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Editorial

Editorial

Early Detection of Lung Cancer

Mohsin Masud Jan
Editor

Lung cancer screenings using low-dose CT scans can successfully detect malignant tumors before they can spread to other parts of the body, according to two new studies.

Yearly screenings with CT scans are more effective than regular chest X-rays in finding early stage cancers, according to a U.S. study is part of the federally funded National Lung Screening Trial. CT scans caught more early stage lung cancers than chest X-rays did during annual screenings over three years, the research team reported. What's more, the ability to accurately detect cancer improved year to year. "When we're screening once a year, every year we are finding early stage lung cancer that are potentially curable, "said Dr. Caroline Chiles, a professor of radiology in the Comprehensive Cancer Center of Wake Forest Baptist Medical Center and a principal investigator for the national lung screening study. "We really start seeing benefit when someone says in annual screening."

The findings appear in the Sept. 5 issue of the New England Journal of Medicine, along with another related study. Canadian researchers have developed an effective method for sorting potentially dangerous tumors from benign nodules detected during CT lung screening, the second study reports. Their checklist takes into account the size, shape and location of detected nodules, as well as other risk factors such as smoking or family history, said lead author Dr. Stephen Lam, chair of the provincial Lung Tumor Group and director of the MDS-Rix Early Lung Cancer Detection and Translational Research Program at the British Columbia Cancer Agency. "Our nodule predictor has accuracy of over 90 percent in determining whether a nodule needs to be followed up to rule out a cancerous lesion," Lam said. Doctors using the checklist can prevent people from receiving unnecessary follow –up CT scans or biopsies, reducing their radiation exposure or surgical risk, said Lam, who is also a professor of medicine at the University of British Columbia. These studies appear as U.S. official are weighing whether to green-light annual CT scans as a preventive health measure for a specifically defined set of heavy smokers. The U.S. Preventive Services Task Force, an independent volunteer panel of national health experts – has recommended regular low dose screenings for current and former smokers aged 55 to 80 with at least a 30 "pack-year" history of smoking who have had a cigarette sometime within the last 15 years. Pack years are determined by multiplying the number of packs smoked daily by the number of year a person has smoked. For example, a person who has smoked two packs a day for 15 years has 30 pack years, as has a person who has smoked a pack a day for 30 years. A public comment period on the task force's draft recommendation ended on Aug 26. The health care community now awaits the panel's final rule. The U.S. study follows up on earlier findings that showed that three years of low-dose CT scans reduced lung cancer deaths by about 20 percent. The trail involved more than 53,000 people who were assigned either CT scans or chest X-rays for three years. The new study provides more detail on how the follow-up annual scans improve the effectiveness of screening, Chiles said. "You have to show not only an increase in the number of patients with early stages, you also have to show a decrease in the number of advanced –stage lung cancers," Chiles said. "That ways, we know the true benefit comes with the screenings that come in the following year, and the year after that. Cancer was not detectable the year earlier." Early stage lung cancer accounted for about half of the cancers detected by CT scans in the first and second fellow up years. Only 24 percent of the cancers detected by chest X-rays were early stage. At the same time, CT scans detected half as many cancers that had been allowed to progress to the last stage: 15 percent of all cancers detected, compared with 30 percent of all the cancers detected by X-rays. "We saw a significant decrease in the number of late-stage lung cancers," Chiles said. We feel we showed a shift to early stages treatable lung cancer in the low-dose CT group."

The Canadian researchers took a similar multiyear tack. They used their checklist to assess the potential hazard of lung nodules detected during the first CT scan, and then used two years of follow-up lung screenings to see whether their model worked. A total of more than 12,000 lungs cancer nodules observed on CTs of nearly 3,000 current and former smokers were examined. The checklist runs counter to current standards, which mainly rely on the size of a nodule to determine whether more tests should be run. But the team found that in one of five study participants, the largest nodule in their lungs did not prove malignant. Other dynamics like the shape of the mass, its location in the lung, and the individual person's risk factors must be accounted for to properly assess the hazard posed.

For example, nodules located in the upper lobes of the lungs increased the likelihood of cancer, the report says. However, more nodules found in a CT scan actually decreases cancer risk. The new model is much better at predicting cancer than previous checklists, said Dr. Christine Berg, Investigator of the National Lung Screening Trial for the U.S. National Cancer Institute. "If you have a nodule you can predict it's positive almost 20 percent, which is a lot better than what we had," she said. The model is even better at ruling out nonmalignant nodules, which could save patients from unnecessary repeat testing, lowering their radiation exposure and risk from procedures. "If you say something is benign using the model, the chances of it being malignant are extremely small, about 99.6 percent," Berg said. "This is an excellent first cut of determining whether a nodule on your scan is malignant or not."

Original Article

Hep. C & B Virus in Rural Areas

Frequency of Hepatitis C and Hepatitis B Virus in Rural Areas of Pakistan, An Experience at Tertiary Care Hospital in Khurrianwala

Munazza Choudary[1], Asma Rehman[1], Sadeea Shafique[2] and Zarrin Khaliq Chaudari[1]

ABSTRACT

Objective: To find out the frequency of Hepatitis C virus and Hepatitis B virus in Rural areas of Pakistan, an experience at a Tertiary Care Hospital in Khurrianwala.

Study design: Cross-sectional / comparative study.

Place and Duration of study: This study was conducted at the Department of Pathology, Abwa Hospital and Research Centre, Khurrianwala, Faisalabad from 01.01.2019 to 31.03.2019.

Materials and Methods: The study included a total of 1000 patients visiting the screening camp. The screening camp was arranged to screen the individuals for viral hepatitis B and C in the hospital premises. General public, especially of the surrounding villages, were informed about the location and timings of the camp.

All healthy, asymptomatic adults not previously screened were included. Individuals previously tested and confirmed of disease, or on treatment for HBV/HCV, were excluded from the study.

Results: In this study, a total of 1000 patients were screened, each for hepatitis B and C virus. All these patients belonged to rural areas of khurrianwala. Among these patients 489 (48.9%) were HCV positive and 511 were (51.1%) found to be HCV negative, whereas 47 (4.7%) were HBV positive and 953 (95.3%) were found to be HBV negative.

Conclusion: In developing countries like Pakistan, with high rates of HCV and HBV infection rates, screening is mandatory for early diagnosis and ICT is easy, practical, economical and convenient. However, patients should be guided to get ELISA done to avoid false positive results.

Key Words: Hepatitis C virus (HCV), Hepatitis B virus (HBV), ICT, Screening

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INTRODUCTION

Hepatitis B and Hepatitis C virus infections are one of the major health problems encountered worldwide. It is especially true for developing countries like Pakistan.[1]

Hepatitis C virus (HCV) is an enveloped single stranded RNA virus which belongs to the flaviviridae family of viruses. It is responsible for the majority of viral hepatitis and it mainly affects the liver.[2,3]

Infected blood along with blood products and other body fluids is the major source of HCV infection.[4] Whereas high risk behaviours and lifestyles are leading cause of HCV infection in young adults;[5] use of infected razors, infected sexual partner, tattooing and intravenous drug injecting.[4]

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Other risk factors include occupational exposure, dental procedures, reuse of syringes, household contact and perinatal exposure. [4,5]

A worldwide prevalence of about 3% has been estimated by the World health organization (WHO) which means approximately 170 million people are infected with HCV globally. [6,7] Among the public health issues of the 21st Century, one major public health issue is being infected with HCV.[8] In Asia pacific region the prevalence rate of HCV is from from 4% to 12%.[6]

In Pakistan, 6% of the total population, that is more than 10 million people are infected with HCV.[6] HCV-infected people act as a reservoir for transmission of infection to others. HCV infection leads to a high rate of mortality and morbidity due to risk of developing chronic liver disease, cirrhosis, and primary hepatocellular carcinoma.[5]

Hepatitis B virus (HBV), is a partially double-stranded DNA virus and a member of the Hepadnaviridae family of viruses.[9] HBV infection is a serious global health problem. More than 240 million people in the world are estimated to be infected with HBV according to WHO statistics.[10]

Transmission of HBV is by exposure to infected blood or blood products, by body fluids, by intravenous drug abuse, by sexual contact with infected persons, or vertically transmitted from mother to child in utero.[10]
Active infection by HBV is identified by laboratory testing for Hepatitis B surface antigen (HBsAg) which is the serologic hallmark to detect active infection by HBV. HBsAg is typically detected by a sensitive immunoassay that uses antibody to hepatitis B surface antigen to capture the antigen in the sample.[11]
HBsAg and Anti HCV antibodies are effectively detected by immunoassays,[11] but have many limitations in endemic regions of the world with poor resources. The limitations include high cost of facility, specialized equipment, trained technicians, and continuous supply of electricity. All of these factors lead to high cost of tests which are not afforded by lower socio economic class of third world countries like Pakistan. The advantages include reduced cost of facility, early diagnosis which leads to timely treatment in poor regions of the world.

MATERIALS AND METHODS

It is a cross sectional descriptive study conducted at the Department of Pathology in Abwa Hospital, Khurrianwala. The study data was collected over a period of three-months from 01.01.2019 to 31.03.2019. The study included a total of 1000 patients visiting the screening camp. A screening camp to screen the individuals for viral hepatitis B and C, was arranged in the hospital premises and general public, especially of the surrounding villages, were informed about the location and timings of the camp. All healthy, asymptomatic adults not previously screened were included. Individuals previously tested and confirmed of disease, or on treatment patients for HBV/HCV, were excluded from the study. After reassurance and informed consent of the individual, 2 ml of venous blood was drawn from the antecubital vein by aseptic technique and collected in the sample tube. Screening was done with Healgen One Step Rapid Test, which is a rapid chromatographic immunoassay for Anti-HCV antibodies and HBsAg (Healgen Scientific LLC, Houstan, USA). It has a relative sensitivity of 98.13%, relative specificity of 98.9% and an accuracy of 98.8% for Anti-HCV antibodies and a relative sensitivity of 99.19%, relative specificity of 98.8% and an accuracy of 99% for HBsAg. For Anti-HCV, 30µL of serum or plasma was added to the S well of the test cassette followed by addition of 40µL of sample buffer immediately. Read and interpret the results after 15 minutes. For HBsAg, approximately 90µL of serum or plasma was added into the S well and results were read and interpreted after 15 minutes. Test was considered positive if two colored lines appeared in reading window opposite the place marked as C (control) and T (test) on the test cassette, negative if only one colored line appeared against C mark and invalid if no colored line appeared against the C mark. Invalid tests were repeated. Those found HBV or HCV positive were guided to reconfirm with ELISA.
All statistical analyses were carried out using statistical program for social sciences (SPSS) version 20.0. The analyzed variables included age as the numerical data, for which mean and standard deviation were calculated. Percentages were used for qualitative data like frequency of HBV & HCV.

RESULTS

In this study, a total of 1000 patients were screened, each for hepatitis B and C virus. All these patients belonged to rural areas of khurrianwala. Among these patients 489 (48.9%) were HCV positive and 511 were (51.1%) turned HCV negative. Among HCV positive 242 (49.5%) were males and 247 (50.5%) were females. All these HCV positive patients were of different age groups. The minimum age was 17 years and maximum was 80 years, mean ± S.D of age was 42.7±11.2. Percentage of HCV positive in different age groups is shown in the table I.

Table No.I: Percentage of HCV positive patients in different age groups

Age groups	Number of positive patients	Percentage of positive patients
1 to 20 Years Positive	5	1.0 %
21 to 40 Years Positive	237	48.4 %
41 to 60 Years Positive	222	45.3 %
61 to over all	25	5.3 %

Among these patients 47 (4.7%) were HBV positive and 953(95.3%) turned HBV negative. Among HBV positive 39 (3.9%) were males and 8 (0.8%) were females. All these HBV positive patients were of different age groups. The minimum age was 20 years and maximum was 62 years, mean ± S.D of age was 35±10.7. Percentage of HCV positive in different age groups is shown in the table 2.

Table No.2: Percentage of HBV positive patients in different age groups

Age groups	Number of positive patients	Percentage of positive patients
1 to 20 Years	1	2.1 %
21 to 40 Years	33	70.3 %
41 to 60 Years	13	27.6 %

DISCUSSION

HCV and HBV is worldwide health issue, past studies have demonstrated substantial morbidity and mortality from both intense contaminations and unremitting complications. In the United States, of the foreseen 3–4

million people with hepatitis C, just roughly a large portion of a million have been dealt with, and the rest have not been recognized. Most conclusions of hepatitis C are made by good fortune, when people with asymptomatic hepatitis C endeavor to give blood or when they have blood drawn as a major aspect of routine therapeutic assessments or during protection physical assessments.[12]

Different countries develop specific approaches for prevention, detection and control and are critical in assessing the prevalence of these viruses. Systematic review and meta-analysis of the prevalence of HIV, HBV and HCV infections in Sudan shows that reducing the overall burden of these viral infections would require new interventions and national policies and identification of infection on priority basis. [13]

This study is designed to evaluate the prevalence and effective detection of hepatitis C and B virus in the general population of Khurrianwala. In our study, a large portion of the people positive for hepatitis B and C belong to low class financial status and country regions. Pakistan lies between center to low salary nations with more than one-twelfth of work power unemployed, where more than one fifth of the populace dies down in neediness and major portion of the populace is unskilled. [12]

Concurring to Populace Census Organization, Pakistan has 165.8 million people where urban population is 32.5%. It has been well reported that HBV disease is more predominant in low socio-economic settings as in Indonesia and so also in Pakistan. [12, 16]

In our study 1000 asymptomatic, healthy individuals, who were not suffering from hepatitis and any other liver disease were enrolled and screened for hepatitis C and hepatitis B virus. All the subjects belonged to low socio economic families. Hepatitis C was found in 48.9 % of individuals. Females showed a higher positive ratio about 50.5 %. There is no vertical transmission of hepatitis C documented in literature. Below 19 years of age no patient was found hepatitis C positive which is in accordance with past studies. Among 21 to 40 years old individuals 48.4 % were positive for HCV, this is highest prevalence group followed by 41 to 60 Years age group. Among 1000 patients screened 47 (4.7%) were HBV positive and 953(95.3%) turned HBV negative. Among HBV positive 39 (3.9%) were males and 8 (0.8%) were females. Highest positivity was observed in 21 to 40 years age group (3.3%). The tall level of anti-HBsAg within the more youthful age is a characteristic of the dynamic endeavors of EPI after inclusion of HBV immunization within the schedule immunization practice. Public mindfulness plays a much vital part within the avoidance and control of contaminations particularly those having no appropriate or particular treatment and remedy.[12, 16]

In a study, 751 of 16,400 patients (4.57%) were found to positive HCV Ab from 1998-2002 among Pakistanis in the Middle East, with the largest age group from 41-50 years of age.[7] Among male blood donors in Karachi, the seroprevalence of HCV was 1.8% with a trend of increasing proportion of positive donors from 1998-2002. [14] In another study carried out in urban population of Multan it was observed that prevalence of HCV was about 6.68%. It was highest among mature males (8.92%) as compared to young males (6.66%) and elderly males (7.69%). The prevalence of hepatitis C was higher (5.68%) in elderly females as compared to mature females (5.03%) and young females (5.17%).In the study it was found that contaminated barber, parlor tools were main factors for transmission of the virus i,e. about 23.07%.Unscreened blood transfusion contributed 17.94%, contaminated dentist equipments 17.94%, infected syringes 15.38%, and contaminated surgical equipment 12.82%.[15]

The risk factor included the ongoing episode of HBV contamination detailed from Larkana (Sindh region of Pakistan) has been seen as the intravenous medication use. The restrictions of our examination incorporate the absence of data about HBV related hazard elements like different blood transfusions, hemodialysis, dental techniques, frequent hair stylist visiting and horizontal transmission modes. Likewise, the target populaces like intravenous drug clients and habitual are increasingly inclined and helpless against get and transmit disease much of the time and needs specific consideration.[12]

Our study highlights and advocates the importance of screening for early detection.[16] Numerous studies document the value of screening, particularly high risk individuals, primarily to play down budgetary burden and to suggest recommendations for the treatment and prevention of transmission, especially in people infected with HBV. The American Gastroenterological Association advocates unequivocally that individual from high-hazard crowds, even, who are asymptomatic, ought to be screened for proof of HCV positivity.[17, 12]

Although ICT devices are not best to predict the precise prevalence of HCV infection however in most health centers ICT devices are used to check HCV infection. [18] It is suggested that positive cases should be followed by ELISA and PCR.[19, 20]

CONCLUSION

Conclusion: In developing countries like Pakistan, with high rates of HCV and HBV infection rates, screening is mandatory for early diagnosis and ICT is easy, practical, economical and convenient. However, patients should be guided to get ELISA done to avoid false positive results.

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Original Article

Hypovitaminosis B_{12} is Associated with Long Term Consumption of Proton Pump Inhibitors

Vit. B_{12} after use of Proton Pump Inhibitors

Muhammad Akbar[1], Abdul Karim Soomro[3], Fatima Qureshi[4], Farheen Malik[2], Haji Khan Khoharo[2] and Shoukat Ali Memon[2]

ABSTRACT

Objective: Determining vitamin B_{12} levels in subjects using Proton pump inhibitors (PPIs) for more than 3 years reporting at a tertiary care hospital of Sindh

Study Design: Case control study

Place and Duration: This study was conducted at the Department of Pathology and Biochemistry, Bilawal Medical College from January – December 2017.

Materials and Methods: A sample of 100 subjects was selected; 50 cases using PPIs > 3 years duration and 50 controls (no PPIs) by convenient sampling through inclusion and exclusion criteria. 5 ml blood was collected; 3 ml put into EDTA tubes for complete blood counts and 2 ml for sera. Vitamin B_{12} was measured by ELISA assay. Results were analyzed on SPSS (ver 21.0) by Student t-test and Chi-square test at 95% CI ($P \leq 0.05$).

Results: Vitamin B_{12} in control and cases was found as 315.15±41.33 vs. 276.91±90.1 pg/dl (P=0.0001). Frequency and % of normal, borderline deficiency, deficiency and severe deficiency of vitamin B_{12} were noted as 31 (62%) vs. 11 (22%), 9(18%) vs. 21 (42%), 7 (14%) vs. 11 (22%), and 3 (6%) vs. 7 (14%) (P=0.0001). Cumulative vitamin B_{12} deficiency in 38% of control and 78% of cases (P=0.0001).

Conclusion: In conclusion, the long term use of Proton pump inhibitor is associated with hypovitaminosis B_{12}.

Key Words: Proton pump inhibitors, Hypovitaminosis B_{12}, MCV, Sindh

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INTRODUCTION

Proton pump inhibitors (PPIs) are widely used for acidity problem. PPIs are used as first line therapy for acid peptic disease and are potent for day time dyspepsia.[1] It is claimed the PPIs inhibit approximately 80% to 95% acid production at optimal dose. PPIs are now the most frequently prescribed drugs the World over. Its major indications are in acid-peptic disorders, peptic ulcers, gastro-esophageal reflux disease (GERD) and Zollinger-Ellison syndrome (ZES).[1,2] One major drawback of acid suppression is inhibition of intrinsic factor secretion that is essential for the vitamin B_{12}. Vitamin B_{12} (cobalamin) is involved as co-enzyme in biochemical reactions catalyzed by methionine synthetase and methylmalonyl- CoA mutase.[3,4] Body produces 2 active co-enzymes; the "methyl-cobalamin" and "S- adenosyl cobalamin" from the vitamin B_{12} and function as 1-carbon donor for the nucleotide synthesis. Methionine synthetase and methylmalonyl- CoA mutase need methyl- cobalamin and S- adenosyl cobalamin respectively.[3,4] Vitamin B_{12} is necessary for the myelin sheath and nuclear maturation of rapidly proliferating cells such as those of bone marrow along with folic acid. Vitamin B_{12} deficiency leads to a number of disorders such as megaloblastic anemia, hemolysis, pancytopenia, myelopathy, neuropathy, and malabsorption syndrome.[5,6] Thus vitamin B_{12} deficiency has been thought resulting from long-term use of PPIs. Previous studies[5-8] suggest long term consumption of PPIs lead to vitamin B_{12} deficiency. Gastric acid suppression by PPIs inhibits vitamin B_{12} gut absorption through several mechanisms. One is the altered extraction of vitamin B_{12} bound to dietary proteins by changed intra gastric pH. Second is the gastric intrinsic factor deficiency through suppression of parietal cell and third is the intestinal bacterial growth which increases bacterial consumption of vitamin B_{12}.[5,6] Currently, the PPIs are widely used drugs in Pakistan[9] this needs evaluation of vitamin B_{12} in the long term consumers of proton pump inhibitors. As the vitamin B_{12} is essential for biochemical reactions, it is worth to analyze the blood levels of this vitamin among chronic long term users of PPIs in the society. The present study will provide

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information on vitamin B_{12} deficiency (hypovitaminosis B_{12}) in the setting of long term PPIs consumption. The present study may help to make awareness on the use of PPIs in relation to vitamin B_{12} deficiency and associated deficiency disorders.

MATERIALS AND METHODS

The present case control study was planned and conducted at the Department of Pathology and Biochemistry, Bilawal Medical College from January–December 2017. Sample size was calculated by 'sampling for proportions'. A sample of 50 PPIs users were labeled as cases (n=50). Age and gender matched control (n=50) were also studied. A case was defined as using PPIs for >3 years duration and a control as never used PPIs. Cases were selected by convenient sampling by inclusion and exclusion criteria. Inclusion criteria were; age 25- 50 years, both gender, PPIs of >3 years duration, PPIs dose of ≤ 40 mg daily. Strict vegetarians, chronic diarrhea, malabsorption syndrome, pancreatic disease, autoimmune disease process, history of abdominal tuberculosis, thyroid disorders, diabetic patients and chronic liver disease, were excluded. Subjects taking calcium supplements, vitamin pills and meat and liver during last 3 months were excluded. Subjects attending the outpatient department of the hospital, using the PPIs for long durations were communicated. Drug history was inquired. Volunteers were fully intimated the purpose of study. And willing participants were asked to sign consent form. Benefits and harms of study protocol were explained by researcher. Volunteers were informed that the study will cause no harm and no expense of laboratory investigations. A proforma of study protocol was used for proper history, physical findings, clinical problem, and blood findings. Confidentiality of data was ensured. Volunteers were informed that the data will never be publicized. Medical officers were asked to help selecting the cases to fulfill the inclusion and exclusion criteria. Volunteers equaling the selection criteria were asked for blood sampling. Volunteers were taken to examination couch; a tourniquet was put above the cubital fossa. Body part was sterilized with alcohol swab. A sterilized Disposable syringe (BD, USA) was used for venesection. 5 ml blood was collected in Disposable syringe (BD, USA). 3 ml of blood sample was put into EDTA tubes, and processed for complete blood counts in a hematology analyzer. 2 ml blood was used to extract sera by centrifugation for measuring vitamin B_{12} by ELISA assay. Vitamin B_{12} levels were defined as; >240pg/ml as normal, 170-240 pg/ml as borderline deficiency, <170 pg/ml as deficiency and <100 pg/ml as severe vitamin B_{12} deficiency.[4] Data was typed on excel sheet and copied to SPSS (version 21.0) for statistical analysis. Student t-test analyzed the numerical variables and output presented as mean and standard deviation (SD). Chi-square test analyzed the categorical data and output tabulated as frequency and %. Data was analyzed at 95% CI ($P \leq 0.05$).

RESULTS

Age (mean± SD) of control and cases was 47.5±11.9 and 48.3±9.57 years respectively (P=0.81). Male and female in control and cases were noted as 27 (54%) vs. 26 (52%) and 23 (46%) vs. 24 (48%) respectively (P=0.076). Hematocrit, hemoglobin, RBC counts and Platelets shows statistical difference between control and cases (P>0.05) (Table-1).

Table No. 1: Demography, Vitamin B_{12} and Hematological findings of study subjects (n=100)

	Control	Cases (PPI)	P-value
Age (years)	47.5±11.9	48.3±9.57	0.81
Male	27 (54%)	26 (52%)	0.076
Female	23 (46%)	24 (48%)	
Hematocrit (Hct.) (%)	43.5±1.29	37.4±5.07	0.014
Hemoglobin (g/dl)	12.3 ±2.01	11.6±2.5	0.001
White Blood cells (/µL)	9870.6±13.5	9671.6 ±12.1	0.91
RBC counts ($x10^9$/µL)	4.15±0.91	3.91±1.35	0.071
MCV (fl)	76.5±3.31	91.4±9.35	0.0001
Platelet ($x10^6$/ µL)	365±1.31	423.4±0.95	0.054
Vitamin B_{12} (pg/dl)	315.15±41.33	276.91±90.1	0.0001

Table No.2: Vitamin B_{12} levels in different categories (n=100)

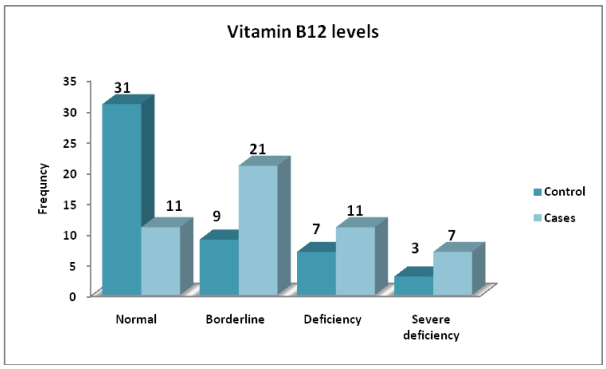
Vitamin B_{12} categories	Control	Cases	P-value
Normal (>240 pg/ml)	425.1±35.1	323.5±27.3	0.0001
Borderline deficiency (170-240 pg/dl)	193.8±15.6	189.6±10.4	
Deficiency (<170 pg/dl)	160.9±5.2	131.9±35.2	
Severe deficiency (<100 pg/dl)	91.8±5.7	51.7±13.5	

Mean corpuscular volume (MCV) and vitamin B12 in control and cases shows statistical significant difference. MCV (mean± SD) in control and cases was noted as 76.5±3.31 vs. 91.4±9.35 fl (P=0.0001).

Vitamin B_{12} (mean± SD) in control and cases were noted as 315.15±41.33 vs. 276.91±90.1 pg/dl (P=0.0001). Vitamin B_{12} (mean± SD) as normal, borderline deficiency, deficiency and severe deficiency shows statistical difference between control and cases (Table- 2).Frequency and % of normal, borderline deficiency, deficiency and severe deficiency of vitamin B_{12} were noted as 31 (62%) vs. 11 (22%), 9(18%) vs. 21 (42%), 7 (14%) vs. 11 (22%), and 3 (6%) vs. 7 (14%) (P=0.0001). Cumulative vitamin B_{12} deficiency was noted in 38% of control and 78% of cases (P=0.0001).

Table No.3: Frequency of Vitamin B_{12} in study subjects (n=100)

Vitamin B_{12}	Control	Cases	P-value
Normal levels (>240 pg/ml)	31 (62%)	11 (22%)	0.0001
Borderline deficiency (170-240 pg/dl)	9 (18%)	21 (42%)	
Deficiency (<170 pg/dl)	7 (14%)	11 (22%)	
Severe deficiency (<100 pg/dl)	3 (6%)	7 (14%)	
Total	50	50	



Graph No.1: Bar graph showing vitamin B_{12} in control and cases

DISCUSSION

A search of literature review, this is the first study reporting hypovitaminosis B_{12} in PPIs users of long (> 3 years) duration. We found cumulative vitamin B_{12} deficiency was noted in 38% of control and 78% of cases (P=0.0001). The hypovitaminosis B_{12} of present study is in agreement with previous studies.[5-8] Qorraj-Bytyqi et al[10] reported a study from Kosovo including 200 cases (PPIs) and 50 controls. Serum Fe++, ferritin, homocysteine and vitamin B_{12} were measured at baseline and after 1 year. They[10] reported hypovitaminosis B_{12} in 2.9% and hypoferrimeia in 3.8% of cases at 1 year of PPIs use. They[10] reported hypovitaminosis B_{12} in 2.9% and hypoferrimeia in 3.8% of cases at 1 year of PPIs use. The frequency of deficiency of vitamin B_{12} and serum Fe++ is very low but supports our present study`s findings. However, the reason of low frequency of vitamin B_{12} and serum Fe++ is clear that above study evaluated the parameters for12 month's duration while the present study determined the effects of PPIs use in chronic users of >3 years duration. Most probably this difference is because of short duration of above study. Mindiola et al[2] conducted study of vitamin B12 levels in chronic users of PPIs of long duration and found statistically significant differences. They found low vitamin B_{12} levels in those who consumed PPIs for more than 3 years. Our findings are supported by the above study. Another previous study[11] reported low vitamin B_{12} levels in those using PPIs for longer durations. In present study, the frequency and % of normal, borderline deficiency, deficiency and severe deficiency of vitamin B_{12} in control and cases were noted as 31 (62%) vs. 11 (22%), 9(18%) vs. 21 (42%), 7 (14%) vs. 11 (22%), and 3 (6%) vs. 7 (14%) (P=0.00016). These findings are supported by previous studies.[2,10-12] A Latin American study[12] reported 40% deficit of vitamin B_{12} in general population and 20% showed borderline deficit. Heidelbaugh et al[13] in their review article analyzed the effects of PPIs use and risk of minerals and vitamins deficiencies and clinical evidence in patients with GERD, dyspepsia, erosive esophagiitis and acid peptic disease. It was concluded that the people are using PPIs as on-demand and step-down therapy that created financial deficits to the public in addition to the medical problems. They[13] reported increased risk of minerals (Fe++, Ca++, Mg++and vitamins deficiencies (vitamin C, B_{12}, etc) that may be relatively low in the general population but enough in the elderly and malnourished patients.[13] A recent study from Lebanon population conducted by Makhoul et al[14] (2018) reported retrospective case-control study of 210 sample of age 18- to older from the Lebanese population. They found that the PPIs use >2 years in Lebanese was associated with hypovitaminosis B_{12}. They further added the female gender and young people showed strong association with PPIs use and hypovitaminosis B_{12}. The findings of above studies are in keeping with present studies. We are also supported by a nested case control study[15] from Kaiser Permanente Northern California (KPNC) that analyzed vitamin B_{12} in 25956 cases and 184199 controls and comparison showed statistical significant low vitamin B_{12} levels in long term PPIs cases.[15] The findings are in full agreement with the present study. A case report by Ruscin et al[16] reported severe vitamin B_{12} deficiency in a 78-year-old woman with symptomatic GERD who ingested the PPIs for 4.5 years. Vitamin B_{12} was found normal at baseline and severe deficiency was noted after 4.5 years PPIs consumption. A cross sectional study by Den Elzen et al[17] analyzed vitamin B_{12} in old aged individuals (age ≥65 years) using PPIs. They found no association vitamin B_{12} deficit with the long term PPIs use. The findings of above study are in contrast to present and other previous studies.[10-12] Reason could be of different geographical areas, dietary habits, qualitative differences of diet in different communities and research bias because of small sample size and statistical errors. Previous studies[18-20] from Pakistan have reported high prevalence of vitamin B_{12} in young age while in western countries vitamin B_{12}

deficiency is common in elderly[21], these discrepancies have created difficulties of estimating the true frequency of vitamin B_{12} in developing countries. The present study has many imperfections; 1st – effect of residual confounding factor of prevalent vitamin B_{12} cannot be fully eliminated, hence results may vary, 2nd – small sample size is not representative of total study population of area, and findings cannot be generalized. The strengths of present study are; case- control study, prospective study design, age and gender matched controls. Selection of cases by inclusion and exclusion criteria adds to the strength to the findings of present study. With evidence based findings and review of published literature, it is worth to say the hypovitaminosis B_{12} may be one of the grave health problem that needs to overcome through proper screening.

CONCLUSION

The present concludes the long term use of proton pump inhibitors is associated with hypovitaminosis B_{12}. It is suggested to conduct more studies at national level with large sample size to reach to the bitter fact of causality of hypovitaminosis B_{12} and Proton pump inhibitors as these are widely used in Pakistan.

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

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Original Article

Management of Oligohydramnios in Third Trimester

To Compare the Mean Amniotic Fluid Index with Oral Versus Intravenous Maternal Hydration for Management of Females Presenting with Oligohydramnios in Third Trimester of Pregnancy

Syeda Fakhra Gillani[1], Nasreen Hamid[1], Asma Liaqat[2], Farkhunda Akhtar[1], and Nimra Ikram[1]

ABSTRACT

Objective: To compare the mean amniotic fluid index with oral versus intravenous maternal hydration for management of females presenting with oligohydramnios in third trimester of pregnancy

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at Idris Teaching hospital Sialkot Medical College Sialkot from Jan 2017 to Jan 2018.

Materials and Methods: 200 patients were included in this study, the performa was designed to record the demographic data and lab tests advised and also ultrasound of abdomen of every patients was conducted. The written informed consent was taken from every patient before the start of the study . The permission of Ethical Committee was considered before start of the sampling and publishing in medical forum journal. The Data was analyzed for results on SPSS version 10.

Results: In our study the mean age of the patients was 28.68±6.85 years and the mean gestational age of the patients was 32.95±3.18 weeks. The mean value of pre-treatment AFI of the patients was 4.07±0.36cm and the mean value of post-treatment AFI of the patients was 4.09±0.37cm. Statistically there is insignificant difference was found between the post-treatment AFI values with study group i.e. p-value>0.05.

Conclusion: It has been proved in our study that there is insignificant difference between oral and intravenous hydration for management of females presenting with oligohydramnios in third trimester of pregnancy.

