altered mental status (18%) were major presentations. But our results are different from that published by Abdul fatai BO et al[4], where as cites and jaundice were major presentations. This difference in presentation between Pakistan and Nigerian people may be due to poor health services and their access to health providers. Lack of health education is also playing a major role in rapid spreading of the disease in our country.

In our study we found that hepatitis B and C virus infection was more common in males than that of females, that is opposite to the study published by Osama M et al[1] which was conducted in Lahore (Pakistan). Because in our areas where study was conducted females are restricted to their own homes, so they are less exposed to risk factors. This is due to the different demographic and social cultures in different areas of Pakistan.

In our study CLD due to hepatitis B was more common in younger ages, while that due to hepatitis C was in older ages. This is similar to study conducted by Osama M et al.[1]

CLD is becoming a major concern day by day in Pakistan. This is due to lack of health awareness and poverty in our country. Health services provided by Government of Pakistan are far behind in comparison with other developing countries**.**

CONCLUSION

Chronic liver disease due to Hep C was more common than Hep B. Upper GI bleeding was the most common clinical presentation. Community should be taught regarding the risk factors of liver diseases through repeated health sessions so that we can prevent and treat the disease at its earlier stages**.**

Author's Contribution:

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REFERENCES

1. Osma M, Fozia Z, Farooq M.Sociodemographic study of hepatitis C patients. J Ayub Med Col Abbottabad 2015;27(3)
2. Patrice C, Cloe C, Fanny D.. Extra hepatic manifestations of chronic hepatitis C virus infection. Therapeutic advances in infectious Dis 2016;3(1).
3. Stephen L, Timothy R. The natural history of hepatitis C virus (HCV) infection. Int J Med Sci 2006;3.
4. Abdulfatai B, Laraba A, Wadzani G, Fatai K. Risk factors and clinical presentation of Hep C virus infection in Nigerians with chronic liver disease. Tropical Doctor 2011;41.
5. Jay HH. Hepatitis C. The clinical spectrum of disease. Hepatol 1997;26(3 Suppl 1):15S-20S.
6. Vilas BN, Lyra PR, Venkatesha D. Prevalance of hepatitis C virus infection among Chronic Liver Disease patients. Int J Curr Microbiol App Sci 2018;7(2).
7. Allah N, Syed FZ, Khan U, Irshad A. Concise review on the insight of hepatitis C. J Taibah Univ Med Sci 2015;10(2).
8. Hendrik V, Piero A, Jasmohan B, Cordoba J, Peter F; Mullen KD, et al. Hepatic encephalopathy in chronic liver disease: 2014 Practice Guideline by the American Association for the Study Of Liver Diseases and the European Association for the Study of the Liver. Hepatol 2014;60(2):715-35.
9. Zamor PJ, deLemos AS, Russo MW. Viral hepatitis and hepatocellular carcinoma: etiology and management. J Gastrointest Oncol 2017;8(2): 229–242.
10. Khokhar N, Niazi SA. Chronic liver disease related mortality pattern in Northern Pakistan. J Coll Physicians Surg Pak 2003;13(9):495-7.

Original Article

Knowledge about Breast Cancer Screening

Knowledge, Attitude and Practices of Breast Cancer Screening Among Women in a Tertiary Care Hospital of a Developing World

Farhat Jafri[1], Syed Inayat Ali[2], Zohra Jabeen[1], Sarwat Sultana[1], Shazia Ali[1] and Imran Samdani[3]

ABSTRACT

Objective: To assess the knowledge, attitude and practices of women regarding breast cancer screening visiting Abbasi Shaheed Hospital.

Study Design: Descriptive / cross-sectional study.

Place and Duration of Study: This study was conducted at the Abbasi Shaheed Hospital Karachi from September 2015 to February 2016.

Materials and Methods: Data was collected from 433 women, 433 self-administered structured questionnaires were filled by women between the age of 20-70 years .Questions related to breast screening knowledge, signs and symptoms of breast cancer along with demographic profile were used to gather data. Frequencies and percentages were computed through SPSS 21.

