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Editorial

Relationship of Hormone Disorder with Calcium Level

Mohsin Masud Jan
Editor

Women who supplemented their diets with modest amounts of calcium had a lower risk for the hormone disorder known as primary hyperparathyroidism.

The study, which is published in *BMJ*, also found that women with diets low in calcium may be more likely to get the disorder, which erodes bones and potentially sets the stage for depression, fatigue, and kidney stones. The research may be a reason to revisit the idea of taking a daily calcium supplement.

Many women shelved their calcium pills last year after an expert panel concluded they don't prevent osteoporosis-related fractures, at least in postmenopausal women. Recent studies have also tied calcium supplements to a higher risk of heart attacks and strokes.

For example, a 2010 report on dietary calcium by the Institute of Medicine concluded that most healthy adults don't need supplements because national surveys show average intakes are adequate.

"The problem is that the average is not exactly what everybody gets," says Bart L. Clarke, MD, an endocrinologist and associate professor of medicine at the Mayo Clinic in Rochester, Minn. "To take a supplement of about 500 milligrams a day, that amount makes up the difference, really, I think, for what most women's diets might be missing."

"This makes perfect sense to me. As long as they're not taking too much," Clarke says.

The Institute of Medicine recommends that nearly all adults get 1,000-1,200 mg of calcium a day to meet their daily needs for strong bones.

Calcium Levels Linked to a Common Hormone Disorder.

For the new study, researchers tracked more than 58,000 women taking part in the long-running Harvard Nurses' Health Study. Every four years, the women were asked about their diets and overall health.

Over the 22 years of the study, 277 women were diagnosed with primary hyperparathyroidism.

In hyperparathyroidism, the parathyroid glands release excess hormones that pull more than the needed amount of calcium out of the bones and then deposit it into the blood.

Diets low in calcium may chronically stimulate the parathyroid glands, which normally work like thermostats. When calcium levels dip, they effectively "turn on" and pull calcium from bone. When there's enough calcium coming in through food and other sources, they shut off. Their job is to keep calcium levels stable.

The high blood calcium caused by hyperparathyroidism can cause "trouble with the body's electrical system so that people become tired, fatigued, depressed. They get bad osteoporosis. Calcium collects in their kidneys and causes kidney stones," says James Norman, MD, chief of the Norman Parathyroid Center in Tampa, Fla., a center that specializes in surgery to remove parathyroid glands. Norman wrote an editorial on the study, but he was not involved in the research.

"It [hyperparathyroidism] often goes unrecognized because doctors aren't used to looking for it," Norman tells WebMD.

Hyperparathyroidism affects about 1 in 800 people, but it's more common as we age and especially in postmenopausal women. "One in 250 women over age 55 will get a parathyroid tumor in her lifetime," Norman says.

When researchers divided women in the study by their average calcium intake, they found dosed with the highest calcium intake at the lowest risk for developing Hyperparathyroidism.

The women who supplemented their diet 500 mg of calcium a day had a 40% to 70% reduced risk of the diagnosed with the disease compare to women who did not take the calcium supplement.

Study should be a part of the discussion about the calcium intake. Ultimately more research is needed to know if the benefits of supplements will outweigh any risk.

Original Article

BMI – Cholestrol & Sugar

Correlation of BMI with Cholesterol and Sugar in Adults

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1. Asstt. Prof. of Medicine, AJK Medical College Muzaffaraabad Azad Kashmir 2 Medical Specialist, CMH Multan 3. Consultant Physician, DHQ Hospital, Kotli Azad Kashmir.

ABSTRACT

Objective: This study was aimed to find the correlation of BMI with cholesterol and sugar level in adult

Place and Duration of Study: This study was carried out in Department of Medicine, Combined Military Hospital (CMH) Quita from 2006 to 2009.

Study Design: Prospective observational cross sectional studies

Materials and Methods: Individuals with different ages, sex were selected as study population. The cholesterol and fasting blood sugar were measured according to standard protocol. Height in centimeter and weight in kilograms of each individual was recorded and BMI calculated as kg/m^2. Physical examination was done for everybody. The SPSS-20 was used for statistical significant analysis. The frequencies of variable and correlation between BMI, heights, weight, sugar and cholesterol were comprehensively analyzed.