Key Words: Third trimester, Amniotic Fluid Index, AFI, Oral route, Intravenous route,

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INTRODUCTION

Amniotic fluid serves to protect the fetus and umbilical cord from compression, has antibacterial properties, and serves as a reservoir of water and nutrients. Early in gestation it is derived from mother and fetus, later its main source is fetus (fetal urine and lung fluid). Oligohydramnios is defined as amniotic fluid index (AFI) of less than 5cm.[1]

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Oligohydramnios may be responsible for malpresentation problems, umbilical cord compression, concentration of meconium in the liquor, and difficult or failed external cephalic version. Simple maternal hydration appears to increase amniotic fluid volume (AFV)[2].Maternal intravenous as well as oral hydration increases AFV in women with oligohydramnios but neither appears to be advantageous over the other to increase AFV[3]. Maternal hyrange dration with hypotonic solution (water) causes osmotic changes, which relates to parallel decrease in foetal osmolarity, increase in fetal urine flow and formation of amniotic fluid. Maternal oral hydration is more effective than intravenous hydration in patients with 3rd trimester oligohydramnios[4]. In pregnancies complicated by isolated oligohydramnios, hydration therapy significantly improves the quantity of amniotic fluid.[5] Acute oral hydration is a noninvasive, easily accessible and cheap intervention, and an effective way of increasing AFV.[6]Maternal oral hydration therapy significantly increases the AFI, reduces the caesarean section rate and improves the foetal outcome.[7] Oral

hydration therapy is simple to perform, non-invasive, non-expensive, easy to accept and an effective way of increasing. AFI and results in improvement in perinatal outcome and decrease in operative interference[8]. One local study found that with intravenous hydration (n=113), mean AFI was increased to 5.89±0.374cm while with oral hydration (n=113) significantly more increase was observed i.e. 7.48±3.03 (P=0.000). Authors concluded that oral hydration is more effective than intravenous hydration in patients with 3rd trimester oligohydramnios.[4] But another local study found that with intravenous hydration (n=25), mean AFI was increased to 7.7±1.35cm while with oral hydration (n=25), mean AFI was increased to 7.5±1.68cm (lower than intravenous). The difference was found to be insignificant (P= 0.6447). Authors concluded that intravenous as well as oral hydration increases AFI in women with oligohydramnios but neither appears to be advantageous over the other to increase AFI and both routes may be beneficial in the management of oligohydramnios.[3] Rationale of my study is to compare the mean AFI with oral versus intravenous maternal hydration for management of females presenting with oligohydramnios in third trimester of pregnancy. Through literature it was noticed that oral hydration is more beneficial than intravenous hydration. But contradiction was also present. In routine we use intravenous hydration therapy for management of oligohydramnios as oral hydration is not preferred due to controversy. So to confirm the more beneficial method, we want to conduct this study. This will help us to improve our practice and guidelines for management of oligohydramnios with more appropriate, effective and advantageous method.

MATERIALS AND METHODS

200 patients were included in this study, the performa was designed to record the demographic data and lab tests advised and also ultrasound of abdomen of every patients was conducted. The study was conducted at Idris Teaching hospital Sialkot Medical College Sialkot from Jan 2017 to Jan 2018. The written informed consent was taken from every patient before the start of the study . The permission of Ethical Committee was considered before start of the sampling and publishing in medical forum journal. The Data was analyzed for results on SPSS version 10.

Inclusion criteria: Women of age 18-40 years presenting at gestational age 28-42 weeks (duration of gestation was calculated by 1st trimester scan) with AFI <5cm (on ultrasound)

Exclusion criteria: Ruptured membranes (on clinical examination)

Multiple pregnancies (on ultrasound)

PIH (BP≥140/90mmHg), pre-eclampsia (BP≥140/ 09mmHg with proteinuria ≥+1 on dipstick method) or eclampsia (convulsions with PIH)

Chronic or gestational Diabetes (BSR>186mg/dl)

Maternal cardiac disease (abnormal ECG and medical record)

Maternal renal disease (S. creatinine >1.2mg/dl)

Maternal anemia (Hb <10 mg/dl)

Fetal congenital anomaly (on ultrasound)

Women taking prostaglandin synthetize inhibitors (on medical record and history)

RESULTS

The mean age of the patients was 28.68±6.85 years with minimum and maximum ages of 18 & 40 years respectively. Table 1

In our study 71(35.50%) patients were primiparous, 50(25%) patients had parity one, 48(24%) patients had parity two and 31(15.50%) patients had parity three. Figure 1

The mean gestational age was 32.95±3.18 weeks with minimum and maximum gestational age of 28 & 38 weeks respectively. Table 2

The mean pre-treatment AFI was 4.07±0.36cm with minimum and maximum pre-treatment AFI were 3.5 & 4.6 respectively. Table 3

The mean post-treatment AFI was 4.09±0.37cm with minimum and maximum post-treatment AFI were3.5&4.6 respectively. Table 4

The mean pre-treatment AFI in group A was 4.06±0.37cm and in group B was 4.07±0.36cm. Statistically insignificant difference was found between the pre-treatment AFI and groups i.e. p-value=0.291. Table 5

The mean post-treatment AFI in group A was 4.09±0.38cm and in group B was 4.09±0.36cm. Statistically there is insignificant difference was found between the post-treatment AFI of groups i.e. p-value=0.909. Table 6

In females <30years, the mean pre-treatment AFI in group A was 4.13±0.36cm and in group B was 4.09±0.36cm. In females of age≥30years, the mean pre-treatment AFI in group A was 3.93±0.34cm and in group B was 4.06±0.36cm. Statistically insignificant difference was observed between study group and pre-treatment AFI values stratified by age i.e. p-value>0.05. Table 7

In females <30years, the mean post-treatment AFI in group A was 4.16±0.37cm and in group B was 4.10±0.37cm. In females of age≥30years, the mean post-treatment AFI in group A was 3.96±0.36cmand in group B was 4.08±0.36cm. Statistically insignificant difference was observed between study groups and post-treatment AFI values stratified by age i.e. p-value>0.05. Table 8

In primiparous females, the mean pre-treatment AFI in group A was 4.07±0.37cm and in group B was 4.10±0.34cm. Multiparous patients, the mean pre-treatment AFI in group A was 4.04±0.37cm and in group B was 4.04±0.38cm. Statistically insignificant difference was observed between the study group and pre-treatment AFI values stratified by parity i.e. p-value>0.05. Table 9

Inprimiparous females, the mean post-treatment AFI in group A was 4.09±0.38cmand in group B was 4.12±0.35cm. In multiparous patients, the mean post-treatment AFI in group A was 4.07±0.38cmand in group B was 4.06±0.37cm. Statistically insignificant difference was observed between study groups and post-treatment AFI stratified by parity i.e. p-value>0.05. Table 10

In normal BMI females, the mean pre-treatment AFI in group A was 3.96±0.33cmand in group B was 3.84±3.56cm. In overweight and obese females, the mean pre-treatment AFI in group A was 4.12±0.38cmand in group B was 4.15±0.33cm. Statistically insignificant difference was observed between the study group and pre-treatment AFI values stratified by parity i.e. p-value>0.05. Table 11

In normal BMI females, the mean post-treatment AFI in group A was 3.99±0.33cmand in group B was 3.87±0.36cm. Similarly in overweight and obese females, the mean post-treatment AFI in group A was 4.15±0.39cmand in group B was 4.17±0.33cm. Statistically insignificant difference was observed between the study group and post-treatment AFI values stratified by parity i.e. p-value>0.05. Table 12.

Table No.1: Descriptive statistics of age (years)

Age (years)	n	200
	Mean	28.68
	SD	6.85
	Minimum	18
	Maximum	40

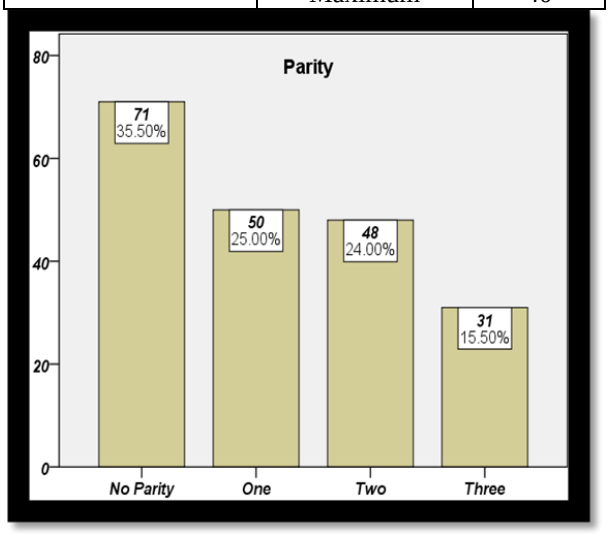

Figure No.1: Frequency distribution of parity

Table No.2: Descriptive statistics of gestational age (weeks)

Gestational age (weeks)	n	200
	Mean	32.95
	SD	3.18
	Minimum	28
	Maximum	38

Table No.3: Descriptive statistics of pre-treatment AFI

Pretreatment AFI	n	200
	Mean	4.07
	SD	0.36
	Minimum	3.5
	Maximum	4.6

Table No.4: Descriptive statistics of post-treatment AFI

Post-treatment AFI	N	200
	Mean	4.09
	SD	0.37
	Minimum	3.5
	Maximum	4.6

Table No.5: Comparison of pre-treatment AFI with study groups

		Study Groups	
		Group A	Group B
Pre-treatment	n	100	100
	Mean	4.06	4.07
	SD	0.37	0.36

Group A= Oral hydration Group B=Intravenous hydration
t-value=-0.291 p-value=0.771 (Insignificant)

Table No.6: Comparison of post-treatment AFI with study groups

		Study Groups	
		Group A	Group B
Post-treatment	n	100	100
	Mean	4.09	4.09
	SD	0.38	0.36

Group A= Oral hydration Group B=Intravenous hydration
t-value=-0.115 p-value=0.909 (Insignificant)

Table No.7: Comparison of pre-treatment AFI with study groups stratified by age

Age (years)	Study groups	Pre-treatment AFI	p-value
< 30	Group A	4.13±0.36	0.489
	Group B	4.09±0.36	
≥ 30	Group A	3.93±0.34	0.094
	Group B	4.06±0.36	

Group A= Oral hydration Group B= Intravenous hydration

Table No.8: Comparison of post-treatment AFI with study groups stratified by age

Age (years)	Study groups	Post-treatment AFI	p-value
< 30	Group A	4.16±0.37	0.437
	Group B	4.10±0.37	
≥ 30	Group A	3.96±0.36	0. 134
	Group B	4.08±0.36	

Group A= Oral hydration Group B= Intravenous hydration

Table No.9: Comparison of pre-treatment AFI with study groups stratified by parity

Parity	Study groups	Pre-treatment AFI	p-value
Primiparous	Group A	4.07±0.37	0.627
	Group B	4.10±0.34	
Multiple	Group A	4.04±0.37	0.982
	Group B	4.04±0.38	

Group A= Oral hydration Group B= Intravenous hydration

Table No.10: Comparison of post-treatment AFI with study groups stratified by parity

Parity	Study groups	Post-treatment AFI	p-value
Primiparous	Group A	4.09±0.38	0.685
	Group B	4.12±0.35	
Multiple	Group A	4.07±0.38	0.839
	Group B	4.06±0.37	

Group A= Oral hydration Group B=Intravenous hydration

Table No.11: Comparison of pre-treatment AFI with study groups stratified by BMI

BMI	Study groups	Pre-treatment AFI	p-value
Normal	Group A	3.96±0.33	0.195
	Group B	3.84±3.56	
Overweight & Obese	Group A	4.12±0.38	0.584
	Group B	4.15±0.33	

Group A= Oral hydration Group B=Intravenous hydration

Table No.12: Comparison of post-treatment AFI with study groups stratified by BMI

BMI	Study groups	Post-treatment AFI	p-value
Normal	Group A	3.99±0.33	0.172
	Group B	3.87±0.36	
Overweight & Obese	Group A	4.15±0.39	0.685
	Group B	4.17±0.33	

Group A= Oral hydration Group B= Intravenous hydration

DISCUSSION

This present randomized control trial was carried out at department of Obstetrics and Gynaecology, Idris Teaching Hospital Sialkot Medical College Sialkot to compare the mean amniotic fluid index with oral versus intravenous maternal hydration for management of females presenting with oligohydramnios in third trimester of pregnancy Adequate amniotic fluid (AF) volume is considered to be important for fetal well-being.[8,9,10] The determination of an association between oligohydamnios and poor fetal outcome requires the investigation of the factors involved in the maintenance of AF volume, and maternal hydration, among these, seems to play a relevant role[11,12,13]In our study the mean value of post-treatment AFI of the patients was 4.09±0.37cm, post-treatment AFI of the patients in oral hydration group was 4.06±0.37cm and in intravenous hydration group was 4.07±0.36cm. Statistically there is insignificant difference was found between the post-treatment AFI values with study group i.e. p-value>0.05. Oral hydration group patients does not have significant difference as compared to intravenous hydration to increase the amniotic fluid.[14,15] A study by Zakaria Nada et al[16] described that In group "A"(Oral hydration): (mean change: 1.5 cm; percentage 25%; paired t test: 11.77; P<0.001). In group "B"(IV hydration): (mean change: 2.64±0.9cm; percentage 28%; paired t test: 9.27; P<0.001). There was a decrease in urine specific gravity in both groups. Two days post hydration. They showed that Oral hydration is effective as intravenous hydration in significantly increase the AFI in third trimester idiopathic oligohydramnios. Oral hydration is more convenient. Maternal oral hydration is more effective than intravenous hydration in patients with 3rd trimester oligohydramnios[4]. Another studies,[17,18,19] demonstrated a significant increase in AF index (approximately 30%) in women with oligohydramnios, 2-4 h after water hydration. Repeating the study in women with a normal AF index, they reported an increase of 3 cm (16%) in AF index with water.[20] A study,[21] demonstrated an increase in AF index in women with oligohydramnios after hydration with intravenous infusion of hypotonic fluid or with oral water. Maternal oral hydration is more effective than intravenous hydration and hypotonic solutions superior to isotonic solutions[22]. The improvement in AFV appears to be time-dependent rather than daily-dose dependent. Acute oral hydration is a noninvasive, easily accessible and cheap intervention, and an effective way of increasing AFV.[23] Maternal oral hydration therapy significantly increases the AFI, reduces the caesarean section rate and improves the foetal outcome[24,25]

Some studies have suggested that although oral hydration increases the amount of amniotic fluid in women with oligohydramnios, no significant increase would be observed in women with normal amniotic fluid volume. A study was carried about comparison of the effect of oral and intravenous fluid therapy on women with oligohydramnios, they revealed that maternal hydration with oral water was more effective than other groups. Oral hydration therapy is simple to perform, non-invasive, non-expensive, easy to accept and an effective way of increasing. AFI and results in improvement in perinatal outcome and decrease in operative interference.[26] Another study compared a 6 day treatment protocol consisting of isotonic intravenous fluid (1500ml) plus a hypotonic oral fluid intake (1500ml versus 2500ml) to a cohort of untreated controls. Both treatments resulted significantly effective in improving the AFI index [p<0.0001] with no significant differences observed between the two hydration schemes. Interestingly, similar effects were collected by Fait et al. in a cohort of cases treated by a 2000ml intake hypotonic fluid administered orally for 14 days.

CONCLUSION

It has been proved in our study that there is insignificant difference between oral and intravenous hydration groups for management of females presenting with oligohydramnios in third trimester of pregnancy

Author's Contribution:

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Original Article

Association Between Leucocytosis and in-Hospital Mortality in Patients Presenting with Acute Ischemic Stroke

Muhammad Naeem Safdar[1], Zainab Safdar[2], Rabeea Tahira[1], Muhammad Shahid[1], Irshad Hussain[1] and Fawad Ahmad Randhawa[1]

ABSTRACT

Objective: To determine the association between leucocytosis and in hospital mortality in patients presenting with acute ischemic stroke.

Study Design: Cohort study

Place and Duration of Study: This study was conducted at the Department of Medicine, Mayo Hospital Lahore from February 2015 to July 2015.

Materials and Methods: Four hundred and sixty patients were included. They were divided in two groups; patients with leucocytosis and patients without leucocytosis. All patients were managed indoor on standard protocol for acute ischemic stroke as per hospital routine and followed-up till discharge. During their stay at hospital, they were monitored on daily basis and, in-hospital mortality was labeled.

Results: The mean age was 49.17±13.58 years with male to female ratio was 2.04:1. Diabetes was found in 71.30% patients, hypertension in 36.5% patients and mortality occurred in 14.57% patients. The OR showed that there is approximately three times more chance of mortality in leucocytosis group as compared to normal WBC group patients i.e. OR=2.92.

Conclusion: There is 2.92 times high chance of in-hospital mortality in leukocytosis as compared to controls in patients presenting with acute ischemic stroke.

Key words: Acute ischemic stroke, Mortality, Diabetes mellitus, Diabetes mellitus, Hypertension, Leucocytosis

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INTRODUCTION

Stroke is 2nd most leading cause of mortality all over the world. About 6.15million deaths occurred during 2008.[1] Ischemic stroke is highly prevalence, occurs in 87% cases is stroke while 10% had intracerebral hemorrhage, but 3% had subarachnoid hemorrhagic strokes.[2] Stroke-specific case fatality rates have been reported in several hospital-based studies in Pakistan and have varied from 7-20%.[3] Ischemic stroke can be the result of thrombosis or embolism.[4] Stroke can be characterized as rapid evolution of injury to the affected areas of tissues of brain. In very early phase, inflammation occurs which later develops the injury of affected areas of peri-ischemic brain. Hence it increases the tissues necrosis in ischemic penumbra. Leucocytosis is common in acute phase of ischaemic stroke.[5] There is a considerable evidence that leucocytosis may be an independent predictor for death in ischemic heart disease.[6] Studies conducted outside Pakistan have shown higher number of leukocytes was associated with fatal outcome in the first month of stroke.[7,8]

In our country no study has been conducted regarding prognostic significance of leucocytosis in ischemic stroke. This would be my maiden study in Pakistan to cover this aspect of stroke in Asian population. If this study also proves the association between leucocytosis and outcome of stroke, this would help the physicians to manage these high risk patients in ICU with frequent monitoring to assess development of any morbidity and its early management, hence helping in better care of patients and controversy would also be resolved. Physicians would also be able to explain prognosis of patients to the attendants in a better way.

MATERIALS AND METHODS

This cohort study was conducted at Department of Medicine, Mayo Hospital Lahore from 1st February 2015 to 31st July 2015. Four hundred and sixty cases of new acute ischemic stroke were recruited.

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Demographics were recorded. Patients were divided in two groups; patients with leucocytosis (Group A) and patients without leucocytosis (Group B) and each group comprised 230 patients. All patients of either gender age between 18-75 years, acute ischemic stroke and with leucocytosis on first day of admission (white cell count more than 10.0 x 1^{09} /L on CBC) and acute ischemic stroke and without leucocytosis on first day of admission were included. Those patients presenting with >12 hours between onset and hospital admission, evidence of infections evident by any of these (ESR >20mm/hr, chest x-ray and urine complete (WBCs >10/HPF) and urine and blood cultures at the time of admission and up to 7 days before and up to 4 days after admission, autoimmune disease and acute coronary syndrome on admission were excluded. All patients were managed indoor on standard protocol for acute ischemic stroke as per hospital routine and followed-up till discharge. During their stay at hospital, they were monitored on daily basis and, in-hospital mortality was labelled (patients dying within 7 days of admission). The data was entered and analyzed through SPSS-20.

RESULTS

The average age of patients was 49.17±13.58years. There were 67.17% male and 32.83% females. Male-to-female ratio was 2.04:1. The mean WBC count was 9.96±3.02. Diabetes was found in 71.3% patients and hypertension in 168(36.5%) patients (Table 1).

Table No.1: Demographic information of the patients (n=460)

Variable	Mean±SD
Age (years)	49.17±13.58
Male	309 (67.17%)
Female	151 (32.83%)
WBC Count	9.96±3.02
Diabetes	328 (71.3%)
Hypertension	168 (36.5%)

Table No.2: Association of mortality with leukocytosis (n=460)

Mortality	Group		Total
Yes	48	19	67
No	182	211	393

Relative risk = 2.92 (95% CI; 1.661, 5.164, p<0.001)

The study results showed that the mortality occurred in 67 cases in which 48 were from leucocytosis group and 19 were from Normal WBC group, similarly mortality was not occurred in 393 patients in whom 182 were from leucocytosis group and 211 were from normal WBC group patients. Statistically there is highly significant difference was found between the study groups and mortality (p=0.000). The OR value showed that there is approx. three times more chance of mortality in leucocytosis group as compared to normal WBC i.e. OR=2.92 (Table 2)

DISCUSSION

There is vast data available which showed significant association of long-term as well as short-term outcome (morbidity and mortality) with raised leukocyte count. A WHO study, in 1990 quoted incidence of mortality due to stroke in developing countries to be 73/100,000 per year.[9] Stroke is one of the leading cause of debility and 4thleading cause of mortality. In the United States, about 795,000 cases have new onset (610,000 cases) or recurrent (185,000 cases) episode of stroke every year. Epidemiologic data showed that about 82-92% strokes are ischemic in United States.[10]

According to WHO, all over the world, there are 15 million cases develop stroke every year. Among them, 5million die, while 5million develop permanent disability.[11] In United States, black people have .49 times high age-adjusted risk of death due to stroke than white people.[12] Hispanics have less occurrence of stroke than White and Black people but have high occurrence of lacunar strokes and in earlier age. Males have high risk than females for stroke; white males have 62.8 per 100,000 stroke incidence, with 26.3% mortality rate at end, while females have 59 per 100,000stroke incidence and mortality rate of 39.2%.[13] But stroke is usually considered to be a disease of older age, 1/3rd strokes develop in adults <65 years age group.[14] The risk of stroke rises with increasing age, mainly in adults >64 years, in whom 75% of all strokes occur.[13]

In our study the mortality occurred in 67 cases in which 48 were from leukocytosis group and 19 were from Normal WBC group, similarly mortality was not occurred in 393 patients in whom 182 were from leukocytosis group and 211 were from normal WBC group patients. According to the OR=2.92, there is more chance of mortality in leukocytosis group as compared to normal WBC group patients. Ganti et al[15] showed in their study that amongst the routine labs obtained in the emergency department in the evaluation of acute ischemic stroke, an elevated white blood cell count, low serum bicarbonate, and a high glucose level are independent predictors of 90-day mortality. Low serum calcium also appears to be associated with worse mortality, although our study design did not permit us to evaluate this result in the multivariate model with the others.

Furlan et al[8] concluded in their study that in cases of acute ischemic stroke, raised admission leukocyte count is independent predictor of stroke at time of admission, high risk of disability at discharge and 30days mortality. They showed that the high white blood cell counts (>10.0x 109/L) was significantly associated with mortality (18.2 %) as compared to normal WBC count (10.1%). However one study showed that the rate of

abnormal WBC count was 17.5% while normal WBC count was 82.5%. The in hospital mortality was 13.3% (22/165) with normal leucocyte count while 14.3% (5/35) with abnormal leukocyte count ($p>0.05$).[16] Another study had also matched results and reported that there was no association between leucocyte counts and mortality of ischemic stroke.[17]

Furman et al[18] demonstrated in their study that high leukocyte count is significantly associated with in-hospital mortality (adjusted odds ratio 2.8, 95% CI; 2.1–3.6 for Q4 compared to Q2 [normal range]) and heart failure (odds ratio 2.7, 95% CI; 2.2–3.4) for cases of acute coronary syndrome.

Nardi et al[19] found that raised leukocyte count in acute phase of cerebral ischemia is significantly associated with poor initial stroke severity, high NIHSS after 72h and raised modified Rankin score in patients with total anterior, partial anterior or posterior cerebral stroke, when controlled age, gender, dyslipidemia, atrial fibrillation and valvular heart diseases. Kazmierski et al[20] reported that there is significantly higher chances of in-hospital mortality in post-ischemic stroke cases with raised leukocyte count during first 12hours. The results of Blum study showed that presenting WBC is associated with short-term mortality after myocardial infarction. This finding is corresponding to, also matches with, previous epidemiologic data, associating WBC with developing cardiovascular diseases.[21]

Literature reported significant association between high leukocyte count and high risk of short and long-term for ischemic episodes and mortality in patients of acute coronary syndrome.[22-24] Notwithstanding these significant associations of total leukocyte count with cardiovascular risk, there is contradiction present regarding the level of leukocyte count, independent of smoking and gender and the at-risk people.

CONCLUSION

Our study results concluded that there is more chance of in hospital mortality found in leukocytosis group as compared to without leukocytosis group with [OR=2.92] in patients presenting with acute ischemic stroke.

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Original Article

Diagnostic Accuracy of Ureteric Obstruction

Accuracy of Resistive Index of Color Doppler Ultrasonography in Detecting Acute Unilateral Ureteric Obstruction due to Calculus

Zainab Safdar[1], Muhammad Naeem Safdar[2], Rabeea Tahira[2] and Muhammad Shahid[2]

ABSTRACT

Objective: To assess the diagnostic accuracy of RI of colour Doppler ultrasonography for the diagnosis of acute unilateral ureteric obstruction due to calculus taking non-enhanced CT KUB as gold standard.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Radiology, Sir Ganga Ram Hospital, Lahore from October 2015 to March 2016.

Materials and Methods: A **t**otal of 150 patients were enrolled. Colour Doppler ultrasonography (CDUS) was done and measurements of RI of interlobar arteries were made. Three to five waveforms were recorded and average was noted. If RI ≥0.70, the patients were labelled as positive otherwise negative. Then patients underwent computed tomography for confirmation.

Results: Mean age of patients was 41.10±11.05 years. Mean RI on CDUS was 0.69±0.11. Sensitivity and specificity of RI were 93.15% (69/73) and 94.81% (73/74), PPV and NPV for RI were 94.44% and 93.59% respectively and diagnostic accuracy was 94% for detection of acute unilateral ureteric obstruction.

Conclusion: Diagnostic accuracy parameters of RI showed that it can be reliably suitable modality for detection of patients with suspected ureteric obstruction in its earliest stage.

Key words: Resistive index, Color Doppler ultrasonography, Acute unilateral ureteric obstruction, Enhanced computed tomography

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INTRODUCTION

Urinary obstruction is one of the common reasons of acute as well as chronic kidney failure. There are several pathological processes, intrinsic and extrinsic to the urinary system, involved which may cause blockade.[1] Acute unilateral ureteral obstruction is a common incident, upsetting 5-15% population all over the world.[2] In Pakistan, it effects about 30.3% population.[3] It has classical symptoms like severe flank or abdominal pain radiating to groin, haematuria, nausea and vomiting. Usually, obstruction is developed due to renal calculi and has no symptoms. When it is asymptomatic, ureteral obstruction is not deliberated. So, routine radiological investigations are mandatory to discover obstruction in urinary tract in patients of unsolved decreased renal function.[4]

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Computed tomography scan is the primary radiological tool to evaluate renal stones and is considered to be gold standard for detection of renal stones.[5] It has 99% sensitivity and 98% specificity.[6] Doppler ultrasound is an added tool which can be done in case when less radiation is appropriate. The chances of raised resistive index (RI) are high in case in whom urine drainage obstruction exists. In many centres, obstruction is doubted when RI >0.70 or the difference of RI is >0.10 in both kidneys.[7]

One study reported that the sensitivity and specificity of RI ≥0.70 were 92% and 88% in detecting renal obstruction.[8] Another study reported the sensitivity and specificity of RI ≥0.70 were 87.5% and 85% in detecting renal obstruction.[9] But a recent study reported that with RI >0.70 as cut off level, the sensitivity was 76.23% and specificity was 88.13% by taking CT as gold standard.[10] Rationale of this study is to assess the diagnostic accuracy of resistive index of color Doppler ultrasonography for detection of acute unilateral ureteric obstruction due to calculus. CT scan is costly as compared to Doppler ultrasound and it exposes patient to significant amount of radiation. Due to radiation exposure, CT scan can't be performed in pregnant women. Color Doppler ultrasonography (CDUS) is cheaper, widely available and does not expose to radiations. But due to ambiguity in evidences available in literature, RI on CDUS is not used widely. Through

this study, we want to confirm whether RI on CDUS has accuracy enough to diagnose the ureteric obstruction.

MATERIALS AND METHODS

This cross sectional survey was conducted at Department of Radiology, Sir Ganga Ram Hospital Lahore from 1st October 2015 to 31st March 2016 and comprised one hundred and fifty patients. Patients of age 20-60 years of either gender with renal colic pain, unilateral flank pain that radiate to groin, testicles, back or periumbilical region for >6 hours and having suspicion of obstruction of ureter due to calculus were included. Those patients with pain > 5days, having congenitally anomalous kidney, patients who had pre-existing renal disease, bilateral flank pain, and solitary kidneys were excluded. Demographic details were noted. Doppler Ultrasound was done using Toshiba Diagnostic Ultrasound Machine (Nemieo) using 3 to 5 MHz probe with the patient lying in lateral position. Measurements of RI of interlobar arteries were made at 3-sites of kidney i.e. upper, middle & lower poles. About 3-5 waveforms were observed and average RI was noted. If RI≥0.70, the patients were labelled as positive otherwise negative. Then patients undergone non-enhanced helical CT KUB for confirmation of results by having findings of either stone in ureter, enlarged kidney, hydronephrosis, perinephric fluid or ureteric dilatation were noted. Data was analyzed by SPSS version 20.

RESULTS

Mean age of patients was 41.10±11.05 years. There were 82(54.67%) male and 68(45.33%) were female patients. Mean duration of pain of patients was 16.13±5.33. Mean RI on CDUS was 0.69±0.11 (Table 1). The sensitivity and specificity of RI on CDUS was 93.15% and 94.81%. PPV and NPV of RI for detection of acute unilateral ureteric obstruction was 94.44% and 93.59% respectively. Overall diagnostic accuracy of RI for detection of acute unilateral ureteric obstruction was 94% (Table 2).

Table No.1: Characteristics of patients (n=150)

Age	41.10±11.05
Male	82 (54.7%)
Female	68 (45.7%)
Duration of pain	16.13±5.33
Resistance index on ultrasound	0.69±0.11

Table No.2: Diagnostic Accuracy of RI of CDUS

RI CDUS	CT KUB		Total
	Positive	Negative	
Positive	68	4	72
Negative	5	73	78
Total	73	77	150

Sensitivity= 93.15%, Specificity= 94.81%
PPV= 94.44%, NPV= 93.59%, Diagnostic Accuracy= 94%

DISCUSSION

The ureteric obstruction is the most common problem all over the world and the calculi is main cause of ureteric obstruction. About, 3% adults and 2% paediatrics have ureteric obstruction. The fast and precise detection of ureteric obstruction helps in urgent management and less complications including urinary tract infection, blood pressure and kidney failure. X-ray, renal ultrasound, intravenous urogram and computed tomography are most common diagnostic tools. These tools have some restrictions. About 5% calculi are not detected on x-ray KUB. Sometimes, calculi stuck in part of ureter which crosses pelvic bone and is scarcely identifiable.[11-15]

Computed tomography and grey-scale ultrasound are the most common modalities to detect calculi and obstruction in patients of acute renal colic.[12,16] While grey-scale renal ultrasound alone can consistently recognise a massing system dilatation, but usually, it is impossible to distinguish between obstructive and non-obstructive sources. As prolonged obstruction causes hormonal changes and thus causes diffused vasoconstriction of vascular bed, imagining of different blood flow patterns is cooperative indiscriminating obstructive from non-obstructive pyelocalectasis.[16-18] The accessibility of duplex Doppler ultrasound is deceptively an attractive and well reproducible helper to less-invasive investigative method.[19] The incidence and prevalence of acute unilateral obstructive uropathyis are 8.0 & 47.7 per 1,000,000 people respectively in paediatric age group in UK. The prevalence in South Asian countries is 3-times higher than Whites while the incidence is >3-times than Whites and parallel increase has been observed in adult population. The high occurrence is due to high incidence of congenital syndromes in South Asian countries. Acute unilateral obstructive uropathy is more common in men than women with male to female ratio was 1.54:1. In South Asia, this ratio is 1:1 as genetic diseases are mainly autosomal receding.[20] In large surveys, done in older patients with urinary obstruction, the prevalence of 20-35% is projected. About 60% men with moderate to severe symptoms did not access their physicians. Autopsy investigations detected hydro-nephrosis in 3.8% adults and 2% pediatrics.[21,22]

Doppler ultrasound is a helpful modality that can be done in cases in whom radiation exposure can be harmful like in pregnant females. An increased RI can be detect when urinary obstruction is present.[21] Renal artery RI is most commonly applied Doppler indices. Doppler ultrasound is a non-invasive tool which can provide useful information regarding renal hemodynamics and is an accurate tool to detect renal obstruction. In cases of acute obstruction, pressure of renal calyces raised causing changes in renal blood-

flow having high RI (>0.7). The RI can have sensitivity of 75.5% and specificity 92.5%.[23]

In this study diagnostic accuracy of RI was determined by taking CT-KUB as gold standard. Sensitivity and specificity of RI for the diagnosis of acute unilateral ureteric obstruction was 93.15% (69/73) and 94.81% (73/74). However positive predictive and negative predictive value for RI was 94.44% and 93.59% respectively. Overall diagnostic accuracy of RI was 94%. Patients' age and gender was stratified to see the effect of these variables on the diagnostic accuracy of RI. In patients in age group 20-40 and 41-60 years no significant difference was seen for diagnostic accuracy parameters (sensitivity, specificity, PPV and NPV). Among male and female patients diagnostic accuracy of RI was almost same with very minor difference for diagnosing acute unilateral ureteric obstruction. So these result clearly depicts that RI can be effectively used for detection of acute unilateral ureteric obstruction irrespective of age and sex of patients.