Results: Out of 433 participants only 29% (126) women knew about breast cancer screening methods. The knowledge about breast cancer screening technique was very low, Out of 29% (126), majority 77% respondents had not done any breast cancer screening ever 80.2% respondents did not have knowledge about breast cancer screening methods.93.7% participants appreciated screening as a helpful test for early detection of breast cancer. Only 7.6% women have knowledge about signs and symptoms of breast cancer. Knowledge about breast cancer and its screening were more in literate and married respondents. The 69.05% respondents were literate.

Conclusion: Awareness regarding breast cancer screening methods was 30% in 30-49 years of age group most of the women were literate and married.

Key Words: Breast cancer, screening, KAP survey.

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INTRODUCTION

Breast cancer is the commonest cancer in females.[1]As mentioned in International Agency for Research on Cancer (IARC), there were 14.1 million new cancer cases reported in 2014 worldwide, of which 8 million occurred in developing countries, which contain about 82% of the world's population. The total cancer deaths in 2012 were 8.2 million (about 22,000 cancer deaths a day) out of 8.2million 2.9 million in developed countries, and 5.3 million in developing countries.[2]

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It is estimated that 1 out of 9 Pakistani women is at risk to develop breast cancer at some stage of her life.[1,3]A latest report from Shaukat Khanum Memorial Cancer Hospital and Research Center in Lahore reported 45.0% of malignancies due to breast cancer among adult's females from December 1995 to December 2009. In Pakistan, there is no record keeping cancer registration system at National level so breast cancer statistics have not been adequately recorded.[1] Breast cancer mortality may be reduced with the help of mammography through early detection and treatment. The breast self-examination (BSE) and clinical breast examination (CBE) are other screening methods. It is therefore important to assess the awareness of the screening in target group before planning strategies to make the screening program more effective. [4]The global burden of breast cancer is expected to become 2 million by the year 2030, with increasing proportions from developing countries. Breast cancer incidence rates within developing countries shows variations due to differences in education level, age at first child, number of children, and lifestyle factors e.g., tobacco smoking and alcohol use.[5]Survival rates from breast cancer is 80% in North America and other developed countries, 60% in middle-income countries, below 40% in low-

income countries and lowest in less developed countries. This is due to illiteracy, late detection of carcinoma and inadequate treatment facilities.[1]

Through various studies carried out in past, it is now known, that early detection of cancer, greatly increases the chances of successful treatment and decreases the health burden of morbidity and mortality. Screening and early diagnosis of breast cancer are poor in developing countries like Pakistan.[1] Breast self-examination, clinical breast examination and mammography are the universally suggested screening methods for breast cancer. By doing breast self-examination women are able to detect any changes in their breast and consult with physicians immediately for treatment.[1]The aim of our study is to know how many women have the knowledge, attitudes, and practices, regarding breast self-examination, mammography and risk factors for breast cancer in women of Karachi**.**

MATERIALS AND METHODS

The questionnaire-based, cross-sectional study was conducted at Abbasi Shaheed hospital Karachi from September 2015 to February 2016. The study protocol was approved by the Ethical Review Committee (ERC) of the KMDC.

The data of all 433 respondents were collected through self-administered close-ended questionnaires. The questionnaires were initially designed in the English language and were then translated into national language and again retranslated into English for confirmation purposes. All the questionnaires were administered in Urdu. The questionnaires first pre-tested at the Abbasi shaheed OPD and the issues raised during the pre-testing were resolved. The questions were aimed at judging the level of awareness, knowledge, attitudes, and practices about risk factors and screening for breast cancer along with the common sources from which our respondents gained their information.

The sampling technique was convenience sampling. The sample size was calculated by Rao soft software assuming margin of error 5%, with two- sided confidence level 95%, a prevalence of 50%. The required sample size came out to be 377. Assuming a refusal rate of 15%, 433 potential subjects were approached. The study duration was 6 months. All women of 20-70 years of age visiting Abbasi Shaheed hospital OPD were included. While regular breast screening is recommended in women over the age of 40, but recently the American Cancer Society Guidelines for the Early Detection of Cancer has advocated clinical screening for women over the age of 20.[20]considering this in mind we include women between the ages of 20 – 70 years of age in our study. Those who could not read or understand the questionnaires were excluded. The participants were clarified before filling the questionnaires that the information collected was for research purposes and informed consent was taken.