Results: A total of 2,174 adults, 1,947 (89.56%) male and 227 (10.44%) female were included in study. Age range was between 20 and 55years.The mean age was 38.47±12.66. Mean BMI was 23.57±2.58.Mean cholesterol was4.57±.60. Mean fasting blood sugar (FBS) was 4.67±.75.Mean weight 70.32±9.1 Mean height 172.73±.7.85.The correlation analysis revealed that weight, fasting blood sugar (FBS) and cholesterol had positive correlation with BMI [correlation coefficient of 0.734 (p<0.000), 0.167(p<0.000), 0.164 (p<0.000) respectively and height had negative correlation with BMI [-0.123 (p<0.000).

Conclusion: BMI is positively correlated with weight, RBS and cholesterol. The effect of age, sex, exercise and current medical status, this correlation is reduced.

Key Words: Body Mass Index, blood sugar, Cholesterol, Obesity

INTRODUCTION

High BMI has been associated with great morbidity and mortality worldwide.[1-2]The obesity is hazardous health problems. Overweight is defined as BMI of 25 to 29.9kg/m2 and obesity as a BMI of ≥30kg/m2. The mortality increases with increase prevalence of obesity[3].The overweight and Obesity have significant association with hypercholesterolemia and adults diabetes mellitus (DM)[4-5].Lipid metabolism is also adversely affected in obesity. The prevalence of these risk factors substantially increases with increasing BMI. Overweight and obesity are also known to be independent risk factor for atherosclerotic cardiovascular risk disease in adults[6] .Increased body weight is a major risk factor for the metabolic syndrome as well as coronary heart disease (CAD). Many studies have demonstrated that individuals with metabolic syndrome are at high risk for subsequent development of non insulin dependent diabetes mellitus (NIDDM). [7-9] .The Higher BMI and impaired glucose tolerance is prevalent in children and adolescents .The relationship between BMI, glucose and lipids have been studied earlier[11-14].The aim of the present study was to investigate the relationship of BMI with atherosclerotic cardiovascular risk factors like serum cholesterol and glucose level in adult population.

MATERIALS AND METHODS

This study was aimed to find association of BMI with blood sugars and cholesterol in adults. The data was collected during 2006 and 2009 by the team of expert doctors. This cohort population studied was belonging to same professional groups and socioeconomic class. The data regarding the name, gender, marital status, nature of job, smoking, medical and drug history was obtained, entered and analyzed in SPSSS 20. . Height and body weight were measured by anthropometry. Body Mass Index (BMI) was determined as weight divided by height squared (Kg/m2). BMI was divided into three groups 1:≤24.9, group 2: 25–29.9, and group 3: ≥30 as normal, overweight and obesity and assigned different categories. Fasting blood glucose and total cholesterol of each individual was measured. Frequency of variables calculated.

Quantitative data was expressed as Mean ±SD and comparison between genders analyzed by independent sample *t*-test. The comparisons of BMI groups were accomplished by one way ANOVA. Pearson's correlation coefficient for continuous data between BMI, weight, cholesterol, sugar and heights two tailed taken as significant at p<0.01 levels was used to show correlation between these variables.

RESULTS

A total of 2,174 individuals, 1,947 (89.56%) male and 227 (10.44%) female were examined. The mean age was 38.47±12.66. Mean BMI was 23.57±2.58. Mean cholesterol was4.57±.60. Mean fasting blood sugar (FBS) was 4.67±.75.Mean weight 70.32±9.1 Mean height 172.73±.7.85. Comparison of these parameters between males and females showed that BMI, weight, sugar and cholesterol were significantly higher in male but height though higher but statistically insignificant (Table-1). Overweight individuals had significantly higher level of FBS and cholesterol than individuals of normal weight (Table -2). Our correlation analysis revealed that weight, fasting blood sugar (FBS) and cholesterol had positive correlation with BMI [correlation coefficient of 0.734 (p<0.000), 0.167(p<0.000), 0.164 (p<0.000) respectively and height had negative correlation with BMI [-.123 (p<0.000). Table 2.