Several studies found an elevated RI in case of acute ureteric obstruction.[12,17] Geavlete et al[22] reported RI 0.76, sensitivity 75.5%, specificity 92.5% reported RI 0.77, Platt et al[8] reported RI>0.70, sensitivity 92%, specificity 88% and it is reported RI>0.70, sensitivity 91.8%, specificity 92.8% who found mean RI>0.70 in obstructed kidneys. These stduies suport the results of this study. Azam et al[10] in their study showed that study keeping RI >0.70 as cut off value for renal obstruction, sensitivity 76.23% and specificity 88.13%, PPV was 91.6% and NPV was 68.42% and diagnostic accuracy was 80%. Ashraf et al[9] in their study found that RI showed 87.5% sensitivity, 85% specificity and 12.5% false negative rate in diagnosing acute renal obstruction.

In cases of renal obstruction, conventional B-mode ultrasound when combined withcolor Doppler ultrasound may be applied to evaluate changes in pattern of blood flow created because ofprolonged obstruction when structural deformities become appearant. This is stated as RI. In few animal model, it was showed that renal obstruction can cause multifaceted series of events in renal vessels. There is an preliminary increase in intra-luminal pelvi-ureteric pressure which arises without dilatation subsequently hemodynamic responses of transformed perfusion because ofhigh vascular resistance. Hydronephrosis develops if obstruction is not resolved. Ultrasound has its own restrictions in diagnsoing the obstruction.

By allowing direct assessment of hemodynamic reaction in renal arteries, Doppler ultrasound has higher chances of detecting renal obstruction. Obstruction can causes high renal vascular resistance which can leads to decrease in in diastolic flow, causingmajor changes in Doppler wave-form. It is recognized that intra-renal RI is increased in substantial renal obstruction, which can discriminate between obstructive and non-obstructive uropathy and proposing 0.70 RI value as discriminatory value to differentiate between both.

The accurate diagnosis of renal obstruction is important as it can lead to complications like urinary tract infections, hypertension and kidney failure. Normal ultrasound, X-ray, urogram and computed tomography are most common tools for detection of obstruction. But, few methods have some limitations in some cases. The CT has superiority over other modalities as it helps to reach an answer to the patient's clinical condition. Many mimickers of renal colic have been reported in such patients which include appendicitis, diverticulitis, bowel obstruction or herniation, intra-abdominal fluid collections (abscess/haematoma), tubo-ovarian abscess, aortic aneurysms, pancreatitis and neoplasms.[23] CT scan is costly as compared to Doppler ultrasound and it exposes patient to significant amount of radiation. Due to radiation exposure, CT scan can't be performed in pregnant women. Color Doppler ultrasonography is cheaper, widely available and does not expose to radiations.

CONCLUSION

Diagnostic accuracy parameters of RI of CDUS showed that it can be reliably suitable modality for detection of patients with suspected patient of ureteric obstruction in its earliest stage. Now local evidence has been attained and in future, we can replace CT scan with Doppler USG to diagnose acute ureteric obstruction.

Author's Contribution:

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Original Article

Evaluate the Gender Differences in Clinical Presentation of Patients with Acute Coronary Syndrome

Fazal-ur-Rehman[1], Abdul Ghaffar[1], Dost Muhammad[3], Riaz-ud-Din[4], Farhan Faisal[5] and Farida Khudaidad[2]

ABSTRACT

Objective: To examine the gender differences in clinical presentation of acute coronary syndrome in patients presenting to tertiary care hospital.

Study Design: Retrospective cohort study

Place & Duration of Study: This study was conducted at the Department of Cardiology, Bolan Medical Complex Hospital Quetta from January 2019 to June 2019.

Materials and Methods: One hundred and fifty patients of both genders with ages 20 to 80 years presented with acute coronary syndrome were enrolled in this study. Patients were divided according to gender. Clinical presentation, risk factors and severity of coronary artery disease were examined.

Results: There were 114 (76%) patients were males and 24% patients were females. Female patients were older than male 60.2±8.7 vs 58.8±9.5 years. STEMI was found in 68 (45.33%) patients, non-STEMI was found in 36 (24%) patients and unstable angina was found in 46 (30.67%) patients. In comparison of risk factors between male and females, we found male patients were significantly higher as compared to females (p=<0.05).

Conclusion: Female patients were older than males. Smoking, family history of CAD, hypertension were common risk factors and male patients were higher than females regarding risk factors.

Keywords: Acute coronary syndrome, Gender, Risk factors

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INTRODUCTION

Cardiovascular diseases are the leading cause of mortality and morbidity globally in both men and women.[1] Gender difference in acute coronary syndrome (ACS) presentation, diagnosis, management, and outcomes is commonly observed in cardiac health settings. Some data suggest that women have higher mortality rates than men, while other studies have failed to show gender as a contributory factor in the presentation and mortality in ACS patients.[2-4]

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In ACS patients, gender-related differences in presentation and outcomes have previously been reported[5,6] and besides observed disparities in baseline characteristics, associations between atypical symptoms including back pain, nausea and shortness of breath and female gender were identified.[7] Gender-related differences, however, are mainly based on the ACS patient population, and studies on unselected patients presenting to the emergency department with any signs and symptoms suggestive of ACS are scare, and have mostly been obtained in primary care or were restricted to chest pain syndromes.[8,9]

Prevalence of conventional risk factors like diabetes, hypertension, smoking, dyslipidemia and obesity accounts for about 85% to 90% of premature CAD patients.[10] Often young CAD patients have multiple coexisting risk factors contributing to the disease. Pakistani people belong to the South Asian population which has the highest known rate of coronary artery disease.[11] According to the careful estimates based on scientific studies nearly 100.000 individuals suffered from acute myocardial infarction (ANTI) in calendar year 2002. The relative risk of 6 developing CAD in Pakistani men is highest in early ages.[12]

The present study was conducted to examine the gender differences in clinical presentation of patients with acute coronary syndrome presenting to tertiary care hospital.

MATERIALS AND METHODS

This study was conducted at Department of Cardiology, Bolan Medical Complex Hospital Quetta from 1st January 2019 to 30th June 2019. A total of 150 patients of both genders with ages 20 to 80 years presented with acute coronary syndrome were enrolled. Patients detailed demographic including age, sex, BMI and presenting symptoms were recorded after taking written consent. Patients with valvular heart disease, congenital heart disease, congestive cardiac failure and patients with chronic renal failure were excluded. Patients were divided according to their gender. Frequency of ST elevation myocardial infarction, non-stemi and unstable angina was examined. Risk factors such as smoking, diabetes mellitus, hypertension, dyslipidemia, family history CAD and obesity were examined and compare the findings between both genders. Data was analyzed by SPSS 24. Chi-square test and student t' test was applied to comparison the clinical presentation symptoms and risk factors. P-value <0.05 was considered as significant.

RESULTS

One hundred and fourteen (76%) patients were males and 24% patients were females. The mean age of male patients was 58.8±9.5 years and female was 60.2±8.7 years. Females were older than males. There was a significant difference regarding body mass index (BMI) between male and female (26.23±6.15 vs 25.45±6.7). According to the presenting symptoms 25 (69.44%) females and 92 (80.70%) male patients had typical chest pain and atypical chest pain was observed in 11 (30.56%) female patients and 22 (19.30%) male patients with significant difference male to female regarding typical chest pain and female to male regarding atypical chest pain p-value <0.05. STEMI was found in 68 (45.33%) patients in which 18 were females and 50 were males, non-STEMI was found in 36 (24%) patients in which 7 were females and 29 were males and unstable angina was found in 46 (30.67%) patients in which 11 were females and 35 were males (Table 1).

According to the risk factors, 80 (53.33%) patients had family history of CAD in which 16 (44.44%) patients were females and 64 (56.14%) patients were males. 50 (33.33%) patients had smoking history in which 45 (39.47%) patients were males and 5 (13.89%) were females. Hypertension found in 25 (16.67%) patients in which 5 (13.89%) were females and 20 (17.54%) patients were males. Dylipidemia found in 23 (15.33%) patients in which 4 (11.11%) were females and 19 (16.67%) were males. Diabetes mellitus found in 20 (13.33%) patients in which 4 (11.11%) were females and 16 (14.03%) were males. Obesity found in 15 (10%) patients in which 2 (5.56%) were females and 13 (11.40%) were males. Some of patients had two or more risk factors. The overall rate of risk factors was higher in male patients as compared to females with p-value <0.05 (Table 2).

Table No. 1: Demographic information of the patients

Variable	Male (n=114)	Female (n=36)	P value
Age (years)	58.8±9.5	60.2±8.7	0.001
BMI	26.23±6.15	25.45±6.7	0.006
Presenting symptoms			
Typical chest pain	92 (80.70)	25 (69.44)	0.003
Atypical chest pain	22 (19.30)	11 (30.56)	0.029
Types of ACS			
STEMI	50 (43.86)	18 (50)	0.045
Non-STEMI	29 (25.43)	7 (19.44)	0.042
UA	35 (30.70)	11 (30.55)	N/S

Table No.2: Frequency of risk factors among male and females

Variable	Male (n=114)	Female (n=36)	P-value
Family history of CAD	64 (56.14%)	16 (44.44%)	0.024
Smoking	45 (39.47%)	5 (13.89%)	0.006
Hypertension	20 (17.54%)	5 (13.89%)	0.04
Dyslipidemia	19 (16.67%)	4 (11.11%)	0.048
Diabetes Melletus	16 (14.03%)	4 (11.11%)	0.12
Obesity	13 (11.40%)	2 (5.56%)	0.03

DISCUSSION

Acute coronary syndrome is one of the most common cardiac problems in all over the world with high rate of morbidity and mortality.[6] The present study was conducted to examine the gender differences in clinical presentation of patients with acute coronary syndrome. In this study majority of patients were males 76% as compared to females 24%. These results showed similarity to several studies regarding acute coronary syndrome in which male patients with ACS were predominant 70% to 85% as compared to females 15 to 35%.[5,13]

In present study the mean age of male patients was 58.8±9.5 years and female was 60.2±8.7 years. Females were older than males (p=<0.05). There was a significant difference regarding body mass index (BMI) between male and female (26.23±6.15 Vs 25.45±6.7; p=<0.05). A study conducted by Kherosh et al[14] reported that females were older than males (63 vs. 59

years; P < 0.001). A study conducted by Stahli et al[15] reported a significant difference regarding BMI between male and females with ACS (26.8 Vs 25.6; p=0.007).

In our study according to the presenting symptoms 25 (69.44%) females and 92 (80.70%) male patients had typical chest pain and atypical chest pain was observed in 11 (30.56%) female patients and 22 (19.30%) male patients with significant difference male to female regarding typical chest pain and female to male regarding atypical chest pain p-value <0.05. These results were similar to study by Khesroh et al.[14] In present study STEMI was found in 68 (45.33%) patients in which 18 were females and 50 were males, non-STEMI was found in 36 (24%) patients in which 7 were females and 29 were males and unstable angina was found in 46 (30.67%) patients in which 11 were females and 35 were males. We found that female patients had high rate of STEMI as compared to females p=0.045 and according to the non-STEMI male patients were high proportion as compared to females p=value 0.042. There was no significant difference found regarding unstable angina between males and females (p=>0.05). A study by Stahli et al[15] reported female patients presented more with atypical presentation (42.6% vs. 28.9%, respectively, P<0.003), more with unstable angina (72.3% vs. 50.4%, respectively, P<0.001), and less with ST-elevation myocardial infarction (18.9% vs. 40.8%, respectively, P<0.001).

In present study according to the risk factors, 80 (53.33%) patients had family history of CAD in which 16 (44.44%) patients were females and 64 (56.14%) patients were males. 50 (33.33%) patients had smoking history in which 45 (39.47%) patients were males and 5 (13.89%) were females. Hypertension found in 25 (16.67%) patients in which 5 (13.89%) were females and 20 (17.54%) patients were males. Dylipidemia found in 23 (15.33%) patients in which 4 (11.11%) were females and 19 (16.67%) were males. Diabetes mellitus found in 20 (13.33%) patients in which 4 (11.11%) were females and 16 (14.03%) were males. Obesity found in 15 (10%) patients in which 2 (5.56%) were females and 13 (11.40%) were males. Some of patients had two or more risk factors. The overall rate of risk factors was higher in male patients as compared to females with p-value <0.05. These results were comparable to many of previous studies.[16-18]

CONCLUSION

Acute coronary syndrome is a common heart problem in Pakistan and reported with high rate of mortality and morbidity. We concluded from this study that female patients were older than males. Smoking, family history of CAD, hypertension were common risk factors and male patients were higher than females regarding risk factors. We also observed that female patients had high rate of STEMI than females but in non-STEMI patients males were predominant. No significant difference found regarding unstable angina between male and females.

Author's Contribution:

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Original Article

Choledochoduodenostomy

Choledochoduodenostomy a Minimal Invasive Procedure: Examine the Indications and Complications

Muhammad Akram Dogar[1], Muhammad Tanvir Iqbal[2] and Ahmad Raza Nsar[3]

ABSTRACT

Objective: To examine the indications outcomes of choledochoduodenostomy (CDD) in patients presented with common bile duct stone.

Study Design: Retrospective/Observational study.

Place and Duration of Study: This study was conducted at the Department of Surgery, Central Park Medical College and Allied Hospitals Lahore from July 2017 to June 2018.

Materials and Methods: Thirty patients of both genders presented with refusal or failed ERCP and common bile duct stone size was >1cm were included in this study. Patients detailed demographic including age, sex and indications of CDD were recorded after written consent. All the patients received CDD. Complications associated with procedure were examined. Mortality rate was also examined. Patients were followed for 1 year after surgical treatment. Data was analyzed by SPSS 24.0.

Results: Twenty (66.67%) patients were females and 10 (33.33%) patients were males. 12 (40%) patients were ages 35 to 50 years, 13 (43.33%) patients were ages 51 to 65 years and 5 (16.67%) had ages above 65 years. Failed ERCP was the commonest indication found in 12 (40%) patients followed by refusal of ERCP and recurrent stones. Respiratory complications found in 4 (13.33%) patients, wound infections in 10% patients, anastomotic leak in 1 patient and 1 (3.33%) patient had cholangitis. None of patient had recurrence of CBD and none of patient found to have sump syndrome. Mortality found in 1 (3.33%) patients

Conclusion: Choledochoduedenostomy is safe and effective treatment modality with fewer rates of complications.

Key Words: Choledochoduodenostomy, Minimal Invasive Procedure, Indications, Complications

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INTRODUCTION

Gallstone disease is one of the most common digestive diseases and its prevalence shows ethnic variability, with rates of approximately 10–15% in the United States and Europe.[1,2] Large longitudinal studies of patients with symptomatic gallstones have shown that 58–72% will have ongoing symptoms and complications.[3]

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Most patients with symptomatic gallstones are recommended to undergo cholecystectomy to alleviate symptoms of pain and jaundice, and to prevent complications such as pancreatitis, cholangitis and cholecystitis.[4] Approximately 10–18% of patients who undergo cholecystectomy for gallstones also have common bile duct stones.[5]

Common bile duct stones may be suspected preoperatively by symptoms or signs of jaundice, pancreatitis or cholangitis, deranged liver function or imaging showing duct dilatation or actual ductal stones. At present, endoscopic sphincterotomy is widely accepted as the treatment of choice for patients with common bile duct stones.[6] Subsequent laparoscopic cholecystectomy is indicated in patients with concomitant gallstones to prevent biliary complications such as biliary colic, acute cholecystitis or recurrent common bile duct stones with cholangitis or biliary pancreatitis.[7] There have been many studies on the recurrence of bile duct stones after endoscopic sphincterotomy; however, the reported frequency of stone recurrence ranged from 4% to 24% and failure of endoscopic management occurred in patients with large stones, multiple stones, impacted stones, multiple intrahepatic stones and peripapilla diverticula.[8,9] Recurrent bile duct stones after endoscopic sphincterotomy have been suggested to be caused by

inflammation of the bile duct, a bile duct diameter greater than 15 mm, papillary stenosis, peripapillary diverticula, reflux of the duodenal contents into the bile duct, parasites or foreign bodies within the bile duct.[10] Endoscopic management was also required for stones that were difficult or failed to pass.

At present, CDD is indicated in patients with recurrent stones, biliary sludge, ampullary stenosis or where endoscopic management was difficult or failed. However, its use remains debatable because of the risk of complications such as reflux cholangitis, sump syndrome and alkaline reflux gastritis. Sump syndrome is the development of cholangitis, hepatic abscess or pancreatitis after CDD, owing to stones, sludge or debris being lodged in the pool of the terminal common bile duct.[11] The present study was conducted to examine the outcomes of CDD in patients presented with failed or refusal of ERCP, recurrent patients and those had stone size >1cm.

MATERIALS AND METHODS

This study was conducted at Department of Surgery, Central Park Medical College and Allied Hospitals Lahore from 1st July 2017 to 30th June 2018 A total 30 patients of both genders presented with refusal or failed ERCP and common bile duct stone size was >1cm were included. Patients detailed demographic including age, sex and indications of CDD were recorded. Patients with incomplete medical records, those lost to follow-up, CDD for malignant diseases, Re-do surgeries, and concomitant stones in CBD with malignancy or other pathologies were excluded. All the patients received choledochoduedenostomy with duodenotomy. Patients were analyzed attentively during their post-operative hospital stay. Patients were followed for postoperative 1 year. Follow-up was taken at 6 months and at 1 year. Complications such as respiratory complications, wound infection, anastomotic leak and cholangiutis were examined. Outcomes such as mortality and recurrence rate were examined at final follow up. Data was analyzed by SPSS 24.

RESULTS

There were 20 (66.67%) female patients and 10 (33.33%) male patients. Twelve (40%) patients were ages 35 to 50 years, 13 (43.33%) patients were ages 51 to 65 years and 5 (16.67%) had ages above 65 years. Failed ERCP was the commonest indication found in 12 (40%) patients followed by refusal of ERCP in 7 (23.33%), recurrent CBD stones in 5 (16.67%) patients, 3 (10%) patients had missed stones and 3 (10%) patients had very large stones (Table 1). Complications found in 9 (30%) patients in whom respiratory complications found in 4 (13.33%) patients, wound infections in 10% patients, anastomotic leak in 1 patient and 1 (3.33%) patient had cholangitis (Table 2). According to the final outcomes we found none of patient had recurrence of CBD and none of patient found to have sump syndrome. Mortality found in 1 (3.33%) patients (Table 3).

Table No.1: Frequency of age, sex and indications

Variable	No.	%
Gender		
Male	10	33.33
Female	20	66.67
Age (years)		
35 – 50	12	40.0
51 – 65	13	43.33
> 65s	5	16.67
Indications		
Failed ERCP	12	40.0
Refused ERCP	7	23.33
Recurrent atones	5	16.67
Missed stones	3	10.0
Very large stones	3	10.0

Table No.2: Complication among all the patients

Complication	No.	%
Respiratory	4	13.33
Wound infection	3	10.0
Anastomotic leak	1	3.33
Cholangitis	1	3.33

Table No.3: Final outcomes among all the patients

Outcome	No.	%
Recurrence		
Yes	-	-
No	30	100.0
Sump syndrome		
Yes	-	-
No	30	100.0
Mortality		
Yes	1	3.33
No	29	96.67

DISCUSSION

Common bile duct stone is one of the common diseases with high rate of morbidity and mortality. Different surgical techniques have been used for the management of common bile duct stone, in which minimal invasive laparoscopic cholecystectomy and endoscopic technique and open surgical procedure have been using in previous studies with higher success rate.[12,13]. Choledochoduodenostomy in the era of minimal invasive surgical treatment is considered as safe and effective treatment modality with fewer rate of complications for failed ERCP or refusal of ERCP due to cost and recurrent stones.[14] Present study was conducted to examine the outcomes of CDD in patients with recurrent stones, failed ERCP and refusal of ERCP due to high cost. Majority of patients 67.67% patients were females while 33.33% patients were males with mean age 52.15±8.46 years. These results were similar

to many of previous studies in which females were high in numbers 55 to 75% as compared to males and majority of patients were ages between 40 to 70 years.[15,16]

In present study the failed ERCP was the commonest indication found in 12 (40%) patients followed by refusal of ERCP in 7 (23.33%), recurrent CBD stones in 5 (16.67%) patients, 3 (10%) patients had missed stones and 3 (10%) patients had very large stones. A study conducted by Asad et al[16] reported that failed ERCP was the most common indication found in 37.65% followed by refusal of ERCP and recurrent stones. Another study by Bektas et al[17] reported that large impacted stone was the commonest indication and found in 46.2% patients.

In our study overall complications rate was 30% in which respiratory complications found in 4 (13.33%) patients, wound infections in 10% patients, anastomotic leak in 1 patient and 1 (3.33%) patient had cholangitis. These results showed similarity to several previous studies in which wound infection found in 6.2 to 15.4% patients.[18,19]

In present study according to the final outcomes we found none of patient had recurrence of CBD and none of patient found to have sump syndrome. Mortality found in 1 (3.33%) patients. A study by Asad[16] reported 0% recurrence rate and 0% sump syndromes and mortality rate was 1.18%. A study conducted by Okomoto et al[20] reported that reflux cholangitis and stone recurrence was 1.6% (2/125) and 0% (0/125) of cases by CDD, they also reported no patient found to have sump syndrome.

CONCLUSION

Choledochoduedenostomy is safe and effective treatment modality with fewer rates of complications among patients with failed ERCP and recurrent and very large stones. We found that failed ERCP was the commonest indication of CDD. The mortality rate in our study was 3.33%.

Author's Contribution:

Concept & Design of Study:	Muhammad Akram Dogar
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Data Analysis:	Ahmad Raza Nsar
Revisiting Critically:	Muhammad Akram Dogar, Muhammad Tanvir Iqbal
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Various Types of Cancers

To Determine the Prevalence of Various Types of Cancers and to Examine the Most Frequent Type of Cases

Awais Anwar[1], Abdul Matin Qaisar[3] and Amna Akram[2]

ABSTRACT

Objective: To examine the frequency of different types of carcinomas in patients whom were clinically diagnosed to have any type of cancer.

Study Design: Retrospective study

Place & Duration of Study: This study was conducted at the Department of Physiology, Shahida Islam Medical & Dental College Lodhran from June 2017 to June 2019.

Materials and Methods: One hundred and fifty patients of both genders clinically diagnosed to have various types of cancers were included. Patient's ages were 20 to 70 years. Patients detailed medical history, age, sex, residence were examined after taking informed consent. Patients with previous history of cancer treatment and patients with recurrence surgery were excluded. All the patients had received biopsy and sample sent to pathology lab for examination. Prevalence of different types of cancers was recorded.

Results: Eighty five (56.67%) patients were males and 43.33% were females. Thirty (20%) patients were ages 20-30 years, 45 (30%) patients had ages 31-40 years, 52 (34.67%) patients were ages between 41-50 years, 23 (15.33%) patients had ages above 50 years. Ninety (60%) patients had urban residency. Most of the females 35 (23.33%) patients had breast cancer. In males majority of patients had colon and rectum carcinoma type.

Conclusion: Majority of females had breast cancer and in males the colon and rectum carcinoma was the leading site. We should aware people about these malignant disorders. More work is needed to develop the better strategies for reducing the incidence rate of cancer.

Key Words: Cancer, Different Types, Prevalence, Gender

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INTRODUCTION

Cancer is a major health problem in developed countries. Cancer is the leading cause of death in Canada (29%) and is the second leading cause of death in United States of America (USA), United Kingdom (UK) and Australia.[1-4] In USA, the leading types of cancer are in prostate, lung, colorectum and urinary bladder in men and breast, lung, colorectum and uterus in women. The leading causes of cancer deaths among men are lung, prostate and colorectal cancer and among women lung, breast and colorectal cancer.

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In UK, Canada, Australia, the most leading types of cancer were in prostate, breast, lung and bowel. In Canada in 2007, lung cancer is the most commonly diagnosed type among all cancer deaths (27%) and prostate cancer is the leading one among men (27%) and breast cancer among women (28%). In Australia in 2007, the leading cancer in men was prostate cancer and in women breast cancer. In UK in 2009, prostate cancer was most common among males (25%) and breast cancer among women (30%). Cancer incidence is low in developing countries compared with high incidence in developed countries. The cancer incidence rate is 361/100,000 population in USA and about 300/100,000 in Europe compared with 100/100,000 in India.[5] In some developing countries, cancer is also becoming a major health hazard. In China, cancer is the leading cause of death.[6] The common cancers are in the lung, stomach, liver, esophagus and colorectum. Lung, liver and stomach cancer are the leading types in men and breast, lung and stomach cancer are the leading types in women.[7]

In India in 2008, 948,000 new cancer cases were diagnosed according to projected estimation. About 550,000 cancer deaths were estimated to occur. The leading cancer types in men were the oral and pharyngeal, stomach, lung and esophageal cancer and in women cervix, breast, stomach and esophagus.

Tobacco related cancers contributed to about 50% of all cancers. The estimated cancer mortality in India for the year 2000 was 157,168. According to World Health Organization, the estimated cancer deaths in India are projected to increase to 700,000 by year 2015.[8,9] Recent study was conducted aimed to examine the frequency of different types of cancer. This study will be helpful for making strategies for carcinomas.

MATERIALS AND METHODS

This study was conducted at Department of Physiology, Shahida Islam Medical & Dental College Lodhran from 1st June 2017 to 30th June 2019. One hundred fifty patients of both genders clinically diagnosed to have various types of cancers were included. Patient's ages were 20 to 70 years. Patients detailed medical history, age, sex, residence were examined. Patients with previous history of cancer treatment and patients with recurrence surgery were excluded. All the patients had received biopsy and sample sent to pathology lab for examine the type of cancer. Prevalence of different types of cancers was recorded. Data was analyzed by SPSS 20.

RESULTS

There were 85 (56.67%) patients were males and 43.33% were females. 30 (20%) patients were ages 20 to 30 years, 45 (30%) patients had ages 31 to 40 years, 52 (34.67%) patients were ages between 41 to 50 years, 23 (15.33%) patients had ages above 50 years. 90 (60%) patients had urban residency and 60 (40%) patients had rural residency (Table 1). From all the 150 cancer cases, breast is the most common site of cancer 35 (23.33%) followed by colon and rectum 20 (13.33%), lymph node 15 (10%), stomach 12 (8%), Ovary Ca 10 (6.67%) cases, Liver cancer in 9 (6%), 8 (5.33%) had lungs cancer, 7 (4.67%) patients had uterus carcinoma, Pancreatic Ca had found in 6 (4%) patients, prostate cancer found in 6 (4%) patients, myeloma found in 6 (4%) patients, esophagus cancer found in 6 (4%) patients, Kidney Ca were found in 5 (3.33%) patients and 5 (3.33%) patients had thyroid carcinoma respectively (Table 2).

Table No.1: Demographical details of all the patients

Variable	No.	%
Gender		
Male	85	56.67
Female	65	43.33
Age (years)		
20 – 30	30	20.0
31 – 40	45	30.
41 – 50	52	34.67
> 50	23	15.33
Residence		
Urban	90	60
Rural	60	40

Table No.2: Distribution of different type of cancer in all the patients

Type of Cancer	No.	%
Breast Ca	35	23.33
Colon & Rectum Ca	20	13.33
Lymph Node Ca	15	10.0
Stomach Ca	12	8.0
Ovary Ca	10	6.67
Liver Ca	9	6.0
Lung Ca	8	5.33
Uterus	7	4.67
Pancreatic Ca	6	4.0
Prostate Ca	6	4.0
Myeloma	6	4.0
Esophagus	6	4.0
Kidney Ca	5	3.33
Thyroid Ca	5	3.33

Table No.3: Distribution of cancers type in males (n=85)

Type of cancer	No.	%
Colon & Rectum Ca	18	21.18
Lymph Node Ca	13	15.29
Stomach Ca	10	11.76
Liver Ca	7	8.23
Lung Ca	6	7.06
Pancreatic Ca	6	7.06
Prostate Ca	6	7.06
Myeloma	5	5.88
Thyroid Ca	5	5.88
Kidney Ca	5	5.88
Esophagus	4	4.71

Table No.4: Among females different types of cancer (n=65)

Types of cancer	No.	%
Breast Ca	35	53.85
Ovary Ca	10	15.38
Uterus	7	10.77
Colon & Rectum	2	3.08
Lymph node	2	3.08
Stomach cancer	2	3.08
liver cancer	2	3.08
lungs cancer	2	3.08
Esophagus	2	3.08
Myeloma Ca	1	1.54

According to the sex wise distribution of cancer, colon and rectum was the most common site of cancer in males and breast cancer was the most leading site in females. In males, 18 patients had colon and rectum carcinoma, 13 had lymph node cancer, stomach cancer found in 10 cases, 7 patients had liver cancer, 6 patients had lungs cancer, 6 patients had prostate cancer, 6 patients had pancreatic cancer, myeloma found in 5 cases, 5 cases had thyroid cancer, kidney cancer found in 5 cases and esophagus found in 4 patients

respectively (Table 3). Among females, 35 patients had breast Ca, ovary Ca found in 10 cases, uterus cancer found in 7 cases, colon and rectum found in 2 cases, lymph node cancer found in 2 cases, stomach cancer found in 2 cases, liver cancer found in 2 cases, lungs cancer found in 2 cases, esophagus cancer found in 2 cases and myeloma Ca found in 1 case respectively (Table 4).

DISCUSSION

Worldwide cancer is the leading cause of mortality and morbidity. There is a high rate of incidence of different types of cancer in the world.[10,11] Many of studies have been conducted to examine the different types of cancer among males and females.[12,13] The present study was conducted aimed to determine the prevalence of different types of cancer in patients visited outpatient oncology department in our institution. In our study the majority of patients were males 56.67% followed by females 43.33%. These results showed similarity to some other studies in which male patients population was high 52 to 65% as compared to females.[10,14] In present study 64.67% patients were ages 30 to 50 years. These results were different to some other studies in which maximum cancer patients were ages 40 to 60 years.[15,16] In present study 60% patients belongs to urban area and 40% patients had rural residency. These results were similar to the other study conducted in Pakistan regarding incidence of various types of cancer reported majority of patients had urban residence.[17]

In this study we found that breast cancer was the leading site of cancer among all types of cancer and accounted 23.33% overall followed by colon and rectum 13.33%, lymph node 10%, stomach 8%, ovary 6.67%, liver 6% and lungs 5.33%. A study conducted by Cherian et al[18] reported breast cancer was the most leading site of cancer and found in 21.01% patient followed by colon and rectum, lymph node, stomach, ovary and liner and lungs. In the present study, according to the sex wise distribution of cancer, colon and rectum was the most common site of cancer in males and breast cancer was the most leading site in females. In males, 21.18% patients had colon and rectum carcinoma, 15.29% had lymph node cancer, stomach cancer found in 11.76% cases, 8.23% patients had liver cancer, 7.06% patients had lungs cancer, 7.06% patients had prostate cancer. These results showed similarity to some other studies in which colon and rectum, lymph node, stomach, liver and lungs cancer were the most common types of cancer in male patients population.[19,20] Six patients had pancreatic cancer; myeloma found in 5 cases, 5 cases had thyroid cancer, kidney cancer found in 5 cases and esophagus found in 4 patients. In this study we found that among females 53.85% patients had breast Ca followed by ovary Ca found in 15.38% cases, uterus cancer found in 10.77% cases. Many of previous studies regarding prevalence of different cancer type reported breast cancer was the most frequent type of cancer among females rated 40 to 60% followed by other types of cancer.[21,22]

CONCLUSION

Cancer is the leading cause of mortality in the whole world. It is concluded that majority of females had breast cancer and in males the colon and rectum carcinoma was the leading site. We should aware people about these malignant disorders. More work is needed to develop the better strategies for reducing the incidence rate of cancer.

Author's Contribution:

Concept & Design of Study:	Awais Anwar
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Original Article

Treatment of Mandibular Angle Fracture

Comparison Between Rigid Fixation and Semi Rigid Fixation of Mandibular Angle Fracture

Muhammad Sibghatullah Khan[1], Saad Uddin Siddiqui[5], Naveed Iqbal[4], Syed Kashif Abrar[3], Aqeel Aslam[6] and Raheel Allana[4]

ABSTRACT

Objective: to compare treatment outcomes between rigid fixation by using bone plating and semi rigid fixation by using transosseous wiring with maxillomandibular fixation for the treatment of isolated mandibular angle fractures.
Study Design: A prospective comparative clinical study
Place and Duration of Study: This study was conducted at the Department of Oral and Maxillofacial Surgery, Liaquat University of Medical & Health Sciences, Jamshoro from April 2013 and April 2015.
Materials and Methods: A prospective comparative clinical study was conducted on 30 patients who were treated for isolated mandibular angle fractures. The patients were selected and treated with semi rigid and rigid fixation techniques. The patients were evaluated for 4 weeks for the post-operative complications in terms of infection, malocclusion, malunion and sensory disturbances.
Results: Infection was seen to be more in semi rigid fixation when compared to rigid fixation. (20% vs 6.6%) whereas sensory disturbances (13.3%) were maximally found in rigid fixation technique. Never the less in this study the post-operative complications in either of the techniques were not significant.
Conclusion: In this study analysis of primary complications were done whereas the late complications can also occur. Such occurrences may not be recognized unless long term follow up is undertaken.
Key Words: Semi rigid fixation; rigid fixation; infection; malocclusion; malunion; sensory disturbances.