The participants were told that the information will be kept confidential. Performa was filled through a face to face interview by trained data collectors familiar with the objectives of our study. The questionnaires were in the native Urdu language so as to make it easier for the subjects to understand. Questions related to breast screening knowledge and signs and symptoms of breast cancer were asked from women with various levels of education and marital status.

The questions aimed to calculate the level of awareness, knowledge, attitudes and practices regarding breast self-exam (BSE), mammography and risk factors for breast cancer. The questionnaires were counted for the questions addressing knowledge regarding risk factors for breast cancer and awareness about the screening methods.

The data were entered into a pre-designed file by two individuals separately, using SPSS Version 21.Both data sets were then tested to identify any mistakes in data entry and all inconsistencies during the process of data entry, were settled and resolved using the hard copy of the filled questionnaires. The data sets were then combined and the data was analyzed using SPSS 21.

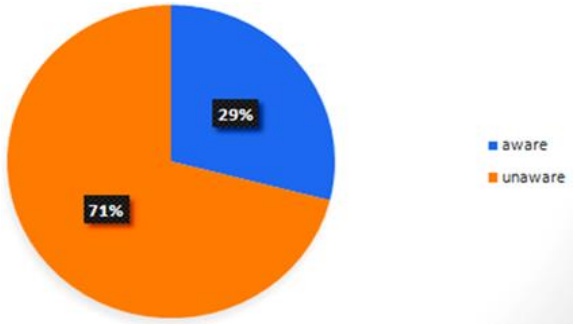
Descriptive statistics were used to describe the data with respect to the age, education level and marital status. Frequencies and percentages were computed for categorical variables. Mean and SD corresponding 95% confidence interval for continuous variables**.**

RESULTS

Total 433 questionnaires were distributed among females attended at Abbasi Shaheed hospital Karachi. Analysis of practices relating to BSE, clinical breast examination and mammography showed that 126 (29%) had heard about BSE, only 29(23%) were done BSE showed in Table 1and graph 1, 2.

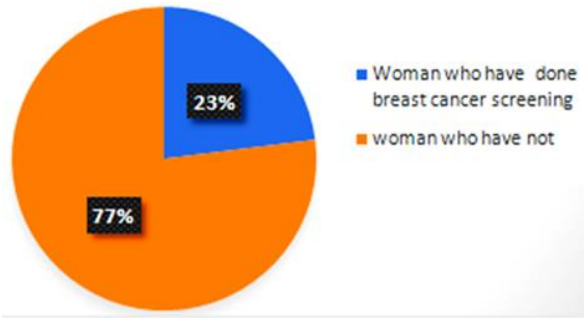
Table No.1: Awareness regarding Breast Self Examination

Screening Methods	Aware	Unaware	Total
	29%(n=126)	97%(n=307)	433
Breast self-examination done	23%		
Breast self-examination not done	77%		



Graph No.1: Awareness Regarding Breast Cancer Screening

Out of total 433 females who consented to take part in the research, 29% (126) women knew about breast cancer screening while 71% (307) women did not.

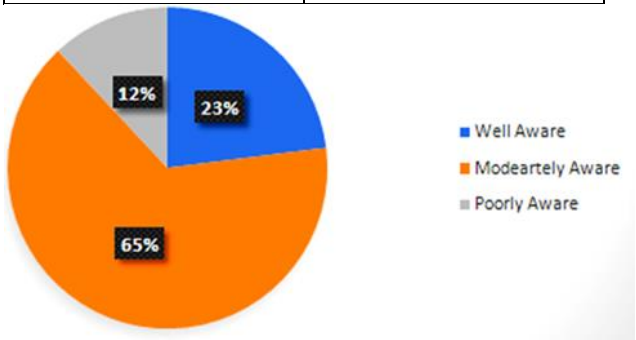


Graph No.2: Ratio of breast cancer screening.

Out of total126 respondents, only 29 (23%) had done breast cancer screening while the rest 97(77%) did not practice it.