Table No.1: Gender Distribution of Cardiovascular Factors (Height, Weight, FBS and Cholesterol)

Parameters	Male n=1947	Female n=227	p-value
BMI	23.66±2.66	22.58±3.38	0.000
Height	174.28±6.88	159.50±6.88	0.950
Weight	71.82±7.84	57.49±9.60	0.000
Sugar	4.75±0.89	4.44±0.75	0.035
Cholesterol	4.57±0.61	4.51±0.53	0.039

Independent sample t-test for comparing means

Table No.2: Correlation between BMI, Height, Weight and Cholesterol (Correlation Coefficient (p)

	BMI	Height	Weight	Sugar	Choles-terol
BMI	1				
Height	-.123 (0.000)	1			
Weight	.734 (0.000)	0.578 (0.000)	1		
Sugar	.167 (0.000)	0-.038 (0.076)	0112 (0.000)	1	
Choles-terol	.164 (0.000)	0-.024 (0.272)	0.115 (0.000)	0.172 (0.000)	1

Correlation is significant at the 0.01 level (2-tailed

DISCUSSION

Overweight and obesity lead many complications including diabetes mellitus, dyslipidemia and CAD[15]. Most of the studies on CAD risk factors have been done in developed county[16-17]. The higher BMI increases these CAD risk factors[18]. In our study high BMI groups have significant statistical association with overweight and Obesity. These results have been demonstrated with many previous studies[19-20] .Our study showed cholesterol, and Fasting blood glucose level have positive correlation with BMI as reported in developing and developed population[21,22]. Differences have been reported in India and other studies [23,24].High BMI has predisposition to CVD in either sex[25]. In our study correlation of mean cholesterol and fasting blood glucose with BMI is statistical significant.

Limitations in our study was not direct measurement of body fat by using CT and MRI[26].Others limitations were non utilities of parameters like physical activities[27], dietary habits[28], level of education with smoking[29], and not measuring of visceral fats by utilization of waist and waist hip ratio[30,31]. Mean age in our study is actually representative of adult population. Our population compromising of healthy individual in contrary to general population with mean BMI in our study was below mean BMI reported earlier in our country[32]. In Asian high BMI has significant association with obesity [33-34]. High BMI has also correlation with overweight which is related to high food intake, genetic makeup and lack of exercise. As matter of fact our population has great risk of obesity as observed in world. As High BMI has major impact as atherosclerosis on health and associated with CVD and stroke. Therefore BMI should be routinely checked in clinical practice and epidemiological studies should be carried out to assess the atherosclerotic related disease burden in our society in order to make guidance for our population.

CONCLUSION

BMI is positively correlated with weight, RBS and cholesterol and is negatively correlation with weight.

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Original Article

Infection Control Practices Across Karachi: Do Dentists follow the Recommendations?

Operative Dentistry

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ABSTRACT

Objective: To assess infection control practices in Karachi, Pakistan. To investigate personal protective equipment such as gloves, mask and protective eye wear used in dental practice in Karachi, Pakistan
Study Design: Cross sectional descriptive study.
Place and Duration of Study: This study was carried out in Dental colleges, hospitals and private clinics of Karachi, Pakistan from January to March 2013.
Materials and Methods: A pre coded questionnaire was used to collect data from dentists working in different work places. The study included dentists working in Dental colleges, Hospitals and private clinics. Undergraduate dental students and dentists not having PMDC registration were excluded from the study. Total 251 completed questionnaires were obtained. The dentists filled the questionnaire and were categorized into three groups Specialist group, Post graduate trainees group and General dentists group, according to their qualifications. Descriptive statistics were computed and differences between groups were assessed through Chi square test using SPSS version 16.0.
Results: Statistically significant differences were observed in infection control practices of various groups of dentists regarding use of personal protective equipment, surface disinfection between Patients, disinfecting outgoing lab cases, use of sterilization wrappings and use of Sharps disposal system.
Conclusion: Infection control practices of the three groups of dentists were different. More over the infection control practices of dentists working in different work places was also different
Key Words: Cross infection control, Personal Protective equipment, Sterilization, Disinfection.