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INTRODUCTION

A major cause of death and morbidity throughout the world is the Maxillofacial Accidents. Most common among the maxillofacial injuries are the mandibular fractures. Mandibular fractures occurs most commonly in Pakistan and are associated with high incidence rates along with various combinations. [1]
Mandibular angle is one of the most popular locations of mandibular fractures. Due to changes in calcification lines and pressure from the horizontal body to the vertical ascending ramus, the mandibular angle is the ideal area of fractures.[2]

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A change in the occlusion of the mandibular angle fracture may be evident during a physical examination. Premature post-traumatic posterior dental contact and retrognathic occlusion may result in a mandibular angle fracture. The ideal treatment of these fractures is controversial and the complication rates noted, though many involve inconsistent populations, are unacceptably great. Mandibular angle divide is prone to the highest complication rates for all fracture sites, from 0% to 32 percent.[4]
Unfortunately, mandible fractures are associated with number of complications. Most common amongst them includes infection, malocclusion, mal-union and neurosensory dysfunction.
Besides many controversies, treatment involved rigid fixation with maxilla-mandibular fixation (MMF) to produce absolute bony stability along with union.[6]
However, despite these complications the rigid internal fixation with miniplates and MMF for short duration is advantageous and showed lesser complications as compared to plating and MMF.[7]
Therefore, this prospective study has been carried out to assess the various complications that were encountered following the treatment of isolated mandibular angle fractures with rigid fixation and semi rigid fixation.
Fracture healing: Bony repair after reduction of fracture is based on optimum supply of bloodand it is

affected by contamination and in delaying the days of reduction and immobilization.[8]

Bone healing occurs by a primary or secondary intention. In rigid fixation primary healing occurs. When the fragments are rigidly immobilized, osteoclasts fills the fracture gap. Tissue osteoblasts then begins to lay down newbone. With maturation these become new haversian canals. This process is called "contact healing". When a small gap remain between the fragments, lamellar bone is laid down within this gap. New haversian canals crossing the gap will form. This process is called "gap healing".

With either of these types of primary bone healing no external callus would be found along the walls of the fragments if they were rigidly immobilized.

In secondary bone healing, there is formation of hematoma, inflammation occurs, formation of callus (soft and hard) and bone remodeling to form lamellar bone. Secondary bone healing takes place when precise anatomic reduction cannot be achieved by primary way.[9]

Callus provides the stability so that the union of bone can be initiated.

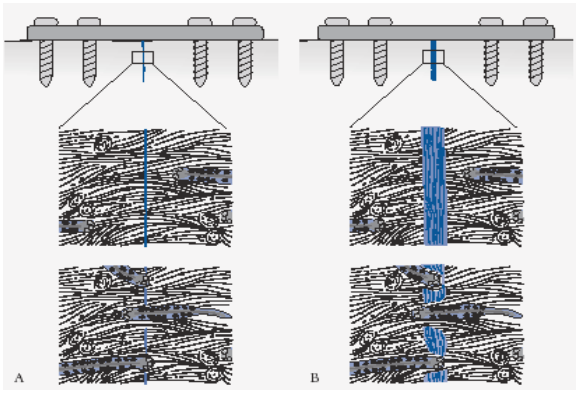

Figure No.1: Types of primary or direct bonehealing (A) contact healing (B) gap healing.

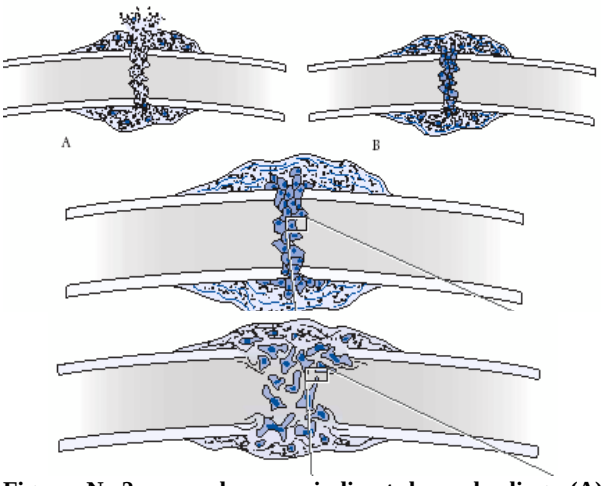

Figure No.2: secondary or indirect bone healing. (A) hematoma formation (B) soft callusformation (C) hard callus formation (D) remodeling and replacement of woven bone.

REVIEW OF LITERATURE

Historical review: Schede was the first person who introduced ORIF Oral Reduction and Internal Fixation. He used the plates and screws which were made up of steel.[6] The Pre-antibiotic area noticed many methods which were used to reduce mandibular fractures.

Izuka T, et al[10] In their study of rigid internal fixation they concluded that:

1. Recommended method in the treatment of comminuted fractures of the mandible.
2. CanbeappliedwhenIMFisundesirable.
3. Results in more complications than semi rigidmethods but refinedsurgical technique and increased use ofintraoral approach can reduce the rate of infection.
4. Should not be used in uncooperative patients.

Scheimmer MA,et al[11] Conducted a study on patients in whom rigid internal fixation was used for the treatment of fractures and continuity defects of the mandible. They concluded that the rigid internal fixation obviates the use of IMF, its applicability in non-compliant patients, ability to maintain good oral hygiene, minimizing periodontal trauma during fixation of arch bars and to maintain precise anatomic relationships of mandibular segments when continuity defects exists.

Johansson B, et al[12] Intheirstudy treated infected mandibular fractures with mini plate osteosynthesis. They recommended that all teeth should be carefully evaluated which present in the fracture line and in patients are suffering from alcohol and drug abuse or in those from whom lack of co-operation can be anticipated.

Brown JS, et al[14] conducted a comparative study of isolated mandibular fractures treated with IMF and with miniplate-osteosyn thesis. They have concluded that the expenses for IMF were found to be higher and greater number of out-patients visits was registered. Patients preferred their fractures managed without IMF. Nursing staffs are often anxious at prospect of recovering patients wired together and chances of potential airway embarrassment post operatively on patients who are on IMF and thus mini plates was the material of choice.

Assael LA[15] States that rigid internal fixation of mandibular fractures permit healing under stable conditions with immediate function and precise lyre-establishes the pre-injury position of the bones.

MATERIALS AND METHODS

This study was carried out as a prospective randomized clinical trial evaluating the post-operative complications following the treatment of isolated mandibular angle fractures with open reduction and stable internal fixation.

The patients for this study were selected from those visiting the department of Oral and Maxillofacial Surgery, Liaquat University Hospital, Hyderabad,

between April 2013 and April 2015.TheEthical Review Committee approved the clinical evaluation and all subjects gave an informed consent.

A total of 30 patients who were treated for isolated mandibular angle fractures and were assessed for any complications after the treatment. The patients ranging in the age group between 20-40 years were included in the study. Preoperative information was obtained from the patients and radiographs. The cases with relevant medical history, medically compromised patients, associated bone pathology and also patients who presented with systemic orfrankoral infection were excluded from the study.

The patients were selected randomly and were grouped into two. One group comprising of 15 patients were treated with rigid fixation i.e. miniplates and the other group comprising of another 15 patients were treated with semi rigid fixation i.e. transosseous wire.

The area that was considered in the study was mandibular angle region which were non-infected, non-comminuted and in subjects where IMF was not medically contraindicated.

The treated patients were prospectively followed and examined for the post-operative complications such as:

- Infection
- Malocclusion
- Malunion
- Sensory disturbances.

Infection:

- Purulent discharge from the site.
- Swelling which has increased beyond seventh post- operative day.
- Fistula formation with drainage.
- Fever along with infection (swelling, erythema or tenderness)

Malocclusion:

- Slightly displaced but satisfactory occlusion can be achieved by occlusal grinding.
- Severely displaced and unacceptable occlusion which requires a second operation to correct the occlusion

Malunion: Treated fracture sites was assessed radio-graphically

- Slightly displaced fragments (< 5mm)
- Severely displaced fragments (> 5mm)

Sensory Disturbances:

- Patients were asked about the sensory disturbances especially on the region of mental nerve and this was compared with the non- injured side and with the skin of the cheek.
- Cotton wool was used for the sensation of light touch and for the sharp sensation, a dental probe on the skin of the chin and the lower lip.

Patients were followed up at the intervals of one week, two weeks and four weeks and were evaluated for any of the above complications. The data was analysed using the statistical packages for social sciences (SPSS) versions 17.0.

Surgical Techniques: Preoperative Maxillom andibular fixation with arch bar and wireswere used to reduce diplaced fragments. The surgical procedure was done under aseptic condition under general anaesthesia and nasoendotracheal intubation.

Xylocaine with Adrenaline (2%) was used, Intra-oral incision was placed using cutting cautery over the oblique ridge from the distal aspect of the second molar and extending over the ascending ramus posteriorly about 1 cm superior to occlusal plane. Extra orally submandibular incision was ideally placed.Incision was made by No.15Bard-Parkerblade. Mucoperiosteal flap was elevated and the fractures it was exposed. Keeping the fracture ends in reduced position rigid fixation or semi rigid fixation was done.

In case of rigid fixation miniplates with 2 mm monocortical screws were inserted with archbar.

In case of semi-rigid fixation transosseous wire placed. Wound toileting was done and closed with 3-0 vicryl in layers. Reversal of anesthesia was done.

Postoperative IMF was applied as an addition to all patients to ensure maximum possible occlusion& stability. The use of post-surgical maxilla mandibular fixation (MMF) for 1 week (rigid-fixation cases) and 4 weeks (semi rigid-fixation cases). Prophylactic antibiotics along with mouth washes with povidine iodine was prescribed for at least seven days and as of diet was advised for a minimum of 2 weeks after IMF has been removed.

Method of Statistical Analysis: .The collected data was entered in Microsoft Excel and Statistical analyses were done using the SPSS (version 17.0) software.

Univariate analysis of all the dichotomous variables encoded was performed by means of the Chi square test with Yates correction if required. A “p” value of less than 0.05 was accepted

RESULTS

The study consists of 27 (90%) male and 3(10%) female in the age range from 20-40 years with mean age of 31.5±6.30 years. The total number of mandibular angle fracture observed in 20 to 29 years is 22(73%) 30 to 40 years 8(26.6%).

The age specific mandibular angle fracture in male was 83% (25 out of 30) in the age group of 20 to 29 years followed by 6.6 %(2 out of 30) in the age group 30 to 40 years.

The age specific mandibular angle fracture in female was 6.6% (2 out of 30) in the age group of 20 to 29 years followed by 3.3(1 out of 30) in the age group 30 to 40 years. The difference observed was not statistically significant (p>0.05).(Table-1).

Road traffic accident (66.6%) was found to be the most common cause of fracture over the other causes.

Table-2)

Left side mandibular angle fractures were more common as compared to its contralateral side. Cross bite was present in all cases preoperatively.

Above tables show the different infection rates, malocclusion, malunion and sensory disturbances in rigid and semi rigid fixation. Maximum number of infections (20%) was seen in semi rigid fixation. 6.6 % of Malocclusion was seen in rigid fixation and 13.3 in semi rigid fixation, Malunion was seen in 6.6%semi rigidfixation6.6%rigidfixationcases,Sensorydisturbance s was observed in rigid fixation cases 13.3 and 6.6 % in semi rigid fixation cases . The results in both semi rigid and rigid fixation were not statistically significant. (Table-3)

Table No.1: Age and gender distribution of the study population

Age	Gender		Total
	Female	Male	
20-29	2(6.6)	25(83)	27
30-39	1 (3.3)	2(6.6)	3
Total	3(10)	27(90)	30

Table No.2: Distribution of cause of fracture among the study population

Cause	Number	Percent
Assault	5	16.6
RTA	20	66.6
Selffall	2	6.6
SI	3	10

Table No.3: Distribution of type of complications observed according to type of fixation among the study population

Type of fixation	N	Infection	Malocclusion	Malunion	Normal Union	Sensory distur-bance
Rigid	15	1(6.6)	1(6.6)	1(6.6)	14(93)	2(13.3)
Semi Rigid	15	3(20)	2(13.3)	1(6.6)	14(93)	1(6.6)
P value		>0.05	>0.05	>0.05		>0.05

DISCUSSION

The history of the treatment and complications of facial bone fractures parallels the development of modern oral and maxillofacial surgery. We have moved from an era when our primary concern in bone healing was reduction and stabilization of fracture segments, while preserving maximal periosteal blood supply (closed reduction), to an era when precise reduction and stabilization can be achieved with semi rigid/ rigid fixation (open reduction) that overcomes functional loads and minimizes the postoperativecomplications.[8]

The intra oral approach used in the present study is expected to expose the bone to a higher bacterial count than an extra oral approach and thereby increasing the chances of infection.[20,21] Our study agrees with Sadiq, et al[3], who said that extraoral approach has more chance to nerve damage. However, the selection of extraoralor intraoral approaches mainly depends upon the accessibility of the fracture location. In this study 80% of the cases intraoral approach was used and extra oral approach was favored only for when a traumatic laceration provided access to the fracture or when there was multiple fractures.

The longstanding concept that teeth in the line of fracture must be removed to prevent complications seems to be changing now, giving way to newer concept that such teeth can be preserved under the favourable conditions.[19,22]

Teeth in the fracture line may often be of great value in repositioning of fracture; moreover, the extraction of such teeth may cause further injury to the bone tissue and also often difficult to reduce anatomically when the fragments are highly mobile.[23]

The role of teeth in line of fracture in promoting post-surgical infections has been difficult to determine from previous studies. The present study also does not clear this critical issue because the results of patients treated with or without extractions were equal. Out of 30 cases, 5 cases had teeth in line of fracture of which 2 patients developed infection and in few cases teeth were removed secondarily when the infection was treated.

Cawood, et al[29] also recommended fixation from 12-24 hours after injury. However in this study 90% of the cases were treated within 5 days whereas the rest were treated later and the results showed no significant difference in the infection rates between the time groups.

This study revealed a significant difference in the incidence of infection between the two methods [6.6% (rigid) vs. 20% (semi rigid)]. Infection rates were seen to be higher with semi rigid fixation than in rigid fixation.

Our study agrees with the work done by Iizuka, et al[13] and AO/ASIF investigators according to them the post-operative infection is not only the result of contamination but can also be due to insufficient fractures ability as in the cases with semi rigid fixation[18].

Iizuka and Lindquist[10] in their study also showed that post operative monitoring of C-reactive protein (CRP), a laboratory parameter of infection and tissue destruction was associated with larger increase in CRP level in the fixation of mandibular fractures with semi rigid fixation than rigid fixation.

According to Spiessl[31] to avoid asymmetric stress distribution over the fracture site, over bending of the plate and use of tension band is necessary which in turn reduces the rate of mal occlusion. The low rate of malocclusion in this study could be attributed to the ease which plates were adapted to the fracture sites.

In this study sensory disturbances were recorded according to patient's complaint. In this study there was no record of any involvement of the mandibular branch of the facial nerve as it has been reported[25,26].The tests used in this study measures mainly mechanoreceptor. The present methods were chosen because they are simple and suitable for trauma patients. According to this study 13.3% of the patients had sensory disturbance persisting upto 6 weeks with rigid fixation. The results of present study indicate that preoperative sensory status corresponding to the presence of fractured is placement did not affect the degree of the post operative sensory disturbance, when adequate reduction and fixation is done. However, the sensory disturbance may also be affected by the surgical procedure.

The results of our study failed to agree with that of Nakamura et al[17], who found in his study that miniplates used to treat fractures are plagued with a high complication rate.

Cawood[49] and Reton TF[27] have supported the rigid internal fixation as the treatment of choice. On the other hand Lamphier J[32], Moulton BR[28] and Leach J[29] have found the traditional techniques superior to the newer techniques regarding post- operative complications. Balourian R[30] and Chritah A[5] used Mini plates + MMF for few days and found lesser complications. Our study found that rigid internal fixation is the treatment of choice of mandibular angle fracture.

Lastly, in this study only primary complications were analyzed where late complications can also occur. These may be associated with plate removal, osteomyelitis, nonunion, joint dysfunction, hypertrophic scar formation, prolonged sensory disturbances that in some cases might develop into posttraumatic neuralgia. Such developments may not be recognized unless long termfollow up is undertaken.

CONCLUSION

This study will help to develop a protocol for successfully managing these fractures in an indigent Population and patient will become active participant to the society.

Author's Contribution:

Concept & Design of Study:	Muhammad Sibghatullah Khan
Drafting:	Saaduddin Siddiqui, Naveed Iqbal
Data Analysis:	Syed Kashif Abrar, Aqeel Aslam, Raheel Allana
Revisiting Critically:	Muhammad Sibghatullah Khan, Saaduddin Siddiqui
Final Approval of version:	Muhammad Sibghatullah Khan

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

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Original Article

Rotavirus Diarrhea among Children under the Age of Five Years

Sanaullah Khan[1], Muhammad Anwar[1], Zeeshan Mehmood[2], Syeda Faiza Akhter[2], Mohsan Sohail[1] and Farrukh Saeed[2]

ABSTRACT

Objective: To determine the frequency of Rotavirus (RV) diarrhea among hospitalized children under the age of 5 years.

Study Design: A cross sectional / descriptive study.

Place and Duration of Study: This study was conducted at the Pediatrics departments of Services Hospital and Arif Memorial Teaching Hospital / Rashid Latif Medical College, Lahore from January 2019 to June 2019.

Materials and Methods: A total of 370 children (185 from each center), aged 1 month to 5 years of both genders, hospitalized with symptoms of AGE were enrolled for this study. All the patients were evaluated for the presence of diarrhea, vomiting along with severity of dehydration. Qualitative data like gender, age groups, symptoms, number of vomiting and presence of RV were represented as frequencies and percentages while age was represented as mean and standard deviation. Chi square test was applied to note any possible association of RV with study variables.

Results: Out of a total of 370 children, majority, 209 (56.5%) were male and 148 (40.0%) had age between the age of 1 to 12 months, followed by 91 (24.6%) from 13 to 24 months. Mean duration of diarrhea was noted to be 3.47+1.83 days whereas mean number of stools per day was 8.65+2.73. Fever was noted among 217 (58.6%) children. RV positive was noted in 214 (57.8%) children whereas remaining 156 (42.2%) were noted negative. Increasing age and presence of fever were found to have significant association with RV positive children (p value < 0.05).

Conclusion: Prevalence of RV was noted to be 58.7% among children aged less than 5 years. Increasing age and presence of fever were found to have significant association with RV positive children.

Key Words: Diarrhea, rotavirus, vomiting, stools per day, fever.

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INTRODUCTION

Viral agents like rotavirus (RV), enteric adenovirus, astrovirus, and human calciviruses are known to be cause diarrhea among children.[1] RV is the most significant etiological agent for acquired diarrhea among children and is documented as the commonest causative pathogen for severe diarrhea as well as dehydration among children aged below 5 years.[2] In developing countries, RV is the main reason for diarrhea related morbidity and mortality amongst young children. RV is responsible for server acute gastroenteritis (AGE) that usually needs hospitalization, and if not treated timely, may go on to lead to mortality.[3]

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As per WHO, RV is responsible for more than 5 million deaths among children aged less than 5 years. Out of these, around 50% of the deaths are reported from India, Nigeria, Congo, Ethiopia, China and Pakistan.[4] Children of Eastern Mediterranean Region (EMR) accounts for approximately 65000 deaths per year and Pakistan lie in the same region.[5] It is also known that by the age of 5 years, almost every child is noted to have at least one episode of RV gastroenteritis (RVGE), and 1 out these 5 are known to visit a clinic, whereas 1 out of 65 is noted to have hospitalization, and around 1 in 293 is thought to die. It is also a well known fact that about 90% of RVGE related mortality is in low/middle income countries.[3] In Pakistan, prevalence of RV is estimated around 20-60% among children under the age of 5 years.[6,7]

RV is a double stranded Ribonucleic Acid (RNA) virus belonging to family of Reoviridae.[8] Five categories of RV are A, B, C, D and E. RV A is responsible for around 90% RV infections amongst humans. Oro-fecal route is the commonest route for RV.[9]

RV illness usually starts with acute onset of diarrhea along with vomiting. Diarrhea is commonly watery. Fever is noted among most children.[8] Better sanitation and hygiene can reduce burden of RV whereas the most important way of prevention is vaccination as RV is considered to be a vaccine preventable illness.[10]

The present study was done at 2 main tertiary care centers of Lahore, Pakistan with an aim to determine the frequency of RV diarrhea among hospitalized children. The results of this study are thought to provide us estimation of RV in our settings while this will further aid us in designing strategies and resources to cope is common illness among children under the age of 5 years.

MATERIALS AND METHODS

This was a cross sectional and descriptive study conducted at Pediatrics departments of Services Hospital and Arif Memorial Teaching Hospital / Rashid Latif Medical College, Lahore, from 1st January 2019 to 30th June 2019. A sample size of 369 children was calculated using: $n = z^2 * p * (1 - p) / e^2$

Z was taken as 1.96 for a confidence level (α) of 95%, p was taken as 60%[7] while e was considered as 0.05. A total of 370 children (185 from each center), aged 1 month to 5 years of both genders, hospitalized with symptoms of AGE were enrolled for this study. Cases with bloody diarrhea or nosocomial gastroenteritis were excluded. Approvals from the ethical committees of the respective institutes were taken for this study. Informed written consent was also taken from parents or guardians of all the study participants.

Stool samples of all the study participants were taken within 24 hours of hospitalization. A single spoon of recent diarrheal stool was shifted in a stool container to the institutional central laboratory. Enzyme linked Immunoassay was done to identify the presence of RV.

All the patients were evaluated for the presence of diarrhea, vomiting along with severity of dehydration. Diarrhea was labeled as acute occurrence of 3 or more lose or watery stools (symptoms < 7 days) in a span of 24 hours. Vomiting was labeled as 2 or more episodes of vomiting in a span of 24 hours. Dehydration was classified as no dehydration (no signs of some or severe dehydration), some dehydration (presence of 2 or more of: (i) restless or irritable, (ii) sunken eyes, (iii) showing eagerness while drinking, (iv) skin pinch going back slow) or severe dehydration (2 or more of: (i) lethargic or unconscious, (ii) sunken eyes, (iii) not drinking properly, (iv) skin pinch going back very slow).[11]

All the study data was recorded on a predesigned proforma while SPSS version 20.0 was used for data analysis. Qualitative data like gender, age groups, symptoms, number of vomiting and presence of RV were represented as frequencies and percentages while age was represented as mean and standard deviation. Chi square test was applied to note any possible association of RV with study variables. P value less than or equal to 0.05 was considered as significant.

RESULTS

Out of a total of 370 children, there were 209 (56.5%) male and 161 (43.5%) female. Mean age was noted to be 22.63 months with standard deviation of 12.52 months. There were 148 (40.0%) cases between the age of 1 to 12 months, 91 (24.6%) 13 to 24 months, 67 (18.1%) 25 to 36 months, 41 (11.1%) 37 to 48 months and remaining 23 (6.2%) were between the age of 49 to 60 months.

Table No.1: Characteristics of Study Participants (n=370)

Characteristics		Number (%)
Gender	Male	209 (56.5%)
	Female	161 (43.5%)
Age (months)	1 to 12	148 (40.0%)
	13 to 24	91 (24.6%)
	25 to 36	67 (18.1%)
	37 48	41 (11.1%)
	49 to 60	23 (6.2%)
Duration of Diarrhea (days)	1 to 3	226 (61.1%)
	4 to 6	144 (38.9%)
Number of Stools Per day	1 to 7	74 (20.0%)
	8 to 10	203 (54.9%)
	> 10	93 (25.1%)
Fever	Yes	217 (58.6%)
	No	153(41.4%)
Rotavirus	Positive	214 (57.8%)
	Negative	156 (42.2%)

Table No.2: Distribution of Characteristics of Study Participants With Regards to RV (n=300)

Characteristics		RV Positive (n=214)	RV Negative (n=156)	P value
Gender	Male	122 (57.0%)	87 (55.8%)	0.7159
	Female	97 (43.0%)	64 (44.2%)	
Age (months)	1 to 12	71 (33.2%)	77 (49.4%)	<0.0001
	13 to 24	41 (19.2%)	50 (32.1%)	
	25 to 36	45 (21.0%)	22 (14.1%)	
	37 48	36 (16.8%)	5 (3.2%)	
	49 to 60	21 (9.8%)	2 (1.3%)	
Vomiting	Yes	102 (47.7%)	124 (79.4%)	<0.0001
	No	112 (42.3%)	32 (20.6%)	
Fever	Yes	138 (64.5%)	79 (50.6%)	0.0075
	No	76 (35.5%)	77 (49.4%)	

Duration of diarrhea as 1 to 3 days was noted among 226 (61.1%) children while 144 (38.9%) between 4 to 6 days. Mean duration of diarrhea was noted to be 3.47

days with standard deviation of 1.83 days. Stool frequency as less than or equal to 7 times a day was noted among 74 (20.0%) children, 8 to 10 stools among 203 (54.9%) whereas remaining 93 (25.1%) were having stool frequency of more than 10 stools a day. Mean number of stools per day was noted to be 8.65 with standard deviation of 2.73. Fever was noted among 217 (58.6%) children. RV positive was noted in 214 (57.8%) children whereas remaining 156 (42.2%) were noted negative.

When, RV positive children were compared with those RV negative, increasing age and presence of fever were found to have significant association with RV (p value < 0.05).

DISCUSSION

RV is known to be one of the commonest causes of non-bacterial gastroenteritis among children. Among low income countries like Afghanistan, Pakistan, Sudan and Yemen, RV has been found to induce higher mortality rates in comparison to high income countries like Saudi Arabia and Kuwait.[3]

Current research was done to determine the frequency of RV diarrhea in hospitalized children. Overall, we noted that majority of the children, 56.5% were male. Our findings in terms of gender distribution were pretty similar to what has been found previously in other local studies. Haq W et al[7] noted 58.8% children to be male in similar study design while Badur and colleagues[12] also noted very similar numbers, 57.2% to be male children.

In terms of overall age mean age was noted to be 22.63 months with standard deviation of 12.52 months. This was very similar to what was found by Habib MI et al from Karachi[11] where mean age of the children hospitalized due to diarrhea was 20.6+15.14 months. We also noted that there were 148 (40.0%) cases between the age of 1 to 12 months, 91 (24.6%) 13 to 24 months, 67 (18.1%) 25 to 36 months, 41 (11.1%) 37 to 48 months and remaining 23 (6.2%) were between the age of 49 to 60 months. Our results were quite consistent with those of Haq W et al[7] where they found a decreasing trend of diarrhea with increasing age. Badur M et al[12] also noted majority of their children (60.4%) to be less than or equal to 12 months of age while second most dominant age group was 13 to 24 months of age (28.9%).

Stool frequency as less than or equal to 7 times a day was noted among 74 (20.0%) children, 8 to 10 stools among 203 (54.9%) whereas remaining 93 (25.1%) were having stool frequency of more than 10 stools a day. Similar findings were noted by other local researchers[7] where majority of the children (60%) had 8 to 10 stools per day. Habib MI[11] in 2014 also noted 60.3% of their children to be having 8 to 10 stools per day.

RV positive was noted in 214 (57.8%) children whereas remaining 156 (42.2%) were noted negative. Similar study results depicting more than half (60%) hospitalized children due to diarrhea having positive RV have been reported before.[7] A study conducted by Salim H et al[13] reported 50% of their children to be infected with RV. Habib MI et al[11] found this percentage to be 63%, which is again very similar to what was found in the present study. In Pakistan, prevalence of RV among cases of AGE was noted to be from 8 to 9% in between 1985 to 1996 but in recent years (2007 to 2014), it has been recorded between 24 to 66% which is alarming.[3]

We noted that increasing age was significantly associated with RV cases. Our results were correlated with those found earlier where local researchers[7] have found age increasing above 24 months to be associated with RV infection. Salim and coworkers[13] noted prevalence of RV very similar in different age groups among children except 49 to 60 months of age.

In the present study, most children without vomiting were seen to have positive RV. These findings are very consistent to studies done in Pakistan[7] in Iran[14] which seem to highlight that no vomiting is commonly found in RV positive cases.

Presence of fever was noted to have significant association with RV positive children as 64.5% of the children as RV positive had fever in comparison to 50.6% children among RV negative cases. This aspect of our study results are very similar to previous findings.[7,11] RV positive cases seem to have significant association with presence of fever as depicted earlier. Ehsanipour F and colleagues from Iran[14] also noted majority of RV positive cases had fever in them.

Our study had few limitations as well. We did not record management strategies among studied cases which would have further given us insight about the effectiveness of current strategies. We also did not note any kind of short term outcome like mortality or number of days required for recovery in our cases.

CONCLUSION

Prevalence of RV was noted to be 58.7% among children aged less than 5 years. Increasing age and presence of fever were found to have significant association with RV positive children.

Author's Contribution:

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

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Original Article

Elective Colorectal Surgery

Randomized Clinical Trials of Mechanical Bowel Preparation Versus No Preparation in Elective Colorectal Surgery

Munawar Mangi[1], Ameer Ali Kashkheli[2] and Feroz Mahar[2]

ABSTRACT

Objective: The study aim was to evaluate whether elective colon and rectal surgery can be safely performed without preoperative mechanical bowel preparation.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Sindh Govt. Lyari General Hospital karachi from March 2018 to March 2019.

Materials and Methods: A total population of 100 patients admitted for colon and rectal resections were prospectively randomized into two groups .Group A had mechanical bowel preparation before surgery and Group B underwent surgery without preoperative mechanical bowel preparation. Our investigation team followed up for 30 day for wound, anastomotic and intra-abdominal infections and subsequent problems.

Results: It was detected that out of 100 patients , after randomization 50 in Group A and 50 cases in Group B were studied in which the anastomotic leak, re-operation rate and mortality were 24%, 10% and 4% in Group A vs 16%, 6% and 6% in Group B respectively. And the hospital stay was 12 and 9 day in Group A vs Group B. However the resulting complication rates were similar in both the groups with Cardiovascular complications , deep Abscess, incisional hernia ,peritonitis and wound infection at 48%, 36%,45%,44%,54% in Group A and 52%, 64% , 55%, 56%, and 46% in Group B.

Conclusion: As per our study, we conclude that mechanical bowel preparation doesn't cause any harm and it's safe for patients undergoing elective colorectal surgery to undergo without mechanical bowel preparation.

Key Words: Colorectal Surgery**,** pre-operative mechanical bowel preparation, anastomotic leakage.

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INTRODUCTION

Surgeons believed that effective mechanical bowel preparation is a significant element and it can help in stopping infections and anastomotic dehiscence after colorectal surgery. Clinical incidents and experimental studies have verified that removal (mechanical) of gross feces (from the colon) has resulted in decreased rate illness and death in patients undergoing operations of the colon. Although authors have different sides to it, some support the idea and some claim it to be risky as it increases the chances of inflammatory processes[1].

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The reason of suggesting this drill is to decrease problems after the operation and in easier handling of bowel during operation. Usually, bowel are cleaned using enemas and laxatives given to patients orally. Modern methods have now also introduced oral cathartic agents to tempt diarrhea and bowel cleaning .Mostly Polythene Glycol and Sodium phosphate are used to clean the bowel. In a study conducted by Platell and his group, it was found that Patient who received polyethylene glycol with phosphate enema for bowel preparation are better than the ones who doesn't undergo such procedures.[2] Further while performing the procedure it is indicated that patient's co-morbid disease and risk profiling is significant to assess respiratory and cardiac activity prior to admittance as it helps in identifying patients with greater risk of complications.

The exercise of bowel cleaning before colorectal surgery is now considered a principle in performing surgery and no bowel preparations are not suggested however it's still under study whether the rate of infectious problems is still to be verified.

MATERIALS AND METHODS

This cross-sectional study was carried out in Sindh Govt. Lyari General Hospital Karachi on March 2019. A total population of 100 patients aged above 45 who chose for elective laparoscopic colorectal surgery were eventually categorized into two groups : **Group A** in which bowel preparation (mechanical) done before surgery and **Group B** underwent surgery with no preoperative mechanical bowel preparation. Patients in Group A were given polyethylene glycol around 10 to 14 hours before their surgery was performed.

All Patients were open to normal diet until sometime before surgery and were also given antibiotic before and after the surgery procedure. We took written consent from all patients under study to ensure transparency.

Patients with or without mechanical bowel preparation were subdivided into gender and age. Our investigation team followed up for 30 day for wound, anastomotic and intra-abdominal infections and subsequent problems. Exclusion Criteria:

(1) Patients suffering from Diabetes mellitus and serious malignancy
(2) Patients with proximal colostomy and abdominal-perennial resection.
(3) Patients suffering from middle or low rectal cancer,
(4) Patients admitted in emergency procedures
(5) Patients who require a diverting stoma proximal to the anastomosis
(6) Patients having abdominal abscess at surgical point.
(7) Patients undergoing elective colon and rectal surgery

We used SPSS version 20 for statistical analysis and the quantitative and qualitative variables like mean age, standard deviations gender were also assessed.

RESULTS

After statically presenting the cases, we observe that out of the total population of 100, patients that had undergone elective laparoscopic colorectal surgeries were falling between 45 to 75 year of age where 59% were males and 41% were females. Amongst these 23% of females and 27% of males underwent surgeries with mechanical bowel preparation.