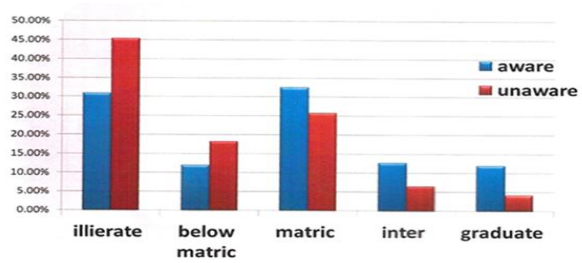
Grading of Awareness of Brest CA Screening

WELL AWARE	Those who answered 4 to 5 questions.
MODERATELY AWARE	Those who answered 2 to 3 questions.
POORLY AWARE	Those who didn't answer any question or only one answer.



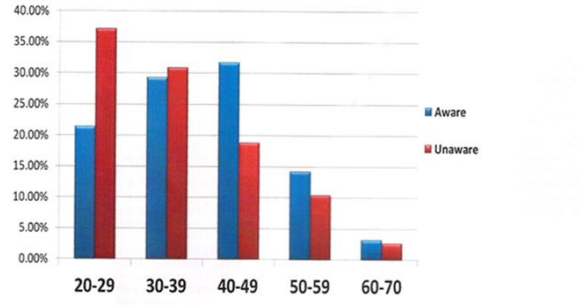
Graph No.3: Grading of Awareness of Brest CA Screening

Out of 433 women, 126 women had awareness regarding breast cancer screening. Majority of participants were 20- 40 years and, married 93.65%, only 6.34% were unmarried. The literacy percentage was found to be 69.05% showes in graph 4, most of the respondents were metric (47.12%), under metric (17.2%), intermediate (18.39%), graduate (17.2%) and illiterate were 30.95%.



Graph No.4a: Comparison of literacy and awareness.

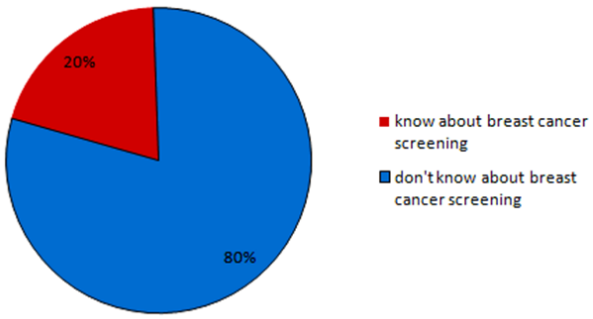
Level of awareness is directly proportional to literacy.



Graph No.4b: Comparison of Age and awareness.

Level of awareness is more in middle aged women.

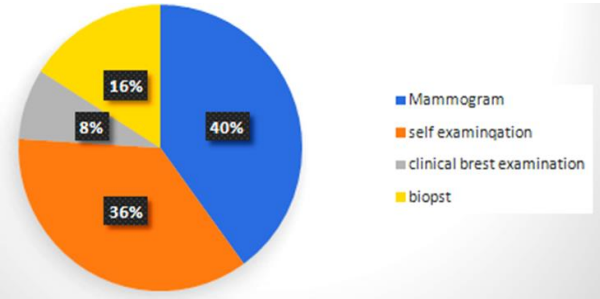
Majority of women (graph 5) 80.2% had no knowledge about breast cancer screening Methods only 19.8% had knowledge regarding Screening methods, Clinical Breast Examination (6.3%), Breast Self-Examination (1.6%) and Biopsy (3.2%). Mammogram was found to be the most common method acknowledged by the women (40%).



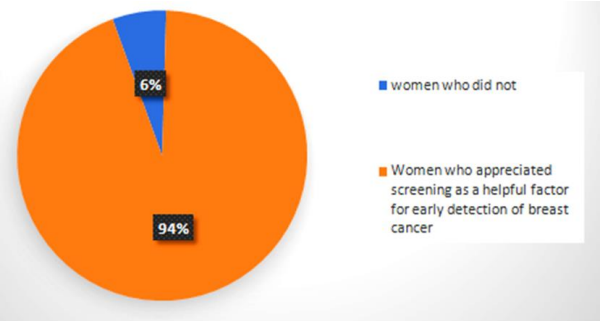
Graph No.5a: Knowledge about the method of breast cancer screening:

Out of 126 respondents who have knowledge regarding breast cancer screening 93.7% appreciated screening as helpful factor for early detection of Breast cancer whereas 6.3% did not.