INTRODUCTION

Infection control is an important issue in dentistry, and the dentists are responsible for observing infection control protocols. Among health care professionals, dentists are more prone to infection due to their direct contact with blood and saliva on a daily basis in their offices. [1] In carrying out work dentists are exposed to a number of occupational hazards. In many cases they result in diseases which are regarded as occupational illnesses.

Infected persons are frequently unaware that they are infected and cannot be identified by medical history, or are unwilling to reveal their status for fear of disclosure or rejection for dental treatment. Thus professional organizations now recommend the use of universal precautions, so that all patients are treated as potential carriers of infection. There are reports of increasing compliance with recommended infection control over time. [2-5]

The results of previous studies indicate inappropriate knowledge, attitude, and practice regarding proper measures of infection control among dentists. [6-13]

Very few studies have been done in developing countries and Pakistan so far, therefore it was important to carry out a study which could help us determine and summarize the knowledge, attitude, and practice of dental professionals regarding infection control.

MATERIALS AND METHODS

This cross sectional study was carried out over a period of three months from Janruary to March 2013, in dental colleges, hospitals and private clinics of Karachi, Pakistan. A pre coded questionnaire was used to collect data from dentists working in different work places. The total sample consisted of 251 completed questionnaires. The dentists filled the questionnaire and were categorized into three groups Specialist group, Post graduate trainees group and General dentists group, according to their qualifications. Study included dentists working in Dental colleges, Hospitals and private clinics. Undergraduate dental students and dentists not having PMDC registration were excluded from the study. Data was collected by the primary investigator. Data collection was done using SPSS version 16.0. Descriptive statistics were computed and differences between groups were assessed through Chi square test. P-value ≤ 0.05 was taken as statistically significant.

RESULTS

The total sample size was 251, out of which 186 (74%) were general dentists, 44 (19%) were Post graduate trainees and 21 (8%) were specialists.

Most of the specialists (76.2%) washed hands before wearing gloves followed by post graduate trainees and general dental practitioners. All the specialists (100%) wore gloves, changed gloves between patients and

washed hands after removing gloves, followed by post graduate trainees and general dental practitioners. All the specialists and post graduate trainees (100%) wore masks while working on patients. Habit of changing masks after each patient was <50% in the three groups of dentists. A very low percentage (< 20%) of dentists in each group had a habit of wearing hair cap.

During general dental procedures, most of the general dentists (88.2%) wore lab coat followed by post graduate trainees and specialists. Majority of specialists (66.7%) wore eye wear followed by post graduate trainees and general dentists, results were statistically significant (p value = 0.005).

During surgical procedures, statistically significant difference (p value = < 0.005) was found amongst the three groups of dentists in wearing Personal protective equipment like lab coats, hair cap and surgical gowns. Majority of dentists wearing lab coats were general dentists (84%) followed by Post graduate trainees and specialists, as specialists had a trend of wearing surgical full gowns during surgical procedures. Majority of dentists wearing eye wear belonged to the specialist group (62%). Dentists wearing hair cap and full surgical gowns were mostly (55%) Post graduate trainees followed by specialists and general dentist practitioners.

There was statistically significant difference (p value = 0.000) amongst the three groups in case of surface disinfection between patients. Majority of dentists doing surface disinfection were specialists (90.5%) followed by post graduate trainees (56.8%) and general dental practitioners (46.2%).

Majority of dentists vaccinated against Hepatitis B belonged to the specialists and post graduate trainees group and general dental practitioners had lower number of dentists vaccinated. Results were statistically significant (p value = 0.05).