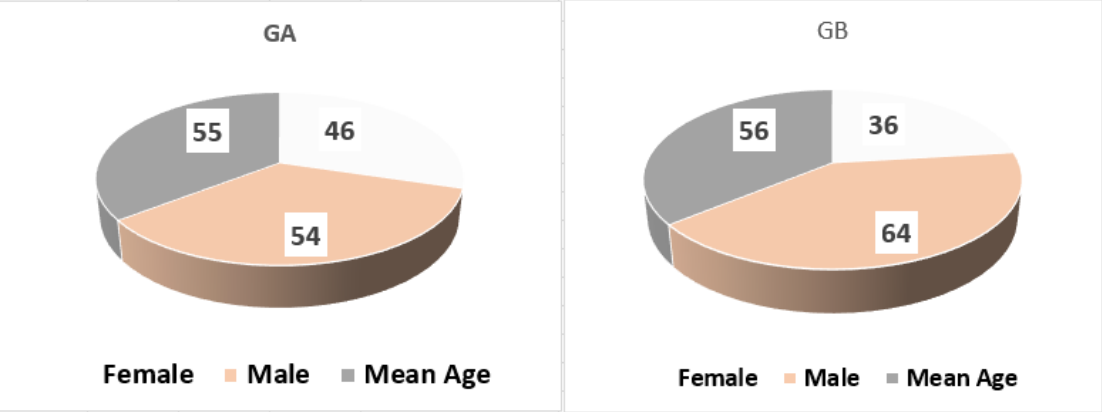

Figure No.1: Sex Distribution of Patients with or without interventions and their Mean

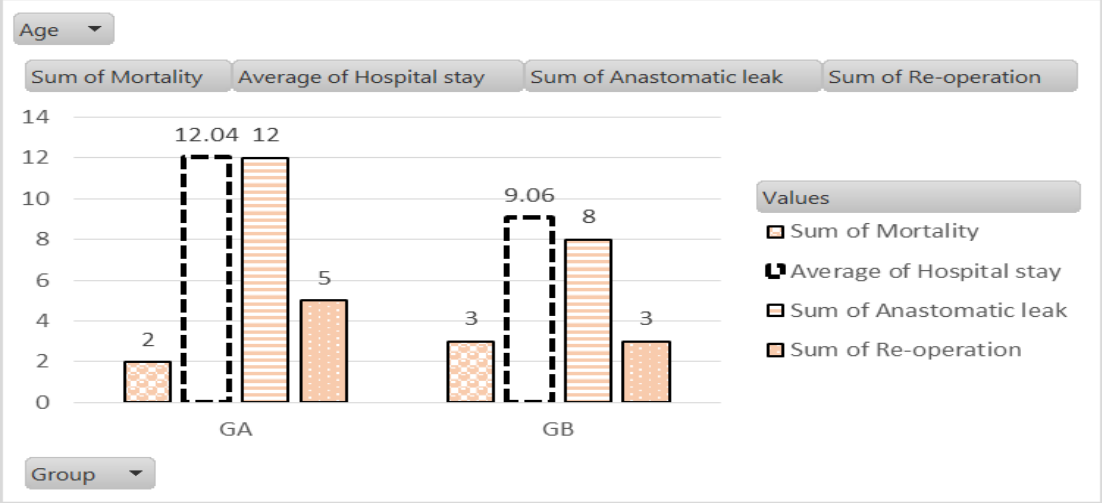

Figure No.2: Number of cases vs Mortality, Re-operation rate , Anastomotic leak and average Hospital stay

Table No.1: Summary of Groups Primary endpoints

Group	Anastomotic Leaks	Female	Male	Mean Age	Mortality	Hospital stay (Days)	Stay-SD	Re-operation Rate
GA	24%	23	27	55	4%	12	3.27593	10%
GB	16%	18	32	56	6%	9	1.69786	6%

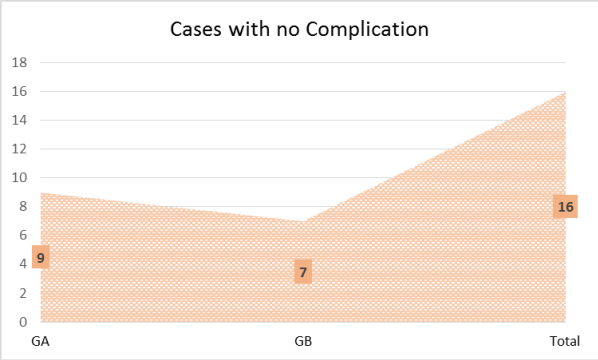

Figure No.3: Cases with no complications in GA vs GB

The mean age observed in both the groups wasn't significantly different where 55 being the mean age in Group-A and 56 in Group B. (Figure-1).

For the sake of understanding the outcomes of the study, we considered the primary endpoints to be the post-operative anastomotic leak, re-operation rate and mortalitywhich were 24%, 10% and 4% in patients who underwent bowel preparation group (GA) and the one who didn't prepare (GB) were observed to have ananastomotic leak of 16%, mortality 6% and re-operation rate of 6% movement showing no significant difference between the both (Table-1).The mean duration of hospital stay in Group A was 12 (SD=3.27) and 9 (SD=1.69) days respectively in Group B (Table-1). Out of a population of 100, 2 people died in Group A and 3 in Group B (Figure-2). However the trend of no complications in Group A was almost similar to Group-B i.e. 9 cases vs 7 cases out of a total of 16 cases. (Figure-3).

Statically the secondary endpoints i.e. the cardiovascular complications, deep abscess, incisional hernia cases, peritonitis and wound infections were 48% ,45%,51%,44% and 54% in Group-A and 52%, 55%,49%,56% and 46% in Group-B respectively. (Figure-4) Overall similar level of complications faced by both group Patients.

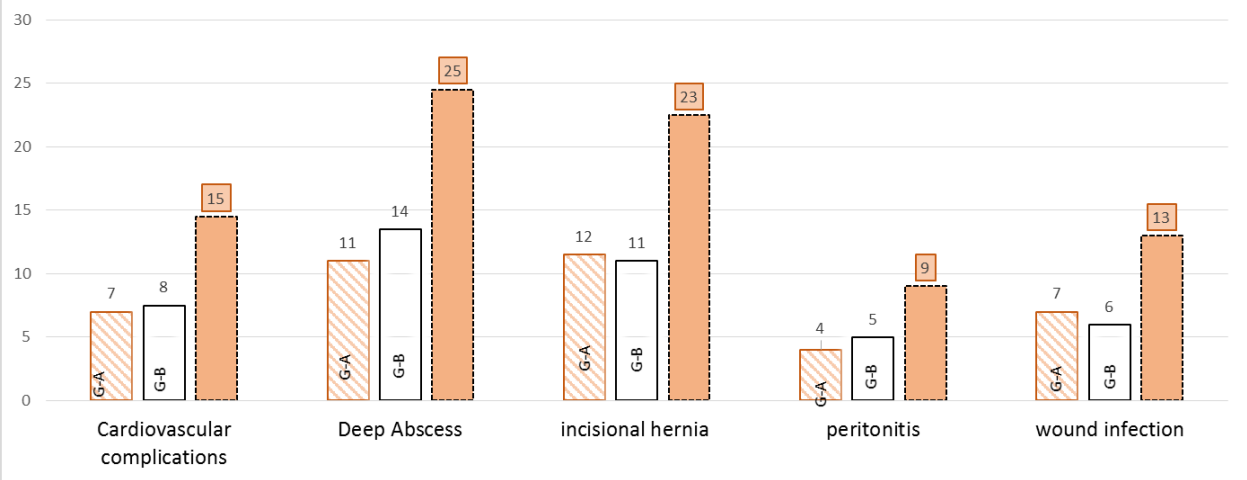

Figure No.4: Presenting Secondary endpoints i.e. complications occurring in Patients Group-wise

DISCUSSION

It has been found that preparation for colon rectal and elective surgery with mechanical cleaning of bowel and infusion of antibiotics has become quite commonly used by surgeons in order to mitigate the resulting complications after surgery.

We observe that the key elements are to get rid of causes that reduce the patient home returning (after surgery), particularly pain control, oral intake establishment and assuring sufficient mobility to allow daily life activities.

In our study, amongst the total responding population of 100 patients, rate of mortality was similar with supporting insignificant differences in re-operation rates although physiological effect on patients of GA i.e. the ones who underwent bowel preparation before elective colorectal surgery was better relatively. The hospital stay was significantly higher in Group A while no difference was observed overall in resulting complications in patients of Group A and Group B such that cardiovascular complications and wound infections were at 48%, 54% in Group-A and 52%, and 46% in Group-B respectively.(Figure-4)

We observed that Patients with elective colorectal surgery were mostly 50 years and above and mostly females. Although several published researches has been made on elective colorectal surgery and bowel preparations, some conclude it useless and propose to omit it and some find it otherwise and prefer it.[1,2] Generally surgeons believe that bowel preparation reduces infections and it is observed that the use of antibiotics helps in lowering site infections in such patient.[3] Although previous investigations shows that MBP doesn't improve postoperative outcomes in laparoscopic colorectal surgeries, yet there is a conflicting opinion and practices observed by different surgeons who often tend to use it in open and laparoscopic resections.[4]

In a cochrane assessment 2390 patients underwent bowel preparation vs 2387 who didn't and 13 RCT's derive that patients don't benefit from bowel preparation although we believe further research needs to be done as surgeries varies in mid and low rectal cancers after neoadjuvant therapy.[5]

In our sub grouping we observe of mortality in Group A and Group B was 2 and 3 showing clearly unrelated reasons of death as both the groups had similar set of incidence. A supporting study on multicenter randomized trial of 1354 patients found that colorectal surgery could be performed safely without MBP.[6]

The stated leakage rate differs slightly with 24% of GA patients busted into anastomotic leaks and 16% in Group B clearly no difference was observed in both. A local literature recorded anastomotic leak at 11.76% and 7.84 in Group 1 and Group 2 .In the total sample of 96 patients, the frequency of anastomotic leak in the individual groups A and B was 8 (16.7%) & 6 (12.5%) respectively[8]. There is an increased risk of anastomotic disruption in tough stools and mechanical bowel preparation diminishes bacterial clogging in bowel.

Scarborough et al in his study of colorectal surgeries found lesser occurrence of anastomotic leaks (MBP Prep: 2.8% vs No Preparation: 5.7%) in patients who had received MBP compared to those who did not underwent preparation[7]. However elsewhere in a recent investigation, anastomotic leakage was detected in 2 patients in each group (6.25% with MBP and 6.45% without MBP).[8]

Pena-Soria et al in 2007 studied the outcome of Group A (Prep) or Group B (no preparation) in 97 patients and found anastomotic failure in four patients in group A (8.3%) while two patients in group B (4.1%) developed anastomotic leakage.[9]

An organized study by Genera et al shows that effectiveness of bowel preparation is based on observational data and proficient opinions only. Two groups of 2390 and 2387 in prep and non-prep groups respectively showed higher rate of anastomotic dehiscence (4.2%) and infectious complications (9.6%) in the prep group.

Overall our study shows that the requirement for re-operation wasn't much affected by the group types as it was 10% and 6% in GA and GB supported by a local literature results with re-operation rate 9.8% and 5.88% in group-1 and group-2 (prep vs np prep group).[10] While the incidence of incisional hernia in both group was similar 51% and 49%[11].

However complications occurring after colorectal surgery are unavoidable and can only be avoided by identifying high-risk patients and avoiding proximal diversions. Moreover our study is limited by the surveying study design and the relatively small size of the population.

CONCLUSION

Our investigation provides us enough evidence to assess that pre-operative bowel preparation in colorectal surgery does not cause any harm and as per the cumulative averages of mortality rates and anastomotic leaks and hospital stays, it can be concluded that performing colorectal surgery without mechanical bowel preparationis safe and doesn't cause any harm. However new protocols needs to be implemented for more accurate results. as our survey design is limited to certain conditions.

Author's Contribution:

Concept & Design of Study:	Munawar Mangi
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Data Analysis:	Feroz Mahar
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Depression after Stroke

Incidence of Depression after Stroke, a Cross-Sectional Study Conducted in Khyber Teaching Hospital Peshawar Pakistan

Bughdad khan[1], Nafeedullah[1], Nizamuddin[2] and Waheed Iqbal[2]

ABSTRACT

Objective: To find the incidence of depression among all hospitalized patients who presented with stroke.
Study Design: Cross sectional study
Place and Duration of study: This study was conducted at Khyber Teaching Hospital, Peshawar**.** Total duration of the study was 12 months, starting from January, 2017 to December, 2017.
Materials and Methods: In this study, total 162 patients were enrolled after proper consent. Hamilton depression scaling score was applied to document depression.
Results: The mean age was 73 ± 27.71 years. 60% patients were male while 40% patients were female. Eighty percent patients had ischemic stroke while 20% patients had hemorrhagic stroke. The incidence of depression was found to be 35%. Females were more prone to develop depression as compared to male patients. The incidence of depression was high in early age and late old age.
Conclusion: Our study concludes that the incidence of depression was found to be 35% among hospitalized stroke patients.
Key Words: Acute ischemic stroke, Hemorrhagic stroke, Depression, PSD

Citation of article: Khan B, Nafeedullah, Nizamuddin, Iqbal W. Incidence of Depression after Stroke, a Cross-Sectional Study Conducted in Khyber Teaching Hospital Peshawar Pakistan. Med Forum 2019;30(12):51-54.

INTRODUCTION

Stroke is an acute neurological deficit either focal or diffuse, which lost for more than 24 hours due to intra-cerebral infarct or bleeding. It results from non-traumatic vascular events. Its stand in the list of top three main causes of death and is considered one of the main reason for non-traumatic permanent disability, especially in adults. Approximately 2/3 of cases are usually reported in poor and developing countries. Compared to the Caucasians, it is more common in Asian and black African populations. It is usually reported in population above the aged population, but about one quarter of cases are observed blow the age of 65. About 20-25% people usually die following an acute of stroke[1]. Stroke, which is also considered as acute brain attack, result from decreased blood circulation to different part of the brain. This decreased blood may be either because of the ischemic stroke due to blockage of blood vessels and hemorrhagic stroke due to bleeding inside the brain parenchyma. Both these condition lead to brain ischemia and cell death.

Different level of depression is very common in these patients because there is life long disability and dependency following stroke. It is observed in the form of different cognitive, emotional and behavioral symptoms in these people following stroke. All these symptoms, appearing after stroke in are grouped together in a different entity, called post-stroke depression (PSD). PSD is considered as one of the most stressful and painful long-term sequale of depression. Some important cross-sectional studies in stroke survivors have shown that almost three fourth of those people who develop stroke goes into depression. Immediate PSD is reported in one third of people, while two third of these people develop depression later on at some stage of their life[2-4].

Patients clinical outcome is directly linked with PSD, and thus it really affect the patient's recovery, hospital stay, future dependency, disability and mortality[5,6]. There are many studies at international level, which show that depression is very common in stroke patients[2,3,7,8]. Though, very common in our society, but still there is very little data in literature search about this problem. To fill this gap in research about this clinical problem, we have conducted this study in the department of medicine, Khyber medical college Peshawar Pakistan. The main focus was to observe the

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incidence of depression in all patients presenting with strokes.

MATERIALS AND METHODS

This descriptive, single centered and cross sectional study was carried out in medicine department, Khyber Teaching Hospital Peshawar. Total duration of study was 1- year, starting from January 01 2017 to 31st December 2017. Total 162 patient with stroke were enrolled in the study.

Data collection: After ethical approval from the ethical board all the stroke patients meeting the inclusion criteria were included. First, consent was taken, the purpose of the study conveyed and the already prepared questionnaire explained in detail. To control the confounders and bias in the study results, exclusion criteria was followed strictly. The demographics of all the patients were obtained through structured proforma and the record were kept confidential.

Data analysis: Data was analyzed using SPSS version 22. All the numerical values were expressed as mean ± SD while categorical values are expressed as frequency and percentages. Chi-square test was applied to find our any possible statistical association between different groups having depression. P-value less than 0.05 was considered significant with each valued tabulated as 2 tailed.

RESULTS

Total 162 patients were observed to determine the frequency of depression among hospitalized stroke patients. The mean age was 73 years with SD ± 27.71. The characteristics of the study population are tabulated in table 1. The age was categorized into four groups 1, 2, 3 and 4. Where 15% (24) patients were there in age group 1(41-50 years), 26% (42) patients were in age group 2(51-60 years), 29% (47) were in group 3(61-70 years) and 30% (49) were from group 4 (71-80 years). The distribution of male and female patients were 60% (97) and 40% (65) respectively. 80% (130) patients have ischemic stroke while 20% (57) have hemorrhagic stroke. Depression was found in 35% of stroke patients. In order to find the impact of different age group, gender and type of stroke on depression, chi-square test was applied which shows no statistical significant association as summarized in table 2. The p-values of age group 41-50 vs 51-60, 61-70 and 71-80 were 0.9, 0.69 and 0.8 respectively. Patient with age group 61-70 years are 1.41 times more likely to develop depression as compared to other groups with OR 95% CI, 1.41 (0.50-3.98). The p-value for gender was 0.9 and type of stroke was 0.9 also.

Table No.1: Characteristics of study population

Variable	Category	Frequency	Percentage
Age	41-50 years	24	15%
	51-60 years	42	26%
	61-70 years	47	29%
	71-80 years	49	30%
Gender	Male	97	60%
	Female	65	40%
Type of stroke	Ischemic	130	80%
	Hemorrhagic	32	20%
Depression	YES	57	35%
	NO	105	65%

Mean age was 73 years with SD ± 27.71

Table No.2: Association of different variables with depression

Variables		Depression	No depression	x^2	OR (95%CI)	p-value
Age (years)	41-50	9	15	-	Reference	-
	51-60	15	27	0.01	1.08 (0.38-3.05)	0.9
	61-70	14	33	0.15	1.41 (0.50-3.98)	0.69
	71-80	19	30	0.02	0.94 (0.34-2.59)	0.8
Gender (males vs females)	Males	34	63	0.01	0.98 (0.51-1.90)	0.9
	Females	23	42			
Stroke (ischemic vs Hemorrhagic)	Ischemic	46	11	0.09	1.04 (0.46-2.35)	0.9
	Hemorrhagic	84	21			

DISCUSSION

Stroke is known to be the disease of motor performance and the main stem of recovery is hospital care and rehabilitation. However, recent studies have focus on other aspects that greatly affects the post stroke life of a patient including cognition, behavior and emotion. This is the reason that depression is the most important complication of stroke that affect the quality of life of the patients[3,8-10]. Post stroke depression (PSD) is very common but usually left untreated which have had negative repercussions not only for patients but for the associated family members as well. Thus early diagnosis and treatment will improve recovery and overall quality of patients. The current study focused on the prevalence of PSD in total 162 patients visiting Khyber Teaching Hospital Peshawar Pakistan. The prevalence of PSD in our study was 35%. In consistent with an early study performed in Fortaleza, reported 40% PSD[11]. Our findings were similar to a meta-analysis published in 2013 reported the prevalence of PSD 31%[12]. Another meta-analysis published in the same year reported the prevalence of PSD 29%[13]. Population based cohort studies reported prevalence of PSD ranges from 2% to 55%[2,7,14,15]. In our study the percentage of female patients (35.3%) with PSD was slightly high as compared to those with male patients (35%) though the difference is not statistically significant but males are less likely to develop PSD (OR 95% CI 0.98 (0.51-1.90). Different studies have been published reporting high incidence PSD in females rather than males. Females are two times more likely to develop depression after stroke as compared to females[16,17]. We do not found any possible statistical association of PSD with increasing age but the results were shocking regarding PSD in different age groups, "the curvilinear effect" as there in high percentage of PSD in group 1 (37.5%) followed by decrease in percentage of PSD in middle and early old age group, 35.5% and 29.78% respectively and again increase in later old age which was 38.77%. Interestingly, a study published by Michael et al in 2016 reported similar pattern of PSD incidence in different age groups[18]. Further studies needs to be carried out to explore such curvilinear relationship.

The stroke patients are more depressed as compared to other diseases for example Folstein MF and colleagues reported that orthopedic patients are less depressed as compared to stroke patients with equal levels of functional disability (45% vs 10%)[19] and similarly by Carson AJ[20].

Despite great advances in medical era, the PSD is still very high. To overcome PSD proper counselling session may be conducted for the patient with psychologist / psychiatrist along with medical treatment with anti-depressant. Furthermore, proper follow-up is needed to determine the initial level of depression and post treatment depression level. Such studies are needed in this regards.

CONCLUSION

Our study concludes that the incidence of depression is significant in-patient with stroke and is found in 35% of hospitalized stroke patients. Early diagnosis and treatment of depression will have a positive impact on the overall quality of patients with stroke.

Author's Contribution:

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

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Original Article

Treatment of Hidradenitis Suppurativa in Axillary Region

Comparison of Surgical Excision with Botulinum Toxin (Botox) Injection for Treatment of Hidradenitis Suppurativa in Axillary Region

Muhammad Usman[1], Seemab Khan[2] and Muhammad Saad Faisal[3]

ABSTRACT

Objective: To compare the outcome of surgical excision with botulin toxin injection for treatment of hidradenitis suppurativa in the axillary region was the objective of this study.

Study design: Randomized controlled trial study.

Place and Duration of Study: The study was conducted in Department of Plastic Surgery and Dermatology, Bakhtawar Amin Teaching and Trust Hospital, Multan from July, 2017 to July 2018.

Materials and Methods: Fifty patients with diagnosis of hideradinitis suppurativa in axillary region were included for clinical trial. The patietns were randomly allocated in two equal groups (25 patients in each gorup). The patiens in surgery group underwent surgical excision and in botulinum toxin injection grup received treatmetn with botulimun toxin injection with an interval of hidradenitis suppurativa. The patients were followed up for 6 months for outcome parameters i.e. recurrence of disease and patient satisfaction after both procedures.

Results: Mean age of the patients with Hidradenitis suppurativa were 28.69±5.61 and 29.11±5.17 years in surgery group and botulin toxin group. There were 18 (72.0%) males and 7 (28.0%) females in surgery group and 19 males 9 (76.0%) males and 6 (24.0%) females in botulinum toxin group. Overall recurrence was 4.0% after and 12.0% after surgical wide excision and Botulin Toxin Injection, respectively. The overall patient satisfaction was 88.0% with Botulin Toxin Injection treatment and 76.0% with surgical excision.

Conclusions: Surgical wide excision of hidradenitis suppurativa was found superior to Botulin toxin injection treatment in terms of recurrence and patient satisfaction.

Key Words: Hidradenitis suppurativa; Surgical wide excision; Botulin toxin injection

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INTRODUCTION

In 1854, a French surgeon named "Aristide Verneuil" first defined the chronic inflammatory condition of apocrine sweat glands as Hidradenitis suppurativa.[1,2] Reported prevalence of this disease is 1% worldwide in overall population, so it is considered as a rare pathology.[3,4] The disease is most common among young females with a male to female ratio of 1:3.[5,6]

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No specific or single causative agent is responsible for this condition. A positive family history, obesity and tobacco smoking are the risk factors.[7] Hidradenitis suppurativa is diagnosed clinically by the appearance of nodules, sinuses and recurrent abscess formation with scarring of skin. Primary lesion is single, pus discharging, painful nodule and secondary lesions are multiple pus or serous fluid discharging sinus.[8] The most affected site is groin followed by axillary skin. Long standing Hidradenitis suppurativa can lead to complications e.g. cellulitis, Obstructed lymph drainage, malignancy (squamous cell carcinoma) and social isolation.[9] Stage of disease determines the treatment choice of this disease. Cure is possible only with surgical excision of diseased skin.[10] Other treatment options include topical antiseptics, oral antibiotics, intralesional steroids, incision and drainage of abscess, antiandrogens, retinoid, Anti-TNF drugs, lasers and radiotherapy.[11,12] Excision with primary closure, secondary intention healing or graft is the curative surgery.[13]

Botulinum toxin A has freshly been introduced as an innovative treatment choice for patients with

Hidradenitis suppurativa.[14] Botulinum toxin works by inhibiting the release of acetylcholine at the level of postganglionic cholinergic synapses. A a result, there is sympathetic activation of apocrine sweat glands is reduced which eventuall leads to healing of the lesions by limiting the tendency of follicular rupture and inflammation.[14]

In the literature, there are only few caces which have been reported in literature for the treatment of hideradinitis suppurativa with botulinum toxin. The treatment has shown promising resutls in these reports. However, the data is limited. Still, there is no consensus about various options of treatment. Surgery is most commonly adopted treatment and is conssidered treatment of choice.This study was designed to compare the surgical excision with botulin toxin injection for treatment of hidradenitis suppurativa.

MATERIALS AND METHODS

This prospective study was conducted in the Department of Plastic Surgery and Dermatology, Bakhtawar Amin Teaching and Trust Hospital, Multan from July, 2017 to July 2018. The study included 50 patients with Hidradenitis suppurativa in axillary region, of either gender and above 18 years of age. Patients with previously failed medical treatment were also included in the study. Patient with abscess, previously failed surgical and botulin toxin injection treatment, diabetes mellitus, immunosuppression, pregnancy and dermatological diseases were excluded from the study. Patients with hidradenitis suppurativa were classified into three stages according to Hurley staging system i.e. stage I: abscess formation, single or multiple, without sinus tracts and cicatrization, stage II: recurrent abscesses with tract formation and cicatrization, single or multiple, widely separated lesions; and stage III: diffuse or near-diffuse involvement, or multiple interconnected tracts and abscesses across the entire area. Patients were divided into two groups.

Surgery group: patients underwent surgical excision of Hidradenitis suppurativa in axilla and skin defect closed primarily or replaced with skin grafting.

Botulinum toxin group: patientsreceived botulin toxin injection treatment

In surgery group, all surgical procedures were performed under general anesthesia with standard surgical techniques for excision of hidradenitis suppurativa and the defect was closed primarily or with skin grafting. In botulinum toxin group, the patient were injected botulinum toxin A, intradermally in a grid with 1- 1.5 cm between every injection in affected areas (maximum 4000U per patient per treatment), every 3rd month for two times. Demographic features, history and physical examination were noted. Outcomes of both procedures were recorded and compared by chi-square test. P-value < 0.05 was taken signifcant.The data was entered into SPSS version 20, computer program and analyzed accordingly.

RESULTS

The mean age of patients with Hidradenitis suppurativa were 28.69±5.61 and 29.11±5.17 years in surgical excision group and botulinum toxin group, respectively. There were 18 (72.0%) males and 7 (28.0%) females in group I and 19 males 9 (76.0%) males and 6 (24.0%) females in group II. The male to female ratio was 1:2.8. The mean body mass indexes were 31.14±2.78 and 32.01±1.98 Kg/m^2 in group I and II, respectively. The sites of hidradenitis suppurativa were axilla in 82.0% patients and groin in 18.0% patients.

Table No.I: Distribution of patient with Hidradenitis suppurativa stages (n=50)

Stages	Surgical Excision	Botulin Toxin Injection
	No. of patients (%)	No. of patients (%)
Stage I	15 (60.0%)	18 (72.0%)
Stage II	8 (32.0%)	6 (24.0%)
Stage III	2 (8.0%)	1 (4.0%)
p-value	0.185**	

* Significant, ** not significant

Table No.2: Recurrence of Hidradenitis suppurativa (n=50)

Stages	Surgical Wide Excision	Botulin Toxin Injection
	No. of patients (%)	No. of patients (%)
Stage I	0 (0.0%)	0 (0.0%)
Stage II	0 (0.0%)	2 (33.34%)
Stage III	1 (50.0%)	1 (100.0%)
Total	1 (4.0%)	3 (12.0%)
p-value	0.001*	

* Significant, ** not significant

Table No.3: Patient satisfaction (n=50)

Stages	Surgical Wide Excision	Botulin Toxin Injection
	No. of patients (%)	No. of patients (%)
Stage I	13 (86.67%)	18(100.0%)
Stage II	6 (75.0%)	4 (66.67%)
Stage III	0 (0.0%)	0 (0.0%)
Total	19 (76.0%)	22 (88.0%)
p-value	0.03*	

* Significant, ** not significant

Distribution of patient with Hidradenitis suppurativa stages are shown in Table I. The most common stage of Hidradenitis suppurativa was stage I i.e. 48.0% followed by stage II (28.0%) and stage III (6.0%). Overall recurrence was seen in 1 (4.0%) patients after surgicla excsion and in 3(12.0%) patietns wide excision

and Botulin Toxin Injection, respectively(p-value = 0.001, hence sginificant). The overall patient 22 (88.0%) patients were satisfied with Botulin Toxin Injection treatment and 19 (76.0%) with surgical excision (p-value = 0.001, hence sginificant). The details of recurrence of Hidradenitis suppurativa and patient satisfaction are shown in table 2 and 3, respectively.

DISCUSSION

This study was conducted on the surgical and botulin toxin injection treatments of Hidradenitis suppurativa disease which included 50 cases. In our study the mean age of the patients with Hidradenitis suppurativa were 28.69±5.61 and 29.11±5.17 years in group I and II, respectively. There were 18 (72.0%) males and 7 (28.0%) females in group I and 19 males 976.0%) males and 6 (24.0%) females in group II in our study. The male to female ratio was 1:2.8.

In our study, the mean body mass indexes were 31.14±2.78 and 32.01±1.98 Kg/m^2 in group I and II, respectively. In a case report by Feito-Rodriguez et al, body mass index was 16.5kg/m^2.[15]

The sites of hidradenitis suppurativa were axilla in 82.0% patients and groin in 18.0% patients in our study. In a case report by Reilly DJ et al, the disease was involving the groin region.[14]However, we included all the cases with axillary involvement.

The most common stage of Hidradenitis suppurativa was stage I i.e. 48.0% followed by stage II (28.0%) and stage III (6.0%) in our study.

In our study, recurrence was not observed in any patient (0.0%) in stage I & II underwent surgical wide excision, however recurrence was 50.0% in patients with stage III hidradenitis suppurative after surgical excision. In our study, recurrence rate was 100.0% in patients with stage III hidradenitis suppurativa, 33.34% in stage II and 0.0% in stage I hidradenitis suppurativa after treatment with Botulin Toxin Injection.

The overall recurrence was 4.0% in patients who underwent surgical wide excision for hidradenitis suppurativa in our study. Higher recurrence rate i.e. 12.0% was observed in patients of hidradenitis suppurativa, treated with Botulin Toxin Injection in our study. Reilly DJ et al, reported a case of successful treatment of botulin toxin injection treatment of hidradenitis suppurativa in a young female.[14] Feito-Rodriguez et al reported a case of hidradenitis suppurativa in prepubertal female that was successfully treated with botulinum toxin A injection.[15] O'Reilly et al also reported a case of successful treatment of botulin toxin injection in a middle aged female with groin and axillary hidradenitis suppurativa.[16]

The overall satisfacation rate was higher in botulinum toxin group as compared to surgery. This high satisfaction rate may be attributed to fear of surgery among patients, which however was not assessed in our study. A hundred percent satisfaction rate with botulinum toxin injection group in stage I disease patients makes it more favorabale. However, the cost fo the treatment is still very high in a developing country like Pakisan. But, this cost may be comparable to the cost of surgery which includes the cost of procedure and aftercare as well.

In our study, none of the patients with stage I hideradinits suppurativa showed recurrence. So, it can be interpretted that botulinum toxin can be advised to the patients with stage I hideradinitis suppurativa who are reluctnant for surgical treatment as a first line treatment. The higher rates of recurrence in both groups of treatment for stage III disease reflects that still there is need of more innovative treatment options for hideradinitis suppurative.

This study has certain limitations. It was a single center study based on experience of single surgeon. All the surgical procedures were perfromed by a signle surgeon. Although it was a randomized trial, it was not a double blinded study because of the nature of the trement in both cases was different. However, we did randomization of the patients by lottery method.

CONCLUSION

It is concluded that the surgical excision of hidradenitis suppurativa was found superior to Botulin toxin injection treatment in terms of recurrence but botulinum toxin had an edge over surgery in terms of satisfaion.

Author's Contribution:

Concept & Design of Study:	Muhammad Usman
Drafting:	Seemab Khan
Data Analysis:	Muhammad Saad Faisal
Revisiting Critically:	Muhammad Usman, Seemab Khan
Final Approval of version:	Muhammad Usman

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

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Original Article

Determine the Importance of Pathological Lesion in the Hysterectomy Treated Patients

Saima Gulzar[1], Samra Ismat[2] and Nazia Sajjad[3]

ABSTRACT

Objective: To evaluate the histopathological characteristics of the assorted uterine lesions in the hysterectomy treated patients.

Study Design: Observational / cross-sectional

Place and Duration of Study: This study was conducted at the Department of Pathology, Services Hospital, Lahore from January 2018 to June 2018.

Materials and Methods: One hundred and thirty three patients of hysterectomy cases having ages from 30 to 65 years were included. All patients were referred to pathology department for diagnosis. Patient's detailed history was examined with their previous records. Pathological results in the uterus, cervix and ovaries were examined.

Results: There were 28 (21.05%) patients ages between 31 to 40 years, 70 (52.63%) patients ages between 41 to 50 years, 22 (16.54%) patients had an ages of 51 to 60 years while rest 13 (9.77%) were ages greater than 60 years. Histopathology findings were noted as leiomyoma in 60 (45.11%) cases, adenomyosis was observed in 14 (10.53%) cases, endometrial adenocarcinoma was resulted in 2 (1.50%) cases.

Conclusion: It is concluded from this study that adenomyosis, leiomyomya and adenocarcinoma were the most frequent histopathological lesions in patients treated hysterectomy.

Key Words: Hysterectomy, Histopathology, Causes, Lesion

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INTRODUCTION

Uterus is a important reproductive organ that evolve many malignant and benign disorders during life time in women, mostly observed in women whom ages greater than thirty years.[1] The uterus comprise of endometerium and myometerium which is under the effects of different hormones. Worldwide hysterectomy is the most commonly performed surgical treatment in pre-menopausal and post menopausal women.[2] In USA, hysterectomy is the second most common surgical treatment.[3]

The cervix causes several malignant diseases such as dysfunctional uterine bleeding (DUB), fibiroids, utero-vaginal prolapsed (UVP), endometrium carcinoma, adenimyosis, pelvic pain, gynaecological cancer and many other complications.[4]

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It construct complete uterus and consequently controlled over tissue sampling and therefore empowering determination of the origin of a specific lesion.[5] The most common complication followed by cervix are excessive vaginal bleeding, vaginal discharge, abdomen pain, irregular menustration, post-menopausal bleeding.[6]

Many treatment procedures are performing for this malignant disease but the hysterectomy is the most preferred surgical treatment to treat the gynaecological diseases. Histopathology is the most important for diagnosing this malignant disease. Diagnoses of adenomyosis is only depends on histopathology while dysfunctional uterine bleeding is a diagnosis of exclusion. In the USA the life time risk of hysterectomy is 25% and in Denmark it is 10.5%.[7] Via abdominal route 60-80% of hysterectomies are performed in USA and UK.[8]

This study was conducted to evaluate the histopathological characteristics of the assorted uterine lesions in the hysterectomy treated patients/samples and correlate the clinical observation.