Out of 126 women, 7.6% women had knowledge about cancer signs and symptoms whereas 94.4% had no knowledge.



Graph No.5b: Knowledge about the method of breast cancer screening



Graph No.6: Knowledge about screening as a helpful factor for early detection of breast cancer

DISCUSSION

Studies regarding breast cancer awareness and the BSE have been conducted in different populations. Various studies conducted showed the similar results to our findings, like education, higher levels of education and income are significant determinants of knowledge of breast cancer risk factors and BSE practice. In our study 69.05% women are literate and are aware about breast cancer screening. The same result showed in a study done in India,[14]where higher education status and married women have the incidence of breast cancer is lower due to awareness of screening of breast cancer.[14] Same study was done in Nepal which showed Graduates were more aware about Breast self-examination, mammogram and warning signs of breast cancer compared to those with low educational levels.[16]Another study in south eastern Iran also showed same relationship between education and Breast cancer screening awareness.[12]

The early detection of breast cancer by screening is directly related to prognosis of disease.[1,8,15] A study from 25 universities of 24 countries across Asia, Africa and America which showed overall 50.4% female students knew how to conduct breast self-examination. Among them monthly practice of Breast self-examination in Nigeria and Laos was above 20% and in Bangladesh and India was below 2%.[21]

In our study 80.2% had no knowledge about breast cancer screening methods, same results were shown in a study conducted in Bangladesh.[13]The awareness about mammograms as screening tool is directly proportional to literacy a finding similar to that reported by Sobani ZU1 et al which also found poor knowledge of Mammogram as a screening tool in illiterate women.[20]In our study level of awareness about breast cancer and screening are more in middle age women (32-49 year) 91.5%, same finding were found in studies done in Malysia[7]and Iran. [17]

In our study there were about 93.7% respondents appreciated screenings as helpful factor for early detection of breast cancer same results showed a study done in Pakistan by Zahida AM et al.[4] Data from National American survey on cancer risk revealed that knowledge regarding breast cancer were poor among the poorest and least educated women similar findings were reported among Pakistani women.[2]In our study Lack of Breast cancer screening awareness was prevalent mostly in lower socio economic category. Same results showed in a study done in India in which Lack of BC awareness was prevalent, especially in low socioeconomic class. Women's aim be addressed by BC awareness campaigns.

CONCLUSION

Knowledge and awareness about breast cancer screening were more in literate and married respondents. There were 69.05% literate respondents, 13.9% were illiterate. 90% of participants did not have any knowledge regarding Breast Cancer screening methods. Awareness about breast screening methods 30% in 30-49 years of age participants. Breast cancer screening awareness will reduce the mortality among women due to breast cancer.

Recommendations: The women knowledge about Breast cancer and its detection methods is need to increase by awareness programs.

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Author's Contribution:

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Final Approval of version:	Farhat Jafri