Most of the dentists (81%) sterilizing hand pieces belonged to the specialists group followed by general dental practitioners and postgraduate trainees. Trend of sterilizing triple syringes between patients was low (< 39%) amongst the dentists and majority of dentists sterilizing triple syringes were specialists (38.1%). Disinfection of lab cases was done mostly by specialist group (61.9%) followed by postgraduate trainees and general dental practitioners. Disposing of sharps in sharps disposal box was highest in Specialist group (76.2%) followed by postgraduate trainees and general dental practitioners.

Dentists in general did not consider following infection control protocols a financial burden.

DISCUSSION

Cross infection control is an important aspect of dentistry. All patients should be treated as infectious as disease status could be often unknown, this would help in stopping spread of infections. According to the results of our study, the use of gloves and face mask was most prevalent while the use of protective eye wear, hair caps and surgical gowns was low. These findings are in accordance with other studies as well.[9, 14-18]

An important factor related to spread of infectious agents is failure to change gloves and masks between patients. It is important to use them and change them during dental treatment to prevent cross infection from patient to patient. [19] According to the results of the study dentists had a habit of changing gloves between patients but very few changed masks between patients.

The rule of thumb in personal protective equipment is that when splash/splatter or mist is anticipated full personal protective equipment (eye wear, hair caps, gowns, mask and gloves) is worn, [16,20] this was observed in our study as well that during surgical procedures more dentists wore full personal protective equipment.

Aseptic techniques, including surface disinfectant and disposable surface barriers intended to control cross contamination were lacking in the different groups of dentists. The use of ultrasonic instruments cleansers and sharps containers, to dispose of regulated waste were both minimal in the groups of dentists. These items should ideally be used to prevent injuries from sharps. Use of autoclavable handpieces, triple syringes, including endodontic and orthodontic instruments also varied to a great extent. Respondents responded poorly to infectious diseases and universal precautions with the specialist group implementing guide lines more than trainees and general dental practitioners. This is in general comparable to trends throughout world. [21, 22]

Nearly 95% dentists were immunized against HBV with the specialist and post graduate group having highest rates of immunization. These results are higher as compared to other studies. [9, 10, 14, 15, 23]

According to a study 16 Pakistan, China, Philipines and South Korea scored poorly on both perceived and tested knowledge of infectious diseases. [16]

Significant number of respondents lacked knowledge of universal precautions. Thus we deduce lack of understanding in appropriate use of personal protective equipment and provision of treatment for all patients.

In the light of these considerations, it is clear that dental health care workers need to adopt a policy of prevention; combining the various preventive measures available can effectively reduce microbial contamination and the risk of occupational infection and cross-contamination. This approach is strongly supported by organizations such as the Centre of disease control (CDC), the American Dental Association, schools of dentistry, and other associations.

Despite these caveats, we remain optimistic and confident that important improvements in infection control practices continue to be made in the dental

community. Studies done in Pakistan [9, 10] and well developed countries like Canada showed an increased trend towards personal protective equipment.. [24] It will be important to reevaluate this issue to determine whether improvements continue.

CONCLUSION

Infection control practices of the three groups of dentists were different. More over the infection control practices of dentists working in different work places was also different therefore strategies aimed at raising the awareness and importance of following infection control protocols could help in implementation of the Centre of Disease Control (CDC) recommendations. Including infection control education in dental schools and allied health curricula could improve the implementation of guidelines across dental practices.

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Original Article

Antepartum Haemorrhage

A Survey of Pregnancies Complicated by Antepartum Haemorrhage

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ABSTRACT

Objective: To find out the demographic profile, type of antepartum haemorrhage, maternal and perinatal complications and maternal and perinatal mortality.
Study Design: Prospective study
Place and Duration of Study: This study was a carried out at Gynae B, Labour Room, Khyber Teaching Hospital Peshawar for a period of one year from January 2013 to December 2013.
Materials and Methods: This study was carried over on patients who presented to gynae B labour room Khyber Teaching Hospital Peshawar with antepartum haemorrhage. All the patients were admitted and relevant informations including age, parity, booking status, education, residence and occupation etc. were noted in the study proforma. Patients were followed till discharge.Records about mode of delivery, intrapartum and postpartum complications were made. Details of the babies like weght, sex, maturity, apgar score, whether live or dead were recorded and data analyzed.
Result: Incidence of ante partum haemorrhage was 3.01% Maternal and perinatal morbidity was very high with increase rates of anaemia (100%) cesarian section rates (68%) post partum haemorrhage (11.5%), need of blood transfusion (100%). Puerperal pyrexia (13.1%) coagulation failure (11.5%) low birth weight (36%) and birth asphyxia. Maternal and perinatal mortality was very high(2.1%) and (37%) respectively.
Conclusion: Antepartum haemorrhage is a grave obstetrical emergency associated with very high maternal and perinatal mortality and morbidity.
Key words: Antepartum Haemorrhage, Perintal Mortality and Morbidity. Placental Abruption, Placeta Praevia.