MATERIALS AND METHODS

This observational cross-sectional study was conducted at Department of Pathology, Services Hospital Lahore from 1st January 2018 to 30th June 2018. In this study, we included 133 patients who underwent hysterectomies having ages from 30 to 65 years. All

patients were referred to pathology department for diagnosis. After taking informed consent from the patients, detailed history was examined with their previous records. Specimens with incomplete requisition form and those having other gynaecological complications were excluded from this research. Pathological results in the uterus, cervix and ovaries were examined. The samples were taken and properly labeled and fixed in 10% buffered formalin. After complete and proper examination through microscope, results were noted as a histopathological finding. All the data was entered and analyzed by SPSS 17.0.

RESULTS

There were 28 (21.05%) patients were ages between 31 to 40 years, 70 (52.63%) patients were ages between 41 to 50 years, 22 (16.54%) patients had an ages of 51 to 60 years while rest 13 (9.77%) were ages greater than 60 years (Table 1). Histopathology findings were noted as leiomyoma in 75 (56.39%) cases, adenomyosis was observed in 20 (15.03%) cases, endometrial adeno CRC was resulted in 2 (1.50%) cases, cervix chronic cervicitis was resulted in 5 (3.76%) patients, the most frequent pathology observed in the ovary was endometriosis and it was in 7 (5.26%) patients followed by mature cystic teratoma in 5 (3.76%) cases, serous cystedenoma found in 2 (1.50%) cases, mucinous cystedenoma observed in 5 (3.76%) cases, serous cystedenocarcinoma found in 4 (3.01%) cases, krukenberg tumor and immature taritoma was observed in 2 (1.50%) cases (Table 2).

Table No.1: Age wise distribution of patients (n=133)

Age (years)	No.	%
31-40	28	21.05
41-50	70	52.63
51-60	22	16.54
>60	13	9.77

Table No.2: Histopathological findings of all the patients

Finding	**No.**	**%**
Leiomyoma	75	56.39
Adenomyosis	20	15.03
Adenocarcinoma	2	1.50
Chronic cervicitis	5	3.76
Endometriosis	7	5.26
Mature cystic teratoma	5	3.76
Serous Cystedenoma	2	1.50
Mucinous cystedenoma	5	3.76
Serous cystedeno carcinoma	4	3.01
Immature taritoma	2	1.50

DISCUSSION

Hysterectomy is the most frequent surgical treatment performed in gynaecology setting.[2] Hystrectomy performed due to multiple causes in which the most common was rupture of uretus. It includes life saving procedure during delivery. Also it may causes the abnormal uterine bleeding. Clinico-pathological observation is very important for the surgical treatment. This study was conducted to evaluate the histopathological characteristics of the assorted uterine lesions in the hysterectomy treated patients/samples and correlate the clinical observation.

In this research, we observed most of the patients (52.63%) had an ages of 41 to 50 years. These results were same to the other study conducted by Harshal A. et al[9] in which mostly patients were having ages of 41 to 50 years, several researches regarding this malignant disorder showed similar results.[10-12] In our study the most common method for hysterectomy was abdominal hysterectomy 100 (75.19%) and vaginal hysterectomy was performed on 33 (24.81%) patients, these results shows that abdominal hysterectomy procedure ratio was higher than the vaginal hysterectomy procedure. These results shows similarity to the other study in which abdominal hysterectomy ratio was high than the vaginal procedure such as 69.6% and 30.4% respectively.[6]

In this study, we observed leiomyoma was the most common lesion (56.39%) and it was same to the other studies.[13-14] Adenomyosis is the second most common findings based on histopathology (15.03%) was observed in this study and patients ages between 41 to 50 years and these results shows similarity to the study conducted by Rizvi et al.[15]

In our research we found chronic cervicitis in 5 (3.76%) cases and these results shows similarity to the other study.[14] We found the most frequent pathology observed in the ovary was endometriosis and it was in 7 (5.26%), these findings were similar to the some other studies conducted regarding histopathology lesion in hysterectomy specimens.[15-18] Patients followed by mature cystic teratoma in 5 (3.76%) cases, serous cystedenoma found in 2 (1.50%) cases, mucinous cystedenoma observed in 5 (3.76%) cases.

We observed that serous cystedenocarcinoma found in 4 (3.01%) cases, krukenberg tumor and immature taritoma was observed in 2 (1.50%) cases and these results were same to the other studies.[19-20]

CONCLUSION

The current research provides a fair insight into the histological patterns of lesion in hysterectomy specimens in our settings. Though the histopathological analysis correlate good with the clinical diagnosis. Quite a few lesions are also encountered as pure incidental observations. Moreover, it is very important that every hysterectomy specimens should be subjected

to detailed histopathological examination. We found adenomyosis, leiomyomya and adenocarcinoma were the most frequent pathological findings and which may be the causes of abnormal uterine bleeding.

Author's Contribution:

Concept & Design of Study:	Saima Gulzar
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Data Analysis:	Nazia Sajjad
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

A Comparative Study of Ileostomy Versus Primary Repair of Enteric Perforation in Patients

Muhammad Asif[1], Muhammad Aqil Razzaq[2] and Amna Shahab[3]

ABSTRACT

Objective: To compare the outcome of primary repair of perforation with ileostomy in patients presenting with enteric perforation.

Study Design: Randomized control trial

Place and Duration of Study: This study was conducted at the Department of General Surgery, M. Islam Medical & Dental College, Gujranwala from March 2017 to February 2018.

Methodology: Eighty patients between 20-60 years of age and diagnosed as case of typhoid perforation. Patients were divided into two groups, Group A (Primary repair) and Group B (Ileostomy).The patients were observed for the development of complications during their hospital stay and follow up was done one week after discharge.

Results: The mean age was 31.21±9.54 years of patient in group A and in group B was 32.42±10.25. Male to female ratio was 1.66:1 in group A and 2.07:1 in group B. The complications like wound infection was (25%) in group A and (45%) in group B, wound dehiscence was (10%) in group A and (17.5%) in group B and septicemia was (5%) in group A and (15%) in group B.

Conclusion: Primary repair of the perforation is a better procedure than temporary ileostomy in enteric perforation due to its cost effectiveness and absence of complications related to ileostomy.

Key Words: Perforation, Primary Closure, Ileostomy

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INTRODUCTION

Enteric fever is a severe febrile illness caused primarily by the Salmonella typhi. Every year 13-17 million people are affected internationally.[1,2] The perforation usually occurs in the terminal ileum and presents in the 2nd and 3rd week during the course of the disease. The most common reasons for peritonitis are perforated duodenal ulcer, small bowel tuberculosis and typhoid perforation. Early surgery is the best treatment option to contain the source of further faecal contamination of the peritoneal cavity.[3-5] A variety of surgical procedures have been practiced depending on the clinical setting but none proved to be satisfactory as each has its own pros and cons.[6-8]

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Ileostomy should be considered as a treatment option in patients with unhealthy terminal ileum. It is a lifesaving procedure to be used judiciously accepting its inconvenience to patient.[9] Primary repair should be done in patients with short history of symptoms during course of disease, per-operatively minimal faecal contamination of the peritoneal cavity, acceptable edema of gut and general condition of patient withoutco-morbidities.[10] A previous study shows percentage of wound infection 27.45% in primary repair and 87.7% in ileostomy.[11] In cases with good reserves and early hospitalization, primary repair is certainly the procedure of choice. Basic repair of perforation in two layers is the decision of treatment for enteric perforation as the patient has to undergo surgery only once and the results are superior to that of ileostomy.[7,12-13]

MATERIALS AND METHODS

This is a randomized control trial study was carried out at Department of General Surgery, M. Islam Medical & Dental College, Gujranwala from 1st March 2017 to 31st 28th February 2018, which includes 80 patients between 20-60 years of age. Patients were divided into two groups, Group A (Primary repair) and Group B (Ileostomy). Randomization was done by picking up card from both groups by some Senior Surgeon. All patients between 20-60 years of age presenting to the surgical emergency with acute abdomen who were

diagnosed as case of typhoid perforation depending upon history, clinical examination, laboratory findings, x-ray abdomen erect with free gas under-diaphragm and intra-abdominal free fluid on Ultrasound abdomen were included in study. Patients were initially resuscitated, nasogastric tube and Foley catheter passed and informed consent was taken for surgery with possibility of stoma. Patients with diabetes mellitus, chronic liver disease, chronic renal failure and known case of abdominal tuberculosis were not part of study because all these diseases delay normal healing process. All patients with septicemia resulting in multi-organ failure were not part of study. Typhoid perforation is usually circular and on anti-mesenteric border of ileum. Biopsy was taken during surgery and sent for confirmation of diagnosis. The patients were observed for the development of complications during their hospital stay and follow up was done one week after discharge.

RESULTS

The mean age was 31.21±9.54 years in group A while in group B was 32.42±10.25. In group A 31 (77.7%) patients were in age group between 20-40 years and 34 (85%) patients were in group B. Most of the patients in group A and B were from 20-40 years of age. Statistically the difference was not significant (p 0.71) (Table 1).

Twenty five (62.5%) patients were male and 15 (37.5%) female in group Awhile in group B 27 (67.5%) patients were male and 13 (32.5%) were female with a male to female ratio of 1.66:1 and 2.07:1 respectively (Table 2).

In our study there were three following complications like wound infection, wound dehiscence and septicemia in both groups. Wound infection was in 10 (25%) patients in group A and 18 (45%) in group B. Statistically the difference was significant (P <0.01). Wound dehiscence was in 4 (10%) in group A while 7 (17.5%) in group B. Septicemia was in 2 (5%) patient in group A and 6 (15%) patients in group B. Statistically the difference was significant (P <0.01) (Table 3).

Table No.1: Age Distribution of Patients (n=80)

Age in Years	Group A (n=40)		Group B (n=40)	
	No	%	No.	%
20 – 40	31	77.5	34	85.0
41 – 60	9	22.5	6	20.0
Mean±SD	31.21±9.54		32.42±10.25	

Table No.2: Sex Distribution of Patients (n=80)

Sex	Group A (n=40)		Group B (n=40)	
	No.	%	No.	%
Male	25	62.5	27	67.5
Female	15	37.5	13	32.5
M:F	1.66:1		2.07:1	

Table No.3: Comparison of complications in both groups

	Group A		Group B		
	No.	%	No.	%	P value
Wound infection	10	25.0	18	45.0	<0.01
Wound dehiscence	4	10.0	7	17.5	<0.01
Septicemia	2	5.0	6	15.0	<0.01

DISCUSSION

Primary repair of enteric perforation is viewed as the best strategy as it is beneficial for patients in many ways. There were eighty patients in this study who were randomly allocated in two groups.

A study by Rahman showed age ranging from 10-75 years.[2] Ahmad et al reported mean age of 29.6 in group A and 31.5 in group B which is comparable with our study.[14] Khan reported, the mean age difference between patients mean±SD was 30.2±8.4 years versus 28.9±12.0 years, this difference was not statistically significant.[15] In another study the mean age was 32 years.[5] The age of patients ranged from 15 to 72 years with 80% of the patients being in age group of 17-70 years.[12] Patients of all ages were included in this study which is comparable with other national and international studies. In both groups most of our patients were young between 20-40 years of age.

In our study, there were 25 (62.5%) male patients in group A and 27 (67.5%) in group B, while 15 (37.5%) patients were female in group A and 13 (32.5%) in group B. Male to female ratio was 1.66:1 in group A and 2.07:1 in group B which is comparable with other studies. In a study reported by Rahman 47 (62.6%) were male and 28 (37.3%) were female patients with male to female ratio of 1.67:1.[2] Siddiqui et al reported 67 males and 41 females.[12]

In this study postoperative complications were observed in both groups, 10 (25%) patients had wound infection in group A while in group B 18 (45%) patients which is statistically significant (p <0.01). Other complications like wound dehiscence occurred in 4 (10%) in group A and 7 (17.5%) patients in group B which is statistically significant (p <0.01). Two (5%) patients had septicemia in group A and 6 (15%) patients had septicemia in group B which is statistically significant (p <0.01) and comparable with international studies. Wound infection was the most common postoperative complication (23%) followed by bleeding (5.5%), fecal fistula (16%), dehiscence of wound (6%) and peristomal skin excoriation (5.7%).[16, 17]

Primary repair should be the decision of treatment in enteric perforation in light of the fact that this is a simple, quick and financially less burdening surgery.

Ileostomy tends to be more costly as it requires specialized care and the patients need to be re-admitted for its closure. Ileostomy ought to be considered as a secondary option in patients who have developed fecal fistula.[18]

The current study demonstrated no mortality in primary repair of enteric perforation and ileostomy. It is because of proper preoperative management and execution of sound surgical technique by experienced specialist. Stoma related complications were also not observed owing to the surgical expertise involved and that all the patients underwent early reversal of stoma.[19]

CONCLUSION

It is concluded that early surgery and adequate resuscitation is necessary for successful management of patients with typhoid perforation and early repair of the perforation is a better procedure than temporary ileostomy in enteric perforation due to its cost effectiveness and absence of complications related to ileostomy and shorter hospital stay.

Author's Contribution:

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

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Original Article

Determine the Incidence of Renal Dysfunction and Electrolyte Imbalance in Chronic Heart Failure Patients

Renal and Electrolyte Dysfunction in CHF Patients

Ali Saqlain Haider[1], Abad ur Rehman Awan[1], Ali Sajjad[2], Ayesha Tariq[2] and Mateen Akram[1]

ABSTRACT

Objective: To examine the prevalence of renal dysfunction and electrolyte disorders in patients presented with chronic heart failure.

Study Design: Observational / Cross sectional study.

Place & Duration of Study: This study was conducted at the Department of Nephrology, Shaikh Zayed Hospital Lahore from October 2018 to March 2019.

Methods: Total 210 patients of both genders with ages 25 to 75 years presented with chronic heart failure were analyzed. Patients detailed demographic were recorded after taking written consent. Blood samples of all the patients were collected to examine the serum electrolyte and serum creatinine. Prevalence of renal dysfunction and electrolyte disorders were recorded.

Results: One hundred and fifty two (72.38%) patients were males while 58 (27.62%) patients were females. 85 (40.48%) patients were ages 25 to 50 years and 125 (59.52%) were ages between 51 to 75 years. Renal dysfunction was found in 61 (29.05%) patients, 56 (26.67%) patients had hypokalemia and hyponatremia was found in 59 (28.10%) patients.

Conclusion: The incidence of renal dysfunction and electrolyte disorders in patients with chronic heart failure was high. Patients with ages above 50 years had high rate of renal dysfunction, hypokalemia and hyponatremia.

Keywords: Chronic heart failure, Renal dysfunction, Hyponatremia, Hypokalemia.

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INTRODUCTION

Heart failure (HF) is a complex syndrome, resulting from structural or functional cardiac disorders that impair the ability of the cardiac pump to support a physiological circulation.[1] Congestive heart failure affects about 2% of the western population, with prevalence increasing sharply from 1% in 40 years old to 10% above age 75 and it is the most common cause of hospitalization in patients over 65 years of age.[2]

Electrolyte abnormalities and renal dysfunction are common among patients with chronic heart failure (CHF) and may be caused by the disease itself or its treatment.[3]

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All patients with evidence of volume overload or a history of fluid retention should be treated with diuretics.[4] The minimum required dose should be used because over-diuresis exacerbates the activation of the Renin Angiotensin System and may result in prerenal azotemia and electrolyte abnormalities.[5,6]

Hypokalemia makes ventricular myocardium more susceptible to potentially lethal arrhythmias. It has been shown that 22% patients with congestive heart failure develop hypokalemia.[7] Hyponatremia and renal dysfunction in patients with CHF signifies poor prognosis.[8,9] Hyponatremia in CHF is associated with significantly higher rates of in-hospital and follow-up mortality and longer hospital stays.[10] It has been shown that 24% patients with CHF develop hyponatremia. Even mild to moderate elevations in baseline blood urea nitrogen predicts increased post discharge mortality in patients hospitalized for heart failure. In a meta-analysis 29% CHF patients were found to have moderate to severe renal impairment.[11]

The present study was conducted / aimed to examine the incidence of renal dysfunction and electrolyte disorders such as hyponatremia and hypokalemia in patients presented with chronic heart failure.

MATERIALS AND METHODS

This cross sectional/observational study was conducted at Department of Nephrology, Shaikh Zayed Hospital

Lahore from 1st October 2018 to 31st March 2019. Two hundred and ten patients of both genders with ages 25 to 75 years presented with chronic heart failure were analyzed. Patient's demographics including age, sex and residence were recorded after taking written informed consent. Patients with chronic liver disease, patients with chronic kidney disease and diabetic nephropathy patients were excluded. Blood samples of all the patients were collected to examine the serum creatinine and serum electrolyte. Serum creatinine >1.5mg/dl define as renal dysfunction, patients with serum potassium level <3.5mg/dl defined to had hypokalemia and serum sodium level <135mg/dl defined hyponatremia. Prevalence of renal dysfunction and electrolyte disorders were recorded. All the data was analyzed by SPSS 24.0. Frequency and percentages were recorded in tabulation form. P-value <0.05 was set as statistically significant.

RESULTS

There were 152 (72.38%) male patients while 58 (27.62%) patients were females. Eighty five (40.48%) patients were ages 25 to 50 years and 125 (59.52%) were ages between 51 to 75 years. One hundred and thirty (61.90%) patients had urban residency while 80 (39.10%) patients had rural residence (Table 1). Renal dysfunction was found in 61 (29.05%) patients, 56 (26.67%) patients had hypokalemia and hyponatremia was found in 59 (28.10%) patients (Table 2).

Table No.1: Demographic information of the patients

Variable	No.	%
Gender		
Male	152	72.38
Female	58	27.62
Age (years)		
25 – 50	85	40.48
50 – 75	125	59.52
Residence		
Urban	130	61.9
Rural	80	39.1

Table No.2: Frequency of renal dysfunction, hypokalemia and hyponatremia in CHF patients

Variables	No.	%
Renal Dysfunction		
Yes	61	29.05
No	149	71.95
Hyponatremia		
Yes	59	28.1
No	151	71.9
Hypokalemia		
Yes	56	26.67
No	154	73.33

According to the age-wise distribution, out of 61 renal dysfunction patients 40 (65.58%) patients were ages above 50 years and 21 (34.42%) patients were ages below 50 years. From 59 hypontremia patients 32 (54.24%) were ages above 50 years and 27 (45.76%) patients had ages below 50 years and out of 56 hypokalemia patients 34 (60.71%) patients were ages above 50 years while 22 (39.29%) patients had ages below 50 years (Table 3)

Table No.3: Stratification of age according to renal dysfunction and electrolyte disorders

Variable	Age (years)		P value
	25-25	51-75	
Renal Dysfunction (n=61)	21 (34.42%)	40 (65.58%)	0.025
Hyponatremia (n=59)	57 (45.76%)	32 (54.24%)	0.328
Hypokalemia (n=56)	22 (39.29%)	34 (60.71%)	0.029

DISCUSSION

Chronic heart failure is one of the most common disorders in all over the world with high rate of mortality and morbidity.[12] Renal dysfunction and electrolyte disorders are most common disorders in patients with chronic heart failure. Many of studies have been conducted to examine the prevalence of renal dysfunction, hypokalemia and hyponatremia in patients with chronic heart failure and reported these disorders contributed high rate of morbidity and mortality and increase length of hospital stay in CHF patients.[13,14] Present study was conducted to examine the incidence of renal dysfunction and electrolyte disorders including (hypokalemia and hyponatremia) in patients presented with chronic heart failure. In this regard we included 210 patients. We found male patients were high in numbers 72.38% as compared to females 27.62%. Many of previous studies reported that male patients with chronic heart failure were high in numbers 60 to 80% as compared to females.[15,16] In our study majority of patients 59.52% were ages above 50 years. These results showed similarity to many other studies in which patients with elderly ages had high incidence rate of chronic heart failure.[17]

In present study, renal dysfunction was found in 61 (29.05%) patients, 56 (26.67%) patients had hypokalemia and hyponatremia was found in 59 (28.10%) patients. A study conducted by Haq et al[18] reported renal dysfunction in 26.9%, hypokalemia in 24.6% and hyponatremia in 28.4% patients presented with chronic heart failure. Another study conducted by Aziz et al[6] reported the incidence of renal dysfunction in chronic heart failure was 37.4%. hyponatremia in 32.1% patients and hypokalemia in 18.1% patients.

In the current study, according to the age-wise distribution, out of 61 renal dysfunction patients 40 (65.58%) patients were ages above 50 years and 21 (34.42%) patients were ages below 50 years. From 59 hypontremia patients 32 (54.24%) were ages above 50 years and 27 (45.76%) patients had ages below 50 years and out of 56 hypokalemia patients 34 (60.71%) patients were ages above 50 years while 22 (39.29%) patients had ages below 50 years. These results showed similarity to many previous studies in which patients with elderly ages had high risk of renal dysfunction, hypokalemia and hyponatremia.[19-21]

CONCLUSION

Renal dysfunction and electrolyte disorders are most common in patients with chronic heart failure and causes high rate of mortality and morbidity in CHF patients. We concluded from this study that that the incidence of renal dysfunction and electrolyte disorders in patients with chronic heart failure was high. Patients with ages above 50 years had high rate of renal dysfunction, hypokalemia and hyponatremia.

Author's Contribution:

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Original Article

Nephropathy and Complications

Frequency of Contrast Induced Nephropathy: Complications in Patients Undergoing PPCI for Acute STEMI

Abad ur Rehman Awan[1], Ali Saqlain Haider[1], Ali Sajjad[2], Ayesha Tariq[2] and Mateen Akram[1]

ABSTRACT

Objective: To determine frequency of contrast induced nephropathy and post-operative complications in patients undergoing Primary Percutaneous Coronary Intervention (PPCI) for acute ST-elevation myocardial infarction.
Study Design: Observational/ Cross-sectional study.
Place and Duration of Study: This study was conducted at the Department of Nephrology, Shaikh Zayed Hospital Lahore from January 2019 to June 2019.
Materials and Methods: Total 220 male/female patients with ages 35 to 80 years undergoing Primary Percutaneous Coronary Intervention (PPSCI) were included. Patients demographic including age, sex and co-morbidities were recorded after written consent. Increase of 0.5mg/dl of serum creatinine level from baseline to 72 hours after contrast administration was set a criteria for contrast induced nephropathy. Postoperative complications, in-hospital mortality and hospital stay was recorded.
Results: One hundred and sixty five (75%) patients were males while 55 (25%) were females. Eighty eight (40%) patients were ages <50 years while 132 (60%) patients had ages above 50 years. Contrast induced nephropathy was found in 32 (14.55%) patients. Post-operative complications rate was high in patients with CIN as compared to non CIN patients (p=<0.05). Length of hospital stay was high in CIN patients. Overall mortality rate was 10% in which 7.72% patients had CIN.
Conclusion: Frequency of contrast induced nephropathy was high and was directly associated with increased mortality, post-operative complications and increased length of hospital stay.
Key Words: ST-segment elevation myocardial infarction, PPCI, Contrast Induced Nephropathy, Complications

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INTRODUCTION

Abnormal kidney functions are fairly common in the field of interventional cardiology. Such alterations in kidney function are often seen with the utilization of contrast, hence called contrast induced acute kidney injury (CI-AKI), also known as contrast induced nephropathy. Contrast induced nephropathy (CIN) is associated with increased morbidity and mortality prolonged hospitalization, and increased healthcare cost.[1,2] It is the third most common cause of hospital acquired renal failure, after decreased renal perfusion and use of nephrotoxic medications.

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The incidence of contrast induced nephropathy as a post procedure complication of radiographic diagnostic and intervention varies markedly in past studies. The incidence rate is varying from one study to other depends on the definition used, with regard to number and type of risk factors and length of patients follow-up. The incidence rate reported in literature is 3-22%.[3,4] The reported incidence from the National Cardiovascular Data Registry (NCDR) was 7% in general population and 16% in those presenting with acute myocardial infarction (MI).[5]

Acute kidney injury after cardiac catheterization is related to the use of intravascular contrast agents. However, in spite of their widespread use in radiographic diagnostic and intervention studies, the mechanism of kidney injury caused by contrast agents has not been fully elaborated.[6] There are different studies which devise the pathophysiological mechanisms of direct toxic injury to the renal tubules and ischemic injury to the renal medulla, from vasomotor changes and decreased perfusion. The later appears to be mediated impart by the development of reactive oxygen species, such as superoxide, and has important implications for treatment with scavenging agents.[7]

Chronic kidney disease, diabetes, medications and hemodynamic changes etc are causative factors that can exaggerate the development of acute kidney injury (AKI) after cardiac catheterization. Volume depletion and hemodynamic alterations from heart failure or cardiogenic shock may exacerbate contrast induced nephropathy (CIN) by decreasing renal perfusion and predisposing the renal medulla to ischemic injury.[8] Such a pathophysiological state becomes even more complicated and oblique in patients undergoing primary percutaneous coronary intervention (PCI) because of high thrombogenic state, a high burden of inflammation due to the myocardial damage, and a potential decrease in per fusion to the kidneys through vasoconstriction or hemodynamic instability.[9]

The interventional cardiology and radiology literature has traditionally defined contrast induced acute kidney injury as a rise in serum creatinine level of at least 0.5 mg/dL or a twenty-five percent from baseline within forty-eight to seventy-two hours after contrast administration.[10]

The present study was conducted to examine the prevalence of contrast induced nephropathy and post-operative complications in patients undergoing primary PCI for acute STEMI.

MATERIALS AND METHODS

This cross-sectional study was carried out at Department of Nephrology, Shaikh Zayed Hospital, Lahore from 1st January 2019 to 30th June 2019.. Total 220 both male and female patients with ages 35 to 80 years undergoing primary percutaneous coronary intervention were included. Patients demographic including age, sex and co-morbidities were recorded after written consent. Patient's history of previous PCI and those with no consent were excluded from this study. All the patients were received primary PCI for acute ST segment elevation myocardial infarction. Blood samples were collected to examine the serum creatinine level. For examine the prevalence of contrast induced nephropathy, we set criteria as increase of 0.5mg/dl of serum creatinine level from baseline to 72 hours after contrast administration. Post-operative complications such as were recorded. In-hospital mortality was examined and compares the findings between CIN patients and non-CIN patients. All the data was analyzed by SPSS 24. Chi-square test and student t' test were applied to compare the complication between CIN and non-CIN patients. P-value was set at <0.05 as statistical significant difference.

RESULTS

One hundred and sixty five (75%) patients were males while 55 (25%) were females. 88 (40%) patients were ages <50 years while 132 (60%) patients had ages above 50 years. Co-morbidities such as diabetes mellitus, hypertension, smoking, dyslipidemia, chronic kidney disease and family history of CHD was found in 79 (35.91%), 102 (46.36%), 72 (32.72%), 58 (26.36%), 12 (5.45%) and 20 (9.09%) patients respectively (Table 1).

Contrast induced nephropathy was found in 32 (14.5%) patients (Table 2) In CIN patients mean amount of contrast used was 180±25.58 ml while in non-CIN patients it was 164.32±29.10 ml. Length of hospital stay was high in CIN patients as compared to non-CIN patients 4.02±2.65 days vs 3.42±1.38 days (p=0.016).

Table No.1: Demographic information of the patients

Variable	No.	%
Gender		
Male	165	75.0
Female	55	25.0
Age (years)		
<50s	88	40
>50	132	60
Co-morbidities		
DM	79	35.91
Hypertension	102	46.36
Smoking	72	32.72
Dyslipidemia	58	26.36
CKD	12	5.45
Family history of CHD	20	9.09

Table No.2: Frequency of contrast induced nephropathy

Contrast induced nephropathy	No.	%
Yes	32	14.6
No	188	85.4

Table No.3: Post-operative complication between CIN and Non-CIN patients

Variable	CIN (n=32)	Non-CIN (n=188)	P value
Contrast used	180±25.58	164.32±29.10	0.005
Mean hospital stay (days)	4.02±2.65	3.42±1.38	0.016
Complications			
Dissection	2 (6.25)	5 (2.66)	0.062
Shock	3 (9.37)	5 (2.66)	0.068
Pulmonary Edema	1 (3.13)	9 (4.79)	0.358
Ventilator Need	5 (15.63%)	6 (3.19)	0.042
CHB	4 (12.5)	9 (4.79)	0.048
TIMI Major Bleeding	3 (9.37)	1 (0.53)	0.003

Dissection found in 7 patients 2 in CIN and 5 in non-CIN patients (p=>0.05). Shock occurred in 8 patients 3 in CIN and 5 in non-CIN (p=0.589). 1 patient had pulmonary edema in CIN group while 9 patients in non-CIN group had pulmonary edema. In CIN group 5

patients need ventilator and in non-CIN patients 6 patients need of ventilator. Complete heart block found in 4 patients in CIN group and 9 patients in non-CIN group had CHB. Major bleeding found in 3 patients in CIN group while 1 patient in non-CIN group had TIMI major bleeding (Table 3). In-hospital mortality was found in 22 (10%) patients in which 13 patients were in CIN group and 9 in non-CIN group (Table 4).

Table No.4: In-hospital mortality between CIN and Non-CIN patients

Mortality	CIN (n=32)	Non-CIN (n=188)	P-value
Yes	10 (31.25)	12 (6.38)	0.001
No	22 (68.75)	176 (93.62)	

DISCUSSION

Contrast induced nephropathy is the most common clinical disorders found in patients who receive primary percutaneous coronary intervention for acute St-segment elevation myocardial infarction.[11] Globally, CIN is associated with high rate of morbidity and mortality and increased length of hospital stay.[12] Present study was conducted to determine the prevalence of contrast induced nephropathy in patients undergoing primary PCI for acute STEMI. In present study majority of patients 75% out of 220 were males while 25% patients were females. We found that mostly patients were ages above 50 years 60% as compared to 40% patients with ages below 50 years. These results showed similarity to many other studies in which male patients population was high 60 to 80% as compared to females and majority of patients 60 to 70% patients were ages above 50 years.[13,14]

In present study, we found 35.91% patients had diabetes mellitus, 46.36% patients had hypertension, smoking found 32.72% patients, 26.36% patients had dyslipidemia, 9.09% patients had family history of CHD and 5.45% patients had chronic kidney disease. A study conducted by Batra et al[15] reported that diabetes mellitus, hypertension, smoking, family history of CHD and chronic kidney disease were the most common co-morbidities found in patients undergoing PPCI for ST-segment elevation myocardial infarction.

In our study contrast induced nephropathy was found in 32 (14.55%). A study Batra et al[15] reported the incidence of contrast induced nephropathy was 12.41%. Some other previous studies showed similarity to our study results regarding frequency of contrast induced nephropathy and reported 10.2% to 19.23%.[16-18]

In present study, we found that patients with contrast induced nephropathy had high rate of complications as compared to patients with non-CIN. These results were comparable to some other studies.[19,20] In this study we found significant difference in length of hospital stay in CIN patients and non-CIN patients 4.02±2.65 days vs 3.42±1.38 days (p=0.016). These results showed similarity to some other studies in which patients with contrast induced nephropathy had increased length of hospital stay as compared to patients with non-CIN.[21,22] In this study, in-hospital mortality rate was high in CIN patient was 31.25% as compared to non-CIN patients 6.38%. A study conducted by Tsai et al[23] reported 9.4% death in AKI patients as compared to non-AKI patients 1.4%. Another study by Lucreziotti et al[24] reported mortality 20.4% in CIN patients as compared to 2.6%.

CONCLUSION

Contrast induced nephropathy associated with high rate of complication and mortality. We concluded that frequency of contrast induced nephropathy was high and was directly associated with increased mortality, post-operative complications and increased length of hospital stay.

Author's Contribution:

Concept & Design of Study:	Abad ur Rehman Awan
Drafting:	Ali Saqlain Haider, Ali Sajjad
Data Analysis:	Ayesha Tariq, Mateen Akram
Revisiting Critically:	Abad ur Rehman Awan, Ali Saqlain Haider
Final Approval of version:	Abad ur Rehman Awan

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Original Article

Ingrowing Toe Nails

Surgery for Ingrowing Toe Nails With and Without Phenol Cauterization; An Analytic Study at Sialkot District

Muhammad Naeem[1], Hamda Saqib[2], Shafiq ur Rehman[3], Kamran Hamid[2], Sher Afgan[4] and Uzair[1]

ABSTRACT

Objective: To study the outcome of surgical treatment of in growing toe nails of feet with and without phenol cauterization at Islam Medical College, Sialkot.

Study Design: Prospective study.

Place and Duration of Study: This study was conducted at the Department of Dermatology, Islam Medical College, Sialkot from January 2015 to January 2018..

Materials and Methods: All new patients serially treated at that college; fulfilling the inclusion criteria were registered. The patients were classed in two groups: Group I undergoing Surgery only Group II Surgery and Phenol cauterization. The patients with recurrent ingrowing toe nails were also included. Minimum of six months of follow up was must for inclusion in the study. Data was entered and analysis done by SPSS v 22.

Results: Total number of patients in study were 283(100%),having Age 15-47 years, with a mean age of 37+_8 years, out of which 205 patients were males & 78 were females, 58(20.49%) patients were Diabetics. Recurrent IGTN were in 43(15.19%) and peripheral vascular disease was in 7(2.47%), Group I patients were 128(45.22%) and Group II had 155(54.77%) patients. We encountered wound infection in 11(8.59%) and 7(4.51%), recurrence in 8(6.25%) and 3(1.93%), persistent pain in 6 (4.68%) and 5 (3.22%) and disfigurement in 2(1.56%) and 7(4.51%) patients in Group I and Group II respectively.

Conclusion: The surgical treatment in combination with phenol cauterization has very low recurrence rate as compare to surgery alone.