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

REFERENCES

1. Naz N, Khanum S, Sasso GT, De Souza MD. Women's Views on Handling and Managing their Breast Cancer in Pakistan. A Qualitative Study Academic Editor: Maurizio Battin Received: 7 February 2016; Accepted: 7 April 2016; Published: 14 April 2016:
2. Global cancer facts & figure 3rd Edition American cancer society.www.cancer.org/acs/groups/ content @research/documents/document/acspc-044738. pdf)
3. Jamil A, Kouser S, Zareen A, Saeed. Awareness &practice of breast self-examination among doctors & nurses in Punjab & Sindh. www.jsogp.net/...
4. Memon ZA, Kanwal N, Sami M, Larik PA, Farooq MZ. Risk of Breast Cancer among Young Women and Importance of Early Screening. Asian Pac J Cancer Prev 2015;16(17):7485-9..
5. A Gupta AK. Shridhar AB, Dhillona PK. A review of breast cancer awareness among women in India: Cancer literate or awareness deficit? Eur J Cancer. 2015; 51(14): 2058–2066.
6. Gaikwad HN, Narwadkar PA, Barge SA. Enhancement of mammogram for detection of breast cancer using adaptive median filter. IRMS: Vol. 2, Special Issue 1, March, 2016 ISSN (Online): 2454-8499 Impact Factor: 1.3599(GIF),0. 679(IIFS)
7. Norlaili AA1, Fatihah MA, Daliana NF, Maznah D. Breast cancer awareness of rural women in Malaysia: is it the same as in the cities? Asian Pac J Cancer Prev 2013;14(12):7161-4
8. Siddharth R, Gupta D, Narang R, Singh P. Knowledge, attitude and practice about breast cancer and breast self-examination among women seeking out-patient care in a teaching hospital in central India. Ind J Cancer 2016;53(2):226-229.
9. Dey S, Sharma S, Mishra A, Krishnan S, Govil J, Dhillon PK. Breast Cancer Awareness and Prevention Behavior Among Women of Delhi, India. Identifying Barriers to Early Detection Breast Cancer (Auckl): 2016;10:147-156.
10. Al-Khamis, NK. Low. Awareness of Breast Cancer and Considerable Barriers to Early Presentation Among Saudi Women at a Primary Care Setting.J Cancer Edu 2016;[Epub ahead of print]
11. De Oliveira RD, Santos MC, Moreira CB, Fernandes AF. Detection of Breast Cancer: Knowledge, Attitude, and Practice of Family Health Strategy Women. J Cancer Educ 2017 Mar 14;doi: 10.1007/s13187-017-1209-4.
12. Balouchi A1, Shahdadi H, AlKhasawneh E, Abdollahimohammad A, Firouzkouhi M, Sarani H, et al. Rural Women's Awareness about Breast Cancer in Southeastern Iran a Cross-Sectional Study. Asian Pac J Cancer Prev 2016;17(4):1875-9
13. Islam RM, Bell RJ, Billah B, Hossain MB, Davis SR. Awareness of breast cancer and barriers to breast screening uptake in Bangladesh: A population based survey. Maturitas 2016;84:68-74.
14. Gadgil A, Sauvaget C, Roy N, Grosse Frie K, Chakraborty A, Lucas E, et al. Breast Cancer Awareness among Middle Class Urban Women--a Community-Based Study from Mumbai, India. Asian Pac J Cancer Prev 2015;16(15):6249-54.
15. Tazhibi M, Feizi A. Awareness levels about breast cancer risk factors, early warning signs, and screening and therapeutic approaches among Iranian adult women: a large population based study using latent class analysis. Biomed Res Int 2014;306352.
16. Sathian B, Nagaraja SB, Banerjee I, Sreedharan J, De A, Roy B, et al. Awareness of breast cancer warning signs and screening methods among female residents of Pokhara valley, Nepal. Asian Pac J Cancer Prev 2014;15(11):4723-6.
17. Hajian Tilaki K, Auladi S. Awareness, Attitude, and Practice of Breast Cancer Screening Women, and the Associated Socio-Demographic Characteristics, in Northern Iran. Iran J Cancer Prev 2015;8(4):e3429.
18. Gosein MA, Pinto Pereira SM, Narinesingh D, Ameeral A. Breast cancer and mammography: knowledge, attitudes, practices and patient satisfaction post-mammography at the San Fernando General Hospital, Trinidad. J Health Care Poor Underserved 2014;25(1):142-60.
19. Memon ZA, Kanwal N, Sami M, Larik PA, Farooq MA. Risk of breast cancer among young women & importance of early screening. Asian Pac J Cancer Prev 2015; 16(17); 7485-9)
20. Sobani ZU, Saeed Z, Baloch HN, Majeed A, Chaudry S, Sheikh A, et al. Knowledge attitude & practices among urban women of Karachi Pakistan regarding Breast cancer. J Pak Med Assoc 2012; 62(11):1259-64
21. Pemopid S, Pelzer K. Knowledge, attitude & practice of Breast self-examination among university students from 24 low, middle income & emerging economy countries. Asian Pac Cancer Prev 2014;15(20):8637-40.

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When appropriate, may be included.

ACKNOWLEDGMENTS

List of all contributors who do not meet the criteria for Authorship, such as a person who provided purely technical help, writing assistance or department chair who provided only general support. Financial & Material support should be acknowledged.

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