Key Words: Ingrowing toe nail, Cauterization, wedge excision, Phenol

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INTRODUCTION

Ingrowing toenail a painful condition is quite an often presentation in outpatients department of Dermatology. It usually involves big toes of the feet. It is a disease of people between 15 to 45 years. Males are more commonly than females almost three fold. Etiological factors include using tight shoes and improper trimming of toenails. Contributing causes are trauma, an imbalance between the nail bed and nail plate, excessive sweating, walking habitus, joint inflammations, obesity, fungal infections of nails, and neoplasms[1].

Ingrown toenails (unguis incarnatus); a controversial term are a common condition of school children and young adults but may be observed at virtually any age. The treatment of these types of nails does not gives good results and morphology of nails and toesremains abnormal[2].The type of toe nail in which its ingrowing progresses laterally and distally has nail plate curving, its ingrowing acts as a foreign body causing inflammatory response as well as infection there. Precipitating factors are narrow pointed shoes, tight socks, hyperhidrosis, juvenile diabetes mellitus. Surgical options include nail avulsion, wedge resection, total nail bed ablation, and soft tissue resections have high rates of recurrence and morbidity.

In recent years; partial nail excision and Phenol matricectomy have shown good results as far as recurrence is concerned[3]. Noninvasive treatments are several different methods to achieve this goal, all of which require excellent patient compliance. Taping is the least aggressive method. It separates nail fold's lateral side from disturbing margin of nail. Performed correctly and consistently, it can indeed achieve its goal

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in mild cases of ingrown nails. It is important to give proper information to the patients that how to use or apply the tap and how to do care of it. Single layer application is good & tap should be prevented from wetting.

A barrier can be inserted between the nail fold and lateral side of nail's edge, this is called Gutter treatment. A small tube of plastic can be used for this purpose which is placed or stitched with the help of tape or local anesthesia[4]. Surgical treatment has many options like resections,avulsion of the nail or its bed's ablation. In recent years; partial nail excision and Phenol matricectomy have shown good results as far as recurrence is concerned[5.]

Nail avulsion causes significant postoperative morbidity. Recurrence occurs commonly, again resulting in the thickened nail as it has the same width & growth pattern. A small part from the centre is excised usually. This takes the outward pressure of the nail plate away and allows the nail to grow out without piercing into the lateral grooves[6]. Wedge excision uses erbium-YAG lasers, but it doesn't have the promising results. Zadik's procedure applies the technique of ablation of matrix as well as the bail bed. Matrix can also be excised segmentally, more often laterally, which causes good cure[7].Cautery of the horn, which can be performed electrically or via radiations, is another procedure, butthe potential disadvantage is delivery of a lot of heat that may eventually lead to a thermal periostitis[8].

Laser using carbon dioxide is comparatively a less painful treatment option& its results are long-lasting. Cautery of segments using liquefied phenol has the advantage of lessening he recurrence to only about <1 or 2%, in addition to its simplicity & safety. Phenol also has the role in matricectomy of the nail[9].

Other Options for chemical matricectomy are sodium hydroxide and trichloroacetic acid (TCA). Trichloroacetic acid (TCA) causes coagulative necrosis of cells through extensive protein denaturation and structural cell death[10].

No date has been published in this subject from Sialkot region of Pakistan; so the objective of this study was evaluate the effectiveness and safety of chemical matricectomy with Phenol in the treatment of ingrown toenails.

MATERIALS AND METHODS

All new patients serially treated Department of Dermatology, Islam Medical College, Sialkot from January 2015 to January 2018 fulfilling the inclusion criteria were registered. The patients were classed in two groups: Group I undergoing Surgery only Group II Surgery and Phenol cauterization. The patients with recurrent ingrowing toe nails were not included. Appropriate systemic antibiotics were administered before the surgical procedure for patients who had infection. The patients were evaluated for the presence of peripheral vascular disease, uncontrolled diabetes mellitus, bleeding disorders, any history of anaphylactic reactions to chemical solutions.

Digital block using 1% lignocaine was done after aseptic measures. Tourniquet applied proximal to the big toe. The ingrown nail was lifted off the nail bed by starting at the edge. The nail was cut longitudinally 3-4 mm away from the ingrown portion, and extracted. In group II; Phenol was applied with a cotton tipped applicator to the matrix of extracted part and rubbed into the nail bed.

Phenol application was performed two times for two minutes each (a total of 4 min). The site of operation was thereafter flushed with isotonic saline solution in order to neutralize the effect of Phenol. The tourniquet was removed, and antibiotic containing ointment was applied. A gauze bandage was wrapped around the nail.

All patients were followed-up at two-day intervals for one week after surgery. Weekly follow-ups were continued until complete healing of the wound. Postoperative complications including pain, drainage and infection were evaluated during postoperative follow-ups. After complete wound healing, the patients were scheduled for follow-up visits every three months. During the follow-up period, recurrence rate and cosmetic results were evaluated in order to determine the effectiveness of surgical treatment. Recurrence was defined as evidence of ingrowth of the nail edge after surgical treatment. Minimum of six months of follow up was must for inclusion in the study. Data was entered and analysis done by SPSS v 22.

RESULTS

Total number of patients in study were 283(100%),having Age 15-47 years, with a mean age of 37+_8 years, out of which 205 patients were males & 78 were females, 58(20.49%) patients were Diabetics.

Table No.1: General Information

Total no of patients in Study	283	100%
Age	15- 47 years	Mean age 37+ 8 years
Male: female	205: 78	2.62 :1
Diabetics	58	20.49%
Recurrent IGTN	43	15.19%
Peripheral vascular disease	7	2.47%
Group I- Surgey	128	45.22%
Group II- Surgery and Phenol	155	54.77%

Recurrent IGTN were in 43(15.19%) and peripheral vascular disease was in 7(2.47%), Group I patients were 128(45.22%) and Group II had 155(54.77%) patients. We encountered wound infection in 11(8.59%) and 7(4.51%), recurrence in 8(6.25%) and 3(1.93%), persistent pain in 6 (4.68%) and 5 (3.22%) and disfigurement in 2(1.56%) and 7(4.51%) patients in Group I and Group II respectively.

Details of patients and group classification is shown in table I. Table 2 represents complications recorded in the

postoperative period and follow up .Postoperative complications including pain, drainage and infection were evaluated during postoperative follow-ups.

Table No.2: Morbidity data

	Group I- Surgery only n=128 (100%)		Group II- Surgery and Phenol n=155 (100%)	
Wound infections	11	8.59%	7	4.51%
Reccurence	8	6.25%	3	1.93%
Persistent Pain	6	4.68%	5	3.22%
Disfigurement	2	1.56%	7	4.51%

DISCUSSION

In our study**,** wound infections occurred in 11(8.59%) patients in Group I and in 7(4.51%) in Group II, while the study by Bengoa et al[11] showed that it was in 9.08% patients. Recurrence occurred in 8(6.25%) patients in Group I and in 3(1.93%) patients in Group II, while it was in 4.23% in the study of Losa et al[12].

Our Data presented that Persistent Pain was a complication in 6(4.68%) in Group I & in 5(3.22%) in Group II, while Tatlican et al[13] reported it in 5.64% patients. In studies by Kim et al[14] , Disfigurement occurred in 3.49% patients, while we reported it in 2(1.56%) in Group I & in 7(4.51%) in Group II.

CONCLUSION

The surgical treatment in combination with phenol cauterization has very low recurrence rate as compare to surgery alone. Other complications like wound infection and disfigurement are also comparably less.

Author's Contribution:

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

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Original Article

Evaluation of Biochemical Profile in Pregnant and Non-Pregnant Women, Mirpur AJK

Aurooj Fatima[1], Bushra Kant[3], Beenish Samreen Hamid[4] and Asnad[2]

ABSTRACT

Objective: To evaluate biochemical profile in pregnant women in Mirpur, AJK.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynaecology, Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur, AJK from January 2019 to May 2019.
Materials and Methods: We selected 100 women for our study and we divide into two groups in which 80 pregnant women and 20 non-pregnant women from one hospital of Mirurajk . We take blood sample for biochemical study. We measure glucose level in both groups in pregnant women and non -pregnant women. We also measured Total cholesterol, low density lipoprotein, High density lipoprotein, IDL and triglyceride in both groups in pregnant women and non-pregnant women. We measured all samples by Microlab 300 equipment. For measuring we used Merk kits of glucose and lipid profile.
Results: We observed in our study that glucose level in serum is high in pregnant women as compare to non-pregnant women. We found that fasting glucose mg/dl level is (110.8 ± 10.2) in pregnant women while in non-pregnant women fasting glucose levelmg/dl is (97.4 ± 9.4). Lipid profile is also high in pregnant women as compare to non-pregnant women. Total cholesterol level in pregnant women is higher compare to non-pregnant women. Total cholesterol in pregnant women is (241. ± 13.8)mg/dl and in non- pregnant women is (193.6 ± 31.5)mg/dl. LDL value in pregnant women is (126.8 ± 23.5)mg/dl and in non-pregnant women is (117.5± 19.5)mg/dl. HDL value in the pregnant women is (58. ± 9.5)mg/dl and in non-pregnant women is (43.5 ± 10.2)mg/dl. Total glyceride value in pregnant women is (171.2 ± 36.5)mg/dl.
Conclusion: Itisconcluding that with passage of pregnancy the lipid level is high in pregnant women .In non-pregnant women the level remains constant. There is some variation occurred in our study to other study in biochemical profile and it is due to environmental, factor, age, race and socio-economic factors.
Key Words: Pregnant women,Biochemical profile, non-pregnant women.

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INTRODUCTION

In woman's uterus, from fertilization to development ofa fetus or embryo, time or period is Pregnancy.[1] Pregnancy is also accompanied with alteration of metabolic and hormonal changes; all these philological changes are link with pregnancy .[2]

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It is also said that changes in lipid metabolism and lipoprotein is also accompanied with pregnancy and it demands for metabolic process in fetus.[3] Body is not balance with biochemical changes and significantly affected the profile in pregnancy.[4-6] Hypothalamic axis is suppress during pregnancy and it is due to increase estrogen release.[7] In pregnancy there are certain metabolic disorder and also biochemical, most common is gestational diabetes mellitus (GDM).[8] The them percentage of GDM is very and it is complicated which is 2-10% during pregnancy.[9] In pregnant women with diabetic show complication and some disorder in fetus and also for women such as fetal obesity, postpartum hemorrhage, preterm births, infections, congenital anomalies, death in worst case scenarios, stillbirths, intrauterine growth retardation, birth injuries and miscarriage.[10,11] Pre-eclampsia and eclampsia are common complication in pregnant women and we found in pregnancy ,with the help of biochemical profile changes we can easily diagnosed the complication of these disorders.[12] Biochemical profile changes occurred in pregnancy and these changes and alteration are used as diagnostic marker in pregnancy

for adverse out come and in these changes are mostly lipid metabolic disorders ,glucose level alteration with DM and also with gestational hypertension.[13] The objective of this study to evaluate biochemical profile in pregnant women in Mirpur AJK.

MATERIALS AND METHODS

We selected 100 women for our study and we divide into two groups in which 80 pregnant women and 20 non-pregnant women from one hospital of Mirur AJK. We take blood sample for biochemical study. We measure glucose level in both groups in pregnant women and non -pregnant women. We also measured Total cholesterol, low density lipoprotein, High density lipoprotein, IDL and triglyceride in both groups in pregnant women and non-pregnant women. We measured all samples by Microlab 300 equipment. For measuring we used Merk kits of glucose and lipid profile.

RESULTS

We observed in our study that glucose level in serum is high in pregnant women as compare to non-pregnant women. We found that fasting glucose mg/dl level is (110.8 ± 10.2) in pregnant women while in non-pregnant women fasting glucose level mg/dl is (97.4 ± 9.4). Lipid profile is also high in pregnant women as compare to non-pregnant women.

Table No.1: Participant characteristics

	(n=80) Pregnant women	non- pregnant women(n=20)
Age (years)	30.2± 7.2	30.5 ± 8.6
Female (%)	80	20
Body weight (Kg)	68.2± 11.5	77.4± 11.4
BMI (kg/m2)	26.3± 2.7	26.4± 2.6
SBP sitting (mmHg)	138.9 ± 8.2	135.4 ± 8.3
DBP sitting (mmHg)	86.6 ± 5.9	85. 9 ± 6.5

Table No.2: Ambulatory blood pressure monitoring. Mean values of blood pressure

Pregnant women (n=80)	Non-pregnant women (n=20)
Systolic BP - 24 hours (mmHg)	
138.9 ± 8.2	135.4 ± 8.3
Diastolic BP - 24 hours (mmHg)	
86.6 ± 5.9	85. 9 ± 6.5

Total cholesterol level in pregnant women is higher compare to non-pregnant women. Total cholesterol in pregnant women is (241. ± 13.8)mg/dl and in non-pregnant women is (193.6 ± 31.5)mg/dl. LDL value in pregnant women is (126.8± 23.5)mg/dl and in non-pregnant women is (117.5± 19.5)mg/dl. HDL value in the pregnant women is (58. ± 9.5)mg/dl and in non-pregnant women is (43.5 ± 10.2)mg/dl. Total glyceride value in pregnant women is (171.2 ± 36.5)mg/dl.

Table No.3: Biochemical profile of pregnant women and non-pregnant women

(n=80) Pregnant women	Non- pregnant women (n=20)
Fasting Blood Glucose(mg/dl)	
110.8 ± 10.2	97.4 ± 9.4
Total Cholesterol (mg/dl)	
241. ± 13.8	193.6 ± 31.5
LDL (mg\dl)	
126.8 ± 23.5	117.5± 19.5
HDL (mg\dl)	
58. ± 9.5	43.5 ± 10.2
Triglycerides (mg\dl)	
171.2 ± 36.5	145.3 ± 33.2

DISCUSSION

The result showed the glues level is high in pregnant women as compare to not pregnant women. This result is close with Benin City, Nigeria study of pregnant women.[13] We selected 100 women for our study and we divide into two groups in which 80 pregnant women and 20 non-pregnant women from one hospital of Mirur AJK. We take blood sample for biochemical study. We measure glucose level in both groups in pregnant women and non -pregnant women. We also measured Total cholesterol, low density lipoprotein, High density lipoprotein, IDL and triglyceride in both groups in pregnant women and non-pregnant women. We measured all samples by Microlab 300 equipment. For measuring we used Merk kits of glucose and lipid profile. In early pregnancy hormone are released high such as estrogen and progesterone and change carbohydrate metabolism. Secretion of some hormone is high in pregnancy which causes metabolic disorders. In these hormone lactogen, estrogen, progesterone cortisol and prolactin. These hormone induce resistance in insulin.[14-16] In some other study showed that total cholesterol and triglyceride level is same in pregnant women and non- pregnant women.[16] We observed in our study that glucose level in serum is high in pregnant women as compare to non-pregnant women. We found that fasting glucose mg/dl level is (110.8 ± 10.2) in pregnant women while in non-pregnant women fasting glucose level mg/dl is (97.4 ± 9.4). Lipid profile is also high in pregnant women as compare to non-pregnant women. Total cholesterol level in pregnant women is higher compare to non-pregnant women. Total cholesterol in pregnant women is (241. ± 13.8)mg/dl

and in non- pregnant women is (193.6 ± 31.5)mg/dl. LDL value in pregnant women is (126.8 ± 23.5)mg/dl and in non-pregnant women is (117.5± 19.5)mg/dl. HDL value in the pregnant women is (58. ± 9.5)mg/dl and in non-pregnant women is (43.5 ± 10.2)mg/dl. Total glyceride value in pregnant women is (171.2 ± 36.5)mg/dl. The study showed that total cholesterol, triglyceride ,low density protein are high in pregnant women as compare to non-pregnant women.[17,18] In some other study showed that lipid profile is high in pregnant women as compare to non-pregnant women .[19] Result showed that metabolic changes specially lipid metabolism caused to increase hepatic lipase activity.[20,21] Our study result is also supported by one another study that there is correlation is exist in adipose tissue LPL activity and plasma high density lipoprotein level.[22] It is said that lipid changes are due to zygote formation. It is occurred in in first trimester of pregnancy as result cycle shift from carbohydrate to lipid.[23] Same result is observed in our study that BMI is correlated with triglyceride level and this result is also exist with some other study.[24,25] So its mean that with passage of pregnancy the lipid level is high in pregnant women .In non-pregnant women the level remains constant. There is some variation occurred in our study to other study in biochemical profile and it is due to environmental, factor, age, race and socio-economic factors.

CONCLUSION

It is concluded that with passage of pregnancy the lipid level is high in pregnant women .In non-pregnant women the level remains constant. There is some variation occurred in our study to other study in biochemical profile and it is due to environmental, factor, age, race and socio-economic factors.

Author's Contribution:

Concept & Design of Study:	Aurooj Fatima
Drafting:	Bushra Kant
Data Analysis:	Beenish Samreen Hamid, Asnad
Revisiting Critically:	Aurooj Fatima, Bushra Kant
Final Approval of version:	Aurooj Fatima

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

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Original Article

Surgical Outcome of Endoscopic Dacryocystorhinostomy (EDCR) With and Without Silicon Intubation

Endoscopic Dacryocystorhinostomy

Abdul Waheed[1], Ashok Kumar[1] and Allah Bux Mushtaque[2]

ABSTRACT

Objective: To compare the results of Endoscopic DCR with silicon intubation and without silicon intubation.
Study Design: Cross sectional study
Place and Duration of Study: This study was conducted at the Lyari General Hospital Karachi from June 2011 to May 2014.
Materials and Methods: Total 100 patients were included in this study. They were divided into 2 groups. Group A consisted 50 (50%) patients operated for EDCR with silicon intubation and 50 (50%) included Group B patients underwent EDCR without use of silicon. Age difference was also seen among both groups. Patients aged 15 to 30 years were in majority.
Results: This age group included 40(40%) patients. 29(29%) patients aged from 31-40 years. 21(21%) had age of 41-50 years. 10(10%) patients were of age between 51 to 70 years. Female ratio dominated over male in gender incidence. 60 (60%) females and 40 (40%) males were sufferrers.
Conclusion: EDCR with Silicon Intubation was seen to be better as compared to the procedure without intubation as the former had least complication rate and higher success rate as compared to the latter.
Key Words: Dacryocystorhinostomy, Nasal Cavity, Lacrimal Sac, Endoscopic.

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INTRODUCTION

Dacryocystorhinostomy (DCR) is a method to provide drainage between the nasal cavity and lacrimal sca. External DCR is the best method to treat NLDO as it is cheap and has higher success rate. The learning period is short and does not require high technology. Older was the first who described DCR in surgery.[1] Some surgeons use tubes routinely and others prefer only in complicated cases. It is believed that these tubes hinder the blockage of ostium. The use of silicone intubation is reported as the effective method to enhance success rate but truth is that it is still the controversial issue.[2]

This procedure is performed by two methods viz traditional and endoscopic. In traditional, a small incision is given to perform the surgery. In another, endoscopy is used to perform the surgery.

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The use of nasal endoscope has become popular now a days due to some advantages as compared to traditional one. It has less peroperative morbidity and no scar.[3]

History of DCR dates back to 1883 when Caldwell reported the first case of intranasal DCR. In 1904, Toti invented the external approach of surgery that was considered to be the gold standard approach in this connection. In 1980s, Steadman, McDonagh and Meiring introduced the endoscopic procedure in the that got popularity soon due to its merits over others. Massero et al presented the first report of Argon Laser in this filed. Gonnering et al later on reported the use of CO2 and KPT in Lasers.[4]

Indications for DCR are the symptomatic distal obstruction of nasolacrimal duct that is not treatable by probing and syringing.[5]

The merits of endoscopic DCR keep it superior procedure to others. It is better aesthetically having no external scar. It also allows a one stage procedure to correct associated pathology. It avoids injury to medial canthus. It preserves the pumping mechanism of orbicularis oculi. It is not contraindicated in active infection of lacrimal system. It is also superior to external approach in revised surgery. It is less bloody.[6,7]

DCR is contraindicated in atrophic rhinitis.This operation is also not performed immediately in patients suffering from acute dacryocystitis.[8,9] There are certain conditions in which this procedure fails.

These are inadequate osteotomy, incomplete sac marsupialization, cicatricial closure of the ostium and granuloma formation. [10,11]

The rationale of our study is to compare the outcome of EDCR with silicon intubation and without it so that the better procedure be applied in patients for providing good results postoperatively.

MATERIALS AND METHODS

This study was done at lyari General Hospital Karachi in ENT Department. This is a cross sectional study done from June 2011 to May 2014. Total 100 patients were included in this study. They were divided into 2 groups. Group A consisted 50 (50%) patients operated for EDCR with silicon intubation and 50 (50%) included Group B patients underwent EDCR without use of silicon.

Patients suffering from NLDO either male or female were included in this study. Patients of age more than 10 years were kept in inclusion criterion. Patients of 10 years or less were excluded from the study. Those patients having canalicular obstruction, lacrimal sac carcinomas, traumatic obstruction, congenital dacryocystitis, post radiation epiphoria and immuno compromised patients were also kept in exclusion criterion.

A complete history and clinical examinaton was done in addition to routine blood investigations. Probing and syringing of sac was done to maintain the patency of the lacrimal system. All patients had undergone a rigid nasal endoscopy in order to evaluate the additional nasal pathologies so that these may be corrected simultaneously. Silicon stents were used in Group A patients and Group B were operated without silicon stents. Later on results were assesed in terms of complete resolution of epiphora, free flow of syringing or saline and the presence of a patent stoma. These were seen in follow up.

RESULTS

Total 100 patients were included in this study and divided into two groups viz Group A and Group B. Group A had 50 (50%) patients whom silicon intubation wa done. Group B had 50(50%) patients without silicon intubation.

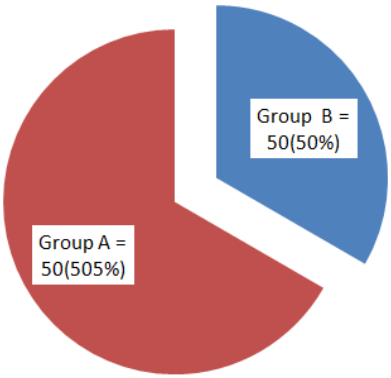
Female ratio dominated over male in gender incidence. 60 (60%) females and 40 (40%) males were sufferrers.

Age difference was also seen among both groups. Patients aged 15 to 30 years were in majority. This age group included 40(40%) patients. 29(29%) patients aged from 31-40 years. 21(21%) had age of 41-50 years. 10(10%) patients were of age between 51 to 70 years.

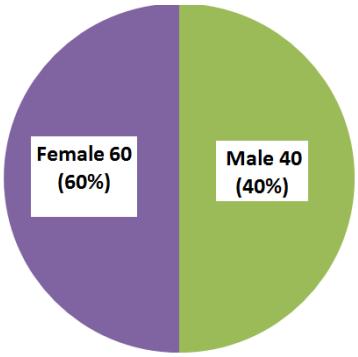
The success rate of Group A in follow after assessing the criteria was excellent. Out of 50, 48(96%) patients recovered completely but in Group B out of 50, 43(86%) was the success rate. The complications of EDCR were the echymosis of cheek 20 (20%) patients without silicon intubation and only 5 (5%) patients with silicn intubation. Another complication was bleeding in orbit seen in 3 (3%) patients of EDCR with silicon intubation and 8 (8%) patients without silicone intubation.

Table No.1: Age difference in both groups.

S.No.	Age in Years	No of Patients	Percentage
1	15-30	40	40%
2	31-40	29	29%
3	41-50	21	21%
4	51-70	10	10%
Total	15-70	100	100%



Pie Chart No.1: Gender Ratio.



Pie Chart No.2: Male, female Ratio.

DISCUSSION

The discovery of endoscopes with different degrees of angulation has dramatically enhanced the usage of endoscopic surgery as the otcomes of EDCR are not only encouraging but als has many predominat advantages over other procedures. Many modifications have been made in this connection like LASER assisted endoscopic DCR, use of silicon tube for stenting, mitomycin C application have bben introduced. Among all, the most commonly used method is keeping silicon stent in endonasal DCR. Many surgeons are of the opinion that silicon stent improves success rate. Some surgeons consider silicon stent as cause of failure.[12]

It is the common and famous procedure to be done for managing the nasolacrimal duct obstruction or chronic dacryostenosis. This procedure was initiated in the 7th decade of 20th century. [13]

Baig et al reported the success rate upto 87.09% with EDCR with silicone intubation whereas the same rate was reported by Delaney and Khooshabeh is 90%. This was also found out in case of using silicon intubation.

McLachian et al noted the rate at 94%. Talpur at el showed the success rate upto 98%. Advani et al reported 95% with silicon intubation. In our study the success rate of EDCR with silicon intubation was 96% whereas the rate witout silicone intubation was 86% in total study of 100 patinets in both groups.[14]

In several studies, the role of silicone intubation in DCR is discuused but has different thounghts or conflicting opinions. Some studies have showed the higher rates of failure of silicone use because of granulomatous inflamation.[15]

In a study done in 2011 regarding this procedure, it has shown equal success rate in silicne intubation and without silicone intubation.Rather and Singh did a large randomized controlled trial which showed the increased success rate of EDCR with silicone intubation.In one study, 70% patients were females but in our study 60% patients are females and 40% male.[16]

A study showed that the common complications after surgery were intranasal tissue granulation, adhesions, infection, hemorrhage and other complications. EDCR has two types of complications. Minor complications include ecchymosis or emphysema of cheek. Bleeding can occur during these procedures. During dissection of anterior spect of the lacrimal sac, intraoperative bleeding is more as compared to postoperative. Major complications include bleeding into orbit. If stent has tension, lacerations of the inferir cnaliculus may occur. Diplopia can also occur. Lesion of the nterior ethmoid artery is also the complication.[17]

CONCLUSION

In our study, the best method with excellent success rate is the endoscopic DCR with silicone intubation because it has higher success rate and has least complication rate.

Author's Contribution:

Concept & Design of Study:	Abdul Waheed
Drafting:	Ashok Kumar
Data Analysis:	Allah Bux Mushtaque
Revisiting Critically:	Abdul Waheed, Ashok Kumar
Final Approval of version:	Abdul Waheed

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

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Original Article

The Outcomes of a Simple Urethral Dilatation Procedure in Patients with Short Segment Urethral Strictures

Babar Sultan[1], Mohammad Kashif Rafique[1], Yousuf Aziz Khan[2], Zaheeruddin Qureshi[1], Fazli Wadud[1] and Khalid Khan[1]

ABSTRACT

Objective: To determine the outcomes of simple urethral dilatation procedure for the management of short segment urethral strictures.

Study Design: Prospective study

Place & Duration of Study: This study was conducted at the Department of Surgery, Surgical Unit A, Ayub Teaching Hospital Abbottabad from January 2016 to December 2018.

Materials and Methods: Fifty two patients who presented with simple short segment urethral strictures were included. Patients'demographics including age, clinical presentation and etiology of strictures were recorded after written consent. Retrograde urethrography was performed. All patients received simple urethral dilatation under local anesthesia with an antibiotic and steroid instillation after the procedure. Pre- and post-operative maximum urinary flow rate on uroflowmetry and postvoid residual urine (PVR) on ultrasound were noted.Follow-up was taken at 4, 12 weeks and at 1 year. Overall improvement and recurrence rate were recorded at final follow-up.

Results: The mean age of patients was 37.6±12.2 years. Majority of patients 42 (80.77%) had weak urine stream. Forty six (88.46%) patients had iatrogenic urethral strictures and 6 (11.54%) had idiopathic strictures. There was a significant improvement regarding maximum urinary flow rate and PVR at 1, 3 months and at 1 year post-operatively (p=0.0001). At final follow-up, 47 (90.38%) patients showed full improvement. Recurrence was seen in 5 (9.62%) patients.

Conclusion: Simple urethral dilatation with an addition of antibiotics and steroid is safe and effective treatment modality with fewer complications rate.

Key Words: outcome, urethral dilatation, short segment urethral stricture, iatrogenic

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INTRODUCTION

Urethral stricture is a common and challenging disease in urology. Currently, there are numerous surgical procedures to treat this disease. However, the diversity of treatment modalities reflects the scarcity of an optimal technique.[1] Urethral stricture in developed countries mainly involves the anterior urethra, in particular the bulbar urethra, which accounts for 46.9%.[2]

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In addition, 30% occur in the penile urethra, and the remainder in a combination of the two and panurethra. The reasons for stricture also vary by site.[3]

The pathology of urethral stricture disease is poorly understood. External trauma generally causes partial or complete disruption of an otherwise normal urethra. How a stricture develops in other circumstances remains unclear, but it seems that for whatever reason a scar develops as a consequence of changes in the structure and function of the urethral epithelium and the sub-epithelial spongy tissue causing a fibrotic narrowing of the urethra.[4] Surgical treatment of urethral stricture diseases is rapidly evolving. Currently there are various means of reconstructing the urethra that are almost all comparable in terms of technical easiness, associated morbidity and outcome. However, which one is the best technique has not yet been clearly defined.[5] Internal urethrotomy and urethral dilatation are the most commonly performed procedures for urethral stricture disease. The other treatment options include laser urethrotomy, intraluminal stents and urethroplasty.[6] The current first-line surgical treatment for urethral strictures includes internal urethrotomy by cold knife and laser.[7] However, stricture recurrences

and the need for additional surgery are shortcomings of these procedures. Thus, temporary dilatation after internal urethrotomy is also described by some authors for the prevention of stricture recurrence.[8] Urethral dilatation is one of the most common modalities used in clinics; it is less invasive with minimal side effects, and appropriate for patients unwilling to undergo urethral surgery. A randomized study[9] compared dilation and direct vision internal urethrotomy (DVIU), showing no significant difference in the outcomes between the two modalities. However, due to the high recurrence rate of this procedure, urethral dilation is often performed as a palliative maneuver and most patients will require a further urethral repairing surgery.[10]

Many of previous studies illustrated that simple dilatation for a short segment urethral strictures is safe and effective treatment modality with significant improvement and fewer complications rate.[11,12] The present study was conducted to examine the outcomes of simple dilatation procedure for the treatment of short segment urethral strictures.

MATERIALS AND METHODS

This prospective study was conducted at the Department of Surgery Unit A, Ayub Teaching Hospital MTI, Abbottabad from 1st January 2016 to 31stDecember 2018. A total of 52 patients who presented with simple short segment urethral strictures were included. Patient's demographics including age, clinical presentation and etiology of strictures were recorded after written consent. Retrograde urethrogram was performed. Patients with too long strictures, complex and crooked strictures were excluded from the study. All patients received simple urethral dilatation under local anesthesia with an antibiotic + steroid instillation after the procedure. Pre- and post-operative maximum urinary flow rate (Q_{max}) on uroflowmetry and postvoid residual urine (PVR) using ultrasound was recorded. Follow-up was taken at 4, 24 weeks and at 1 year. Overall improvement and recurrence rate was examined at final follow-up.Data was analyzed by SPSS 24. Student t' test was used. Frequencies and percentages were recorded in tabulation form. P-value <0.05 was set as significant.

RESULTS

The mean age of patients was 37.6±12.2 with ranges 20 to 60 years. The median stricture length was 0.74 (0.6-1.5) cm. Majority of patients 42 (80.77%) had weak urine stream, 3 (5.77%) had refractory urinary tract infection, 2 (3.85%) had interrupted urinary stream, 2 (3.85%) had painful micturition, 2 (3.85%) had urinary incontinence and 1 (1.92%) patient had urine stream deviation. According to the etiology of urethral strictures, 46 (88.46%) patients had iatrogenic strictures and 6 (11.54%) had idiopathic urethral strictures (Table 1).

Table No.1: Demographic information of the patients

Variable	No.	%
Age (years)	37.6±12.2	
Symptoms		
Weak Urine Flow	42	80.77
Refractory UTI	3	5.77
Interrupted Urine Stream	2	3.85
Painful Micturition	2	3.85
Urinary Incontinence	2	3.85
Urinary Stream Deviation	1	1.92
Etiology		
Iatrogenic	46	88.46
Idiopathic	6	11.54

Table No.2: Pre- and post-operative findings of urine flow on uroflowmetry

Uroflowmetry (Q_{max})	Preoperative (ml/sec)	Postoperative ml/sec)	P-value
At 4 weeks	6.5	17.00	0.0001
At 24 weeks	6.5	16.00	0.0001
At 1 year	6.5	14.5	0.0001

Table No.3: Pre- and post-operative findings of postvoid residual urine

Post-void residual urine	Pre-operative (ml)	Post-operative (ml)	P-value
At 4 weeks	73.2 (42-188)	20 (12–65)	0.0001
At 24 weeks	73.2 (42-188)	32.5 (10–75)	0.0001
At 1 year	73.2 (42-188)	30.5 (10–75)	0.0001

Table No.4: Final outcomes

Final outcome	No.	%
Cured	47	90.38
Recurrence	5	9.62

Pre-operatively the median maximum urinary flow rate (Q_{max}) on uroflowmetry was 6.5 ml/sec (ranges 3-14ml/sec) and median postvoid residual urine on ultrasonography was 73.2ml (42-188ml). The post-operative Q_{max} improved to 17.00 (16–23ml/sec) [p=0.0001] at 4 weeks, 16.00 (12–22ml/sec)[p=0.0001] at 24 weeks and, 14.5 (11–16.5ml/sec)[p=0.0001] at 1 year. The post-operative PVR urine values were 20 (12–65ml)[p=0.0001], 32.5 (10–75ml)[p=0.0001] and 30.5 (10–75ml)[p=0.0001] at 4, 24 weeks and at 1 year, respectively. The median procedure time was 14.5 (10–24) minutes (Tables 2, 3).

At final follow-up, 47 (90.38%) patients showed full improvement and recurrence was seen in 5 (9.62%) patients (Table 4).

DISCUSSION

Urethral stricture in men is one of the common disorders with a high morbidity. Many surgical procedures have been used for the treatment of urethral strictures but urethral dilatation is one of the mostly performed techniques used for short segment urethral strictures due to its easiness and fewer complication rates.[13,14]. The present study was conducted aimed to examine the outcomes of simple dilatation with an addition of antibiotics and steroid in patients with short segment urethral strictures. In this study we found 90.38% patients were fully recovered with no major complications. Recurrence was seen in 5 (9.62%) patients. These results were similar to some previous studies in which dilatation procedure showed effectiveness in 85 to 95% patients with recurrence rate 0 to 10%.[15,16]

In our study the mean age of patients was 37.6±12.2, with age ranges of 20 to 60 years. The median stricture length was 0.74 (0.6-1.5cm). Majority of patients 42 (80.77%) had weak urine stream, 3 (5.77%) patients had refractory urinary tract infection, 2 (3.85%) had interrupted urine stream, 2 (3.85%) had painful micturition, 2 (3.85%) patients urinary incontinence and 1 (1.92%) patient had urine stream deviance. According to the etiology of urethral strictures, 46 (88.46%) patients had iatrogenic strictures and 6 (11.54%) had idiopathic strictures. These results were comparable to many previous studies.[15-17]

In present study we found significant improvement regarding maximum flow rate and PVR at 1, 3 months and at 1 years post-operatively (p=0.0001). Pre-operatively the median maximum urinary flow rate (Q_{max}) on uroflowmetry was 6.5 ml/sec ranges (3 to 14ml/sec) and median postvoid residual urine on ultrasonography was 73.2ml (42-188 ml). Post-operative (Q_{max}) improved to 17.00 (16–23 ml/sec) (p=0.0001) at 4 weeks, 16.00 (12–22)ml/sec (p=0.0001) at 24 weeks and 14.5 (11–16.5)ml/sec (p=0.0001) at 1 year. These results showed similarity to many of other studies in which patients showed significant improvement regarding maximum urinary flow rate with a p-value <0.001 [18-19] In our study we found, post-operative PVR values were 20 (12–65)ml (p=0.0001), 32.5 (10–75)ml (p=0.0001) and 30.5 (10–75) ml (p=0.0001) at 4, 24 weeks and at 1 year, respectively. The median procedure time was 14.5 (10–24) minutes. These results were comparable to several studies in which simple dilation procedure showed post-operatively significant difference regarding post void residual.[20,21]

In our study we noticed fewer rate of post-operative complications, 1 patients showed bleeding and no patient with wound infection. The overall patients' satisfaction rate was 88.46%. These results were analogous to some other studies.[22,23]

CONCLUSION

Urethral stricture in men is the one of the painful disorders with a high morbidity rate. Early and accurate diagnosis and better treatment modality helps to reduce the morbidity. We conclude that simple urethral dilatation with antibiotic and steroid instillation after the procedure is safe and effective treatment modality with fewer complications rates.

Author's Contribution:

Concept & Design of Study:	Babar Sultan
Drafting:	Mohammad Kashif Rafique, Yousuf Aziz Khan
Data Analysis:	Zaheeruddin Qureshi, Fazli Wadud, Khalid Khan
Revisiting Critically:	Babar Sultan, Mohammad Kashif Rafique
Final Approval of version:	Babar Sultan

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

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Original Article

Frequency and Outcome of Mitral Regurgitation in Acute ST-Elevation after Myocardial Infarction

Imran[1], Iftikhar Anwar[1], Mansoor Hassan[2], Saleh Muhammad[2], Abdul Hamid[3] and Kamran Hamid[4]

ABSTRACT

Objective: Determine the frequency and Outcome of Mitral Regurgitation in Acute ST-Elevation after Myocardial Infarction.

Study Design: Experimental / Observational study

Place and Duration of Study: This study was conducted at Cardiology Department, Idris Teaching Hospital Sialkot Medical College Sialkot from Jan 2018 to May 2019.

Materials and Methods: 350 Patients from Cardiology department of Idris teaching Hospital Silakot Medical College Sialkot were enrolled in study after fulfilling the inclusion criteria. Procedure of research was explained to the patient and informed consent was taken. Demographic data, name, age, gender, and address was recorded on the attached proforma. Patients were assessed on transthoracic echocardiography by the consultant for presence or absence of mitral regurgitation. Severity of MR will act as effect modifier and was addressed through stratification. Patients were kept in the ward for at least three days. They were examined by the ward consultant for pulmonary edema (fine inspiratory basal crepitation on chest auscultation) or Death (No electrical activity on ECG) immediately after diagnosis of mitral regurgitation and then every eight hours for the following three days

Results: Out of 350 patients (54.3% females). 38.6% patients suffered from MR as the complication of MI. of all the patients who suffered from MR, 68.1% suffered from mild, 21.5 % from moderate and 10.4% suffered from severe grade of MR. 12 % of the patients died and 46.7 % developed acute pulmonary edema after development of MR as a complications of MI. The study also shows that mostly patients suffering from MR after AMI were elderly and female, 52.5 % and 62.2 % respectively.

Conclusion: This study demonstrates that there is high frequency of Ischemic Mitral Regurgitation (IMR) after MI in our population and mostly sufferers of this complication are female and elderly population. IMR if present after MI is associated with poor outcome in terms of death and acute heart failure.

Key Words: ST elevation myocardial infarction, mitral regurgitation.

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INTRODUCTION

Myocardial infarction is the leading cause of death in the United States and in most industrialized nations throughout the world. Approximately 450, 000 people in the United States die from coronary disease per year.[1] The survival rate for U.S. patients hospitalized with MI is approximately 95%. This represents a significant improvement in survival and is related to improvements in emergency medical response and treatment strategies.

Complications of MI include arrhythmic, mechanical, inflammatory (early pericarditis and post-MI syndrome) sequelae, as well as left ventricular mural thrombus (LVMT). In addition to these broad categories, right ventricular (RV) infarction and cardiogenic shock are other possible complications of acute MI.

There are three major mechanical complications of acute myocardial infarction (MI): rupture of the left ventricular free wall; rupture of the interventricular septum; and the development of mitral regurgitation. One study compared 225 patients who had a first MI and experienced one of these complications to 1012 patients with a first MI without these mechanical complications[2]. Delayed hospitalization (≥24 hours), undue in-hospital physical activity, and post infarction angina increased the risk of rupture in predisposed patients.

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The causes of mitral regurgitation (MR) after acute MI include ischemic papillary muscle displacement (previously known as papillary muscle dysfunction), left ventricular dilatation or true aneurysm, and papillary muscle or chordal rupture[3, 4]. Ischemic mitral regurgitation is mitral insufficiency caused by myocardial infarction.[5] It results from local and global LV remodeling and that is an independent predictor of heart failure and death. MR typically occurs 3-10 days after an AMI, though this onset may vary according to the mechanism of MR. Papillary muscle rupture resulting in MR occurs within 1-14 days.

Mild-to-moderate MR is often clinically silent and detected on Doppler echocardiography performed during the early phase of AMI. In this case, MR rarely causes hemodynamic compromise. Severe acute MR that results from the rupture of papillary muscles or chordae tendineae results in abrupt hemodynamic deterioration with cardiogenic shock. Rapid diagnosis, hemodynamic stabilization, and prompt surgical intervention are needed because acute severe. MR is associated with a high mortality rate.

Ischemic mitral regurgitation is a disease of the myocardium (both infarcted and normally perfused) that disturbs mitral valvular function; MR to due other etiologies is a valvular disease that affects the myocardium. The cellular, molecular, and genetic effects on the myocardium of these two different causes of MR are probably unrelated. Lessons learned from experience with MR of non ischemic origin are not likely applicable to IMR. Recent clinical and laboratory studies are beginning to improve our understanding and approach to this vexing clinical problem.

MATERIALS AND METHODS

350 Patients from Cardiology department of Idris teaching Hospital Silakot Medical College Sialkot were enrolled in study after fulfilling the inclusion criteria. Procedure of research was explained to the patient and informed consent was taken. Demographic data, name, age, gender, and address was recorded on the attached proforma. Patients were assessed on transthoracic echocardiography by the consultant for presence or absence of mitral regurgitation. Severity of MR will act as effect modifier and was addressed through stratification. Patients were kept in the ward for at least three days. They were examined by the ward consultant for pulmonary edema (fine inspiratory basal crepitation on chest auscultation) or Death (No electrical activity on ECG) immediately after diagnosis of mitral regurgitation and then every eight hours for the following three days.

RESULTS

Out of 350 patients (54.3 % females). 38.6 % patients suffered from MR as the complication of MI. of all the patients who suffered from MR, 68.1% suffered from mild, 21.5 % from moderate and 10.4% suffered from severe grade of MR. 12 % of the patients died and 46.7% developed acute pulmonary edema after development of MR as a complications of MI. The study also shows that mostly patients suffering from MR after AMI were elderly and female, 52.5 % and 62.2 % respectively.

Table No. 1: Baseline characteristic of the patients (n=350)

Baseline characteristics of patients presenting with AMI			
Baseline Characteristics		**Frequency**	**Percent**
Age	30-50 years	68	19.4
	51-60 years	197	56.3
	61-70 years	85	24.3
Sex	Male	160	45.7
	Female	190	54.3

Key: n Number of patients

Table No. 2: Distribution of patients by frequency of MR (n=350)

MR	No.	Percentage
Present	135	38.6
Absent	215	61.4
Total	350	100.0

Key: n Number of patients

Table No. 3: Distribution of patients according to the severity of MR

	Grading of Severity	No.	Percentage
MR (n - 135)	Mild	92	68.1
	Moderate	29	21.5
	Severe	14	10.4

Key: n Number of patients

Table No. 4: Frequency of MR according to age distribution

MR	Age Groups	Frequency	Percent
Present n=135	30-50 years	21	15.6
	51-60 years	43	31.8
	61-70 years	71	52.6
Absent n=215	30-50 years	47	21.8
	51-60 years	154	71.7
	61-70 years	14	6.5

Key: n Number of patients

Table No. 5: Frequency of MR according to sex distribution

MR	Gender/Sex	Frequency	Percent
Present n=135	Male	51	37.8
	Female	84	62.2
Absent n=215	Male	109	50.7
	Female	106	49.3

Key: n Number of patients

Table No. 6: Distribution of patients by outcome

	MR Present (n = 135)		MR absent (n = 215)	
Outcome	**No.**	**%tage**	**No.**	**%tage**
Heart failure (Acute pulmonary edema)	63	46.7	21	9.8
Died	16	12	4	1.8
Uneventful Discharge	56	41.3	190	88.4
Total	135	100.0	215	100.0

Key: n Number of patients

Table 1 presents the baseline characteristic of the patients presenting with AMI. Table 2 Presents the distribution of patients by frequency of MR. Table 3 Presents the distribution of patients according to the severity of MR. Table 4 Presents the frequency of MR according to the age distribution. Table 5 Presents the frequency of MR according to sex distribution and table 6 Presents the distribution of patients by outcome.

DISCUSSION

Coronary heart disease (CHD) is the leading cause of mortality worldwide and caused 1 of every 5 deaths in the United States in 2004.[6,7,8] Acute coronary syndromes are manifestations of a progressive atherosclerotic process which culminates in rupture of atherosclerotic plaques and the formation of mural thrombi.[9,10,11] Despite impressive advances in diagnosis and management over the past four decades, STEMI continues to be a major public health problem in the industrialized world and is becoming an increasingly important problem in developing countries.[12,13,14] In the United States, in 1 year, nearly 1 million people suffer from an acute MI.[15,16,17] More than 1 million people with suspected acute MI are admitted yearly to coronary care units in the United States.[18,19,20] 90 Of particular concern from a global perspective are projections that the burden of disease in developing countries will become similar to those now afflicting developed countries.[21,22] Given the wide disparity of available resources to treat STEMI in developing countries, major efforts are necessary on an international level to strengthen primary prevention programs at the community level.[23,24,25]

The short-term mortality rate of patients with STEMI who receive aggressive pharmacological reperfusion therapy as part of a randomized trial is in the range of 6.5 to 7.5 percent,[26] whereas observational data bases suggest that the mortality rate in STEMI patients in the community is 15 to 20 percent. Complications of Myocardial infarction emerge as one of the principal determinants of mortality in patients with STEMI.[27] There are three major mechanical complications of acute myocardial infarction (MI): rupture of the left ventricular free wall; rupture of the interventricular septum; and the development of ischemic mitral regurgitation.

Ischemic mitral regurgitation is mitral insufficiency caused by myocardial infarction. The causes of mitral regurgitation (MR) after acute MI include ischemic papillary muscle displacement (previously known as papillary muscle dysfunction), left ventricular dilatation or true aneurysm, and papillary muscle or chordal rupture. MR typically occurs 3-10 days after an AMI, though this onset may vary according to the mechanism of MR. Papillary muscle rupture resulting in MR occurs within 1-14 days.[28]

Ischemic mitral regurgitation may present suddenly in association with AMI or chronically with CHF as a late manifestation of postinfarction ventricular remodeling. In all cases (by definition) the valve leaflets and subvalvular apparatus are structurally normal. Whether, when, and to what degree IMR develops is dependent on the size, transmurality, and location of the MI. Mild-to-moderate MR is often clinically silent and detected on Doppler echocardiography performed during the early phase of AMI. In this case, MR rarely causes hemodynamic compromise. Severe acute MR that results from the rupture of papillary muscles or chordae tendineae results in abrupt hemodynamic deterioration with cardiogenic shock[29]. Rapid diagnosis, hemodynamic stabilization, and prompt surgical intervention are needed because acute severe MR is associated with a high mortality rate. Acute ischemic MR is seen with increased frequency in anterior wall infarction, more extensive wall motion abnormalities, a persistently occluded infarct artery, larger end-systolic and end-diastolic ventricular volumes, and severe heart failure.

Mitral regurgitation is known to be a frequent complication of AMI. When present, it may exhibit a broad range of severity, from clinically evident and hemodynamically obvious to clinically silent and detected only as an incidental finding on catheterization or Doppler echocardiography. Ischemic MR following MI is associated with increased mortality. No study has yet been done in Pakistan to analyze the outcome of post myocardial infarction MR. The purpose of the present study is to determine the outcome of patients having acute myocardial infarction with mitral regurgitation, in terms of heart failure or even death & to identify the high risk patients for early intervention in terms of pharmacological and invasive therapy.[30]

In the present study, 350 patients of acute MI were included. In the study population, 45.7 % were male and 54.3 % were female, 19.4% patients were in the age group of 30-50 years, 56.3% patients were in the age group of 51-60 years and 24.3% patients were in the age group of 61-70 years. In the study group 38.6 % patients suffered from MR as the complication of MI. Of all the patients who suffered from MR, 68.1%

suffered from mild, 21.5 % from moderate and 10.4% suffered from severe grade of MR. Different frequency of MR are recorded in different studies.

In the present study, mostly elderly and female patients suffered from MR after MI. The results show that 52.6% patients with age 61 to 70 years suffered from MR. The results show that 37.8% patients were male and 62.2 % patients were female among the patients who suffered from MR after MI. This finding was also recorded in other studies.

In the present study, poor outcome of the patients suffered from MR after MI was recorded in terms of death and acute pulmonary edema. The study shows that 12 % of the patients died and 46.7 % developed acute pulmonary edema after development of MR as a complication of MI. The study also shows that mostly patients suffering from this poor outcome were elderly and female.

To define the incidence of mitral regurgitation (MR) and elucidate its potential contribution to the development of severe congestive heart failure after acute myocardial infarction (AMI), Doppler echocardiograms were obtained within 48 hours of onset of AMI in 59 patients. MR was detected in 23 of the 59 patients (39%). Patients with MR were older (71 +/- 3 vs 62 +/- 2 years, p less than 0.005). Mortality determined 8 to 14 months after the index AMI was 48% (11 of 23) in patients with MR but only 11% (4 of 30) in those without it (p less than 0.01).

CONCLUSION

In conclusion, the findings of the present study indicated that there is high frequency of IMR after MI in our population and mostly sufferers of this complication are female and elderly population. IMR if present after MI is associated with poor outcome in terms of death and acute heart failure. Early detection and management can reduce the mortality of this complication. This study was done on a small sample size with three days follow up only. However it provides significant data regarding the mitral regurgitation among the patients of acute myocardial infarction presented in the emergency of Punjab Institute of Cardiology.

Author's Contribution:

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Original Article

Analysis of Knowledge and Practices of Mothers Regarding Neonatal Care in District Gujrat

Knowledge of Mothers Regarding Neonatal Care

Akmal Khurshid Bhatti[1], Nasreen Hamid[2], Tahir Mahmood Butt[1], Zara Tahir[1], Aimen Tahir[3] and Saad Akmal Bhatti[1]

ABSTRACT

Objective: The objective of this study was to determine the knowledge of mothers on essential newborn care at home and to assess the practices of mothers on essential newborn care at home.

Study Design: Cross- sectional Study

Place and Duration of Study: This study was conducted at the Rural Gujrat from August 2017 to January 2018

Materials and Methods: A total of 202 mothers participated in the study. The study participants were mothers of infants aged 3 months or less. The data was collected on standard newborn care knowledge scale based on 31 items and a 15 itemed newborn care practice scale.

Results: More than half (61.4%) mothers had four or more antenatal care visit. The mean knowledge score was 14.3 (SD=3.9) ranging from 3 to 27 on a scale of 0-31. When converted to a binary variable at the cut-off value of 60%, it was found that only 20 mothers had good knowledge (10.6%) while 168 (89.4%) had poor knowledge. Similar trend was observed for newborn care practices, only 10.1% mothers had good practices while 170 (89.9%) had poor practices for newborn care. The only significant predictor of better knowledge was counselling by health care providers (OR=1.78, 95% CI=1.17, 2.71).

Conclusion: Knowledge and practices of mothers regarding newborn care were very poor in rural areas of Gujrat. This highlights the need of appropriate counselling of mothers (by trained health providers) regarding newborn care.

Key Words: Knowledge, Neonatal, Mother, Newborn

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INTRODUCTION

Every year almost 4 million children die worldwide, before reaching age of even a month (WHO, 2005). Two-thirds of such neonatal deaths occur in just ten countries, Pakistan being at number three among these countries[1]. Pakistan could not achieve any of the MDG 4 targets. Under-five child mortality still remains at 92 per 1000 live births, a large way behind the MDG targets of 4-6. Almost half (49%) of the under-five deaths occur in neonatal time period in Pakistan. Infant mortality decreased from 122 in year 1990 to 73 in 2012. However, neonatal mortality rate showed a meagre decline from 56 to 44 during this one and a half decades[2]. Huge disparities exist in neonate mortality in Pakistan, with 43 deaths per 1000 live births in the Islamabad Capital Territory, 70 in KPK, 93 in Sindh, 105 in Punjab and 111 in Balochistan[3].

Majority of neonate deaths occur in first few hours or days of life, almost 25%-45% deaths occurring during first 24 hours. The rest two thirds of neonatal mortality is concentrated in the first week of life[4]. The proximal factors causing neonatal mortality have been studied in detail. A recent summary published in the Lancet indicates that most newborn die as a result of preterm birth (36%), followed by severe infection (29%) and birth asphyxia (23%)[5].

Poor neonatal health indicators in Pakistan are explained by dreadful state of these determinants of neonatal mortality. Less than half (48%) deliveries take place in health facilities, and only 37% mothers receive essential antenatal care (ANC). Only half of the births in the country are attended by Skilled Birth Attendant (SBA). Less than 20% newborns receive breastfeed within an hour of birth[3-5]. Poor cord care practices are very common. Moreover despite availability of community health workers, Pakistan does not have a working policy of postnatal home visit by care providers. Literacy rate is poor in the country especially

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among women, making them and their children more vulnerable to poor health consequences. Evidence exist that poor maternal knowledge regarding newborn care can lead to wrong actions, delay in care seeking and threatens neonate's health[6].

Educating mothers about neonate care immediately after birth has been proved a cost effective intervention to reduce neonatal mortality. In the newborn period, adoption of basic care practices such as breastfeeding and prevention of hypothermia can reduce newborn mortality by 55-87% and 18-42%, respectively[7]. A recent intervention in Vietnam showed a significant improvement in these newborn care practices of women after training using a child health care handbook[8]. Similar evidence is available from Taiwan[9] and Bangladesh[10].

In Pakistan, there is no mandatory forum for mothers to learn caring for their newborns. In absence of such forums, women usually rely on their social networks and traditional healers. The information given by such providers can be conflicting, inaccurate and even can lead to health threatening actions[11]. It is important to know the knowledge of mothers and their practices regarding newborn care in countries with high neonatal mortality. Understanding these practices can give a significant clue to the context-specific underlying causes of neonatal mortality. There is limited data on maternal knowledge and practices regarding newborn care in Pakistan. This study was aimed to build the knowledge base in this regard by assessing knowledge and practices of mothers regarding essential newborn care at homes.

MATERIALS AND METHODS

This cross sectional study was conducted in Tehsil Gujrat of District Gujrat from August 2017 to January 2018. The data was collected from the women who had experienced a live childbirth during the past three months. Inclusion criteria included mothers with an infant older than five days and less than or equal to three months old, and mothers who stayed in the respective place for the past six months. Exclusion criteria included mentally incapable (having a known psychiatric disorder), seriously ill mothers with severe medical problem and non willing mothers.

A sample size of 202 was calculated by using proportion formula on Epi Info software version 3.5. The sampling was carried out at two stages, first the Union Councils (UC) were selected and then the mothers with less than six months old infant. Six UCs were selected using the online random number generator. However, sample size was completed in 10 villages of five UCs. All the mothers meeting the eligibility criteria, from the selected UCs were asked to participate in the study. A list of mothers with infants aged seven days to six months was taken from the LHWs of the respective catchment areas.

Data was collected using an interview-based, structured questionnaire typed bilingually both in English and Urdu. A trained female data collector assisted the researcher to collect data form households. LHWs assistance was sought to facilitate data collection from households. Data collection tool was comprised of four sections. Section 1 included socio-demographic data, Section 2 included history of pregnancy, Section 3 was based on the main 'Newborn Care Knowledge' questions while Section 4 was based on the 'Newborn Care Practices'.

Data was entered and analyzed in SPSS v.20. Socio-demographic characteristics, reproductive health indicators and selected newborn care knowledge and practices were displayed using descriptive statistics. Frequency and percentages were reported for categorical variables while continuous variables were summarized using mean± SD and range.

The study was approved by the Ethical Committee. Necessary permission was sought from the CEO (Health), Gujrat. The written informed consent was obtained from the informants with clauses of voluntary participation, confidentiality and right to withdraw from the study at any time.

RESULTS

A total of 202 mothers participated in the study. Almost all were married and living with their spouses (200, 99%). The age of their youngest child ranged from 5 to 90 days with a mean of 54 days (SD= 24.6). More than half of the mothers (58.3%) were greater than 25 years old. Mean age of mothers was 26.29 years (SD=4.14). Most of the mothers (192, 97.5%) had at least one antenatal care visit to healthcare provider during the last pregnancy. However, only 61.4% (n=121) mothers had completed essential four ANC visits. The main provider consulted for ANC was lady health visitors (LHV)/ midwife/nurse followed by community midwives and doctors (Figure I).

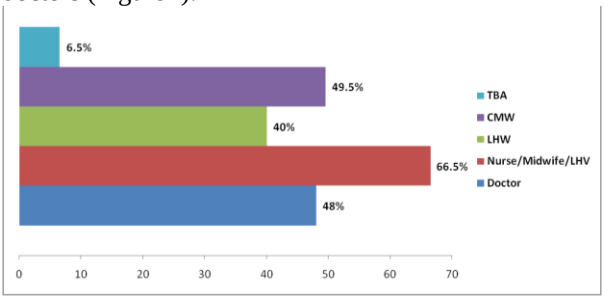

Figure No.1: Antenatal care providers

The mean knowledge score was 14.3 (SD=3.9) ranging from 3 to 27 on a scale of 0-31. Highest scores were obtained for the subscale of immunization while lowest for thermal care (Fig. 2). When converted to a binary variable at the cut-off value of 60%, it was found that only 20 mothers had good knowledge (10.6%) while 168 (89.4%) had poor knowledge.

Table No.1: Knowledge of mothers regarding newborn care

Knowledge variables		N	%
Breastfeeding			
Exclusive breast feeding	Yes	91	46.2
	No	106	53.8
Position of baby being upright after feeding	Yes	100	51.3
	No	95	48.7
Need for burp after feed	Yes	125	64.4
	No	47	24.2
	Sometimes	22	11.3
Time to start breast feeding	Within first hour of birth	130	65.7
	Later	68	34.3
Should colostrums be fed?	Yes	143	72.6
	No	48	24.4
	Don't know	6	3.0
Is colostrums good for baby?	Good	134	69.4
	Not good	42	21.8
	Don't know	17	8.8
Thermal Care			
Time to dry baby	Before the placenta is delivered	30	15.2
	After the placenta is delivered	45	22.8
	After the delivery is complete	68	34.5
	Baby not dried just wrapped	13	6.6
	Don't know	41	20.8
Time to wrap baby	Before the placenta is delivered	35	17.8
	After the placenta is delivered	89	45.2
	Long after the delivery has been concluded	32	16.2
	No need	2	1.0
	Don't know	39	19.8
Time to bath baby	Immediately after delivery of the baby Within 6 hrs. of delivery	141	71.6
	7-23 hrs. after delivery	31	15.7
	Second day or later	23	11.7
	Don't know	2	1.0
Skin to skin mother-baby contact	Yes	19	9.6
	No	172	90.4
Essential Cord Care			
What should be used to tie the cord?	Clean cord clamp/thread	166	82.2
What should be used to cut the cord?	Clean blade/scissors	185	91.6
What should be applied to cord?	Saline water/nothing	69	35.2
	Others	127	64.8
Does the cord need to be washed if soiled or being urinated on?	Yes	198	98.0
	No	4	2.0
Immunization knowledge			
Does a child need immunization after birth	Yes	197	100
	No	0	0
When can the first vaccine be given?	Within a month	194	96

The mean knowledge scores for thermal care of newborn were 1.17 (SD=0.75) on a scale of 0 to 4. Only one fourth of the respondents were aware of the need of skin-to skin contact of mother and baby. Majority of the respondents were of the view that baby should be given bath immediately after birth (table 1).

Predictors of good knowledge of mothers regarding newborn care: Univariate analysis revealed three significant predictors of better knowledge of mothers regarding newborn care, namely: belonging to high income group, being more educated and being counselled for newborn care. However, multivariate

model revealed only single significant predictor that was counselling regarding care by healthcare providers. The multivariate model was built using three predictors which showed significance at 10% alpha in univariate analysis. The knowledge of mothers was likely to be 1.78 times (higher) for one unit increase counselling scores.

The mean newborn care practice score was 5.89 (SD= 2.56) ranging from 2 to 11 on a scale of 0-15. Highest scores were obtained for the subscale of immunization while lowest for cord care.

Table No.2: Predictors of good knowledge of mothers regarding new born care

Sr. No.	Predictors		Unadjusted OR	C.I for Unadjusted OR		Adjusted OR	C.I for Adjusted OR	
				LL	UL		LL	UL
1	Mother's age	Up to 25 years	1					
		> 25 years	0.79	0.30	2.05	-	-	-
2	Mother's education	No	1			1		
		Primary	0.61	0.11	3.34	0.67	0.11	4.07
		Middle/Matric	0.95	0.28	3.18	0.78	0.21	2.89
		FA/F.Sc	0.44	0.05	4.01	0.34	0.03	3.55
		Above FA/FSc	**4.40***	1.07	18.15	1.99	0.34	11.60
3	Father's education	No	1					
		Primary	0.98	0.17	5.73	-	-	-
		Middle/Matric	1.43	0.42	4.90	-	-	-
		FA/F.Sc	1.68	0.28	10.15	-	-	-
		Above FA/F.Sc	3.92	0.75	20.56	-	-	-
4	Household income (PKR)	≤ 15000	1			1		
		15001-25000	1.38	0.4	4.27	1.36	0.37	4.96
		>25000	**5.14***	1.49	17.73	2.03	0.43	9.50
5	Mother's parity	1	1					
		2-3	0.52	0.17	1.58	-	-	-
		>3	0.61	0.17	2.16	-	-	-
6	Antenatal care visits	<4	1					
		4 or above	1.90	0.66	5.48	-	-	-
7	Type of delivery	Normal	1					
		C-Section	0.67	0.14	3.06	-	-	-
9	Counselling for neonate care		**2.07***	1.39	3.08	**1.78***	1.17	2.71
10	ANC provider (doctor)	No	1					
		Yes	1.71	0.66	4.40	-	-	-
11	ANC provider (LHV/Midwife/Nurse)	No	1					
		Yes	0.55	0.22	1.41	-	-	-
12	ANC provider (CMW)	No	1					
		Yes	1.92	0.73	5.07	-	-	-

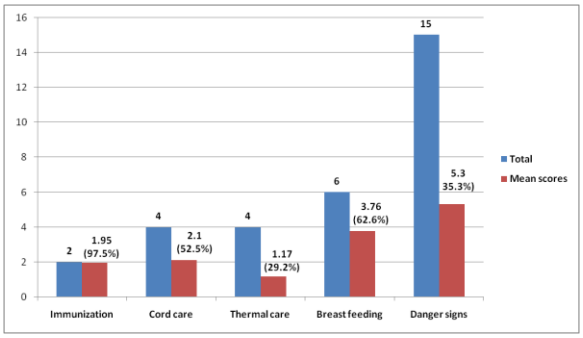

Figure No.2: Knowledge of mothers regarding newborn care

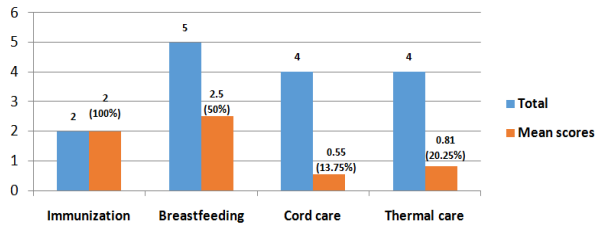

Figure No.3: Practices of mothers regarding newborn care.

DISCUSSION

This study revealed that mothers' knowledge and practices were quite poor with regard to the current recommendations on newborn care. These findings are a matter of concern in a country like Pakistan where neonatal mortality is quite high and has not decreased over a decade. Other low and middle income countries have already improved such practices, studies in India[12] and Ethiopia[13] has shown that majority of mothers had adequate knowledge regarding newborn care. This study focused on knowledge and practices of mothers regarding breastfeeding, thermal care, umbilical cord care, detection of danger signs in neonates and immunization[9].

The level of maternal awareness about exclusive breastfeeding was worrisome, as less than half of the mothers (46.2%) were aware of the need for exclusive breastfeeding. Even a lesser number of mothers i.e. 30% had actually practiced exclusive breastfeeding within first month of child's life. These results are validated by a recent study in Karachi where the rate of exclusive breastfeeding was only 26%[14]. Majority of the mothers, in this study, were of the view that herbal preparations named ghutti, char arq, kehwa, rose water and honey should also be given to baby within first month. Almost two thirds of the mothers (65.7%) knew that breast feeding should be started within first hour of birth. However, a lesser number of mothers (57%) had actually started breastfeeding within first hour of birth. Similar findings had been reported in other parts of the country[15]. Multiple reasons for this delay in breastfeeding had been reported including: child first needs to be given some herbal preparation to clean the stomach or child should first be given bath and then azan and then breastfeeding should be started[15]. A huge gap in role of healthcare providers needs to be highlighted in this context; they could not promote initiation of breastfeeding despite the fact that 92.5% of the births took place in health facilities in this study. A deeper understanding about roles of healthcare providers is needed in regard. An encouraging finding was that majority of the mothers (70%) were aware that colostrum is good for baby. However, they could not specify on how it was good or its role. This is a common problem reported in other cities of Pakistan[14] and in other countries as well[16]. A significant proportion of mothers, in this study, was of the view that colostrums is heavy for baby and thus not good and needs to be discarded.

CONCLUSION

Knowledge of basic newborn care among mothers in rural Gujrat is quite low. Rate of mothers' counselling about newborn care is also reported to be quite less, denoting the lack of efficiency of the educational programs. Knowledge of breastfeeding practices is inadequate, leading to difficulties in relation to lactation success. Knowledge and practices regarding thermal and cord care are also disappointing. Moreover, lack of acceptance of hypothermia and redness/inflammation of cord as a danger sign in neonates can be life threatening for neonates. Lady health workers and other healthcare providers should be trained and equipped with essential knowledge to educate mothers. Job descriptions of healthcare providers need to be revisited to promote mother's education.

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Revisiting Critically:	Akmal Khurshid Bhatti, Tahir Mahmood Butt
Final Approval of version:	Akmal Khurshid Bhatti

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

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Corrigendum

The name of **Nasir Ahmed Sasoli** in article title 'Compare the Outcomes of Antibiotic Therapy with Appendectomy in Patients with Acute Appendicitis' appeared in the contents at Sr.No.7, pages 25-27 published in **Med Forum Vol. 30, No. 10 (October 2019)**, has wrongly been mentioned as Ahmad Shah at **page 25** of the said article which may now be read as ***Nazir Ahmed Sasoli.*** instead of Ahmad Shah and in Citation as ***Sasoli NA*** instead of Shah A.

Editor

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Corrigendum

The contents of article "**Sickle Cell Trait and Disease in Anaemic Patients, Visiting Health Care Centre, KFU, Al Hasa**" published in the **Med. Forum, Vol. 30, No. 5 (May, 2019) at Page 27**, may now be read as under:

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2. Correct name of 4th author:

Ali Abdulkarim Alsulaiman

3. **Missing names in Author's Contribution:**

- Dr. Uma SankarAkula(who wrote Abstract, result and discussion parts)
- Dr. Anthony Leela (who did data analysis, literature search, & write material and methodology).

Editor

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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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