INTRODUCTION

Antepartum haemorrhage is a grave obstetrical emergency and major contributor to maternal and perinatal mortality and morbidity. Antepartum haemorrhage complicates 2 to 5% of pregnancies and is defined in some literature as bleeding from or into genital tract after 20 weeks of gestation until delivery in industrialized countries [1] (Amitava et al., 2010) and 28 weeks in countries with low resource settings, lacking adequate neonatal care facilities and one of the major contributors to obstetric emergencies in our health facilities [2] (Lamina and Oladapo,2011). Identifiable causes of antepartum haemorrhage are recognized in 50% of cases, and in other 50% the causes are unknown despite an exhaustive search to determine aetiology of bleeding. The main causes of antepartum haemorrhage are placenta praevia (31%) and placental abruption (22%).The other causes (47%) include marginal sinus bleeding 60%,heavy show (20%), vasa praevia (0.5%), cervicitis (8%), genital trauma (5%),varicosities (2%), tumours, infections and coagulation defects 0.5% each [3] (Chan andTo,1999).

Antepartum haemorrhage contributes significantly to maternal and perinatal mortality and morbidity.[3] Blood loss is often underestimated and the amount visible may only be a portion of the total volume of haemorrhage. (e.g with a concealed placental abruption).Women with a history of antepartum haemorrhage are at increased risk of adverse perinatal outcomes including small for gestational age, congenital anomalies, intrauterine growth restriction, and birth asphyxia, therefore initiation of serial ultrasound is recommended.[5,6] Other risks include oligohydramnias, premature rupture of membranes, preterm labour, labour induction, cesarean delivery, puerperal pyrexia, sepsis, shock, disseminated intravascular coagulation, anaemia retained placenta, postpartum haemorrhage and increased maternal mortality.[5,6]

Placenta praevia is defined as placenta that lies wholly or partially in the lower uterine segment. The prevalance of clinically evident placenta praevia at term is estimated to be approximately 4 or 5 per 1000 pregnancies.[7,8,13] Classically placenta praevia is divided into four types or grades. Type 1 and type 2 are regaded as minor and type 3 and 4 are regarded as major degrees of placenta praevia.Care must be taken not to confuse these grades with grades of placental maturity. Ultrasound remains the method of choice in diagnosing placenta praevia.[7,8,13]

Placenta praevia is classified as follows:

Type1: The placenta encroaches into lower uterine segment and lies within 5cm of internal cervical os.

Type2: The placenta reaches cervical os but does not cover it.

Type 3: The placenta covers the cervical os but the placental site asymmetric with most of the placenta being on one side of the cervical os.

Type4: The placenta is completely covering the cervical os.

Classification of placenta praevia is important in making management decision as the incidence of

maternal and foetal mortality and morbidity increases as the grades of placenta increases. The classification is difficult to use in practice, because the definition of lower uterine segment is more conceptual than anatomical. In any case with the availability of ultrasound, this classification has become obsolete. Currently the condition is diagnosed with ultrasound.

In the report of confidential inqiueries into maternal mortality over 2000-2002 in UK (why mothers die 2000-2002), there were 17 maternal death due to haemorrhage. Out of these 17 deaths, 4 were due to placenta praevia.[13]

Placental abruption is premature separation of normally situated placenta from the uterine wall resulting in haemorrhage before the delivery of the foetus.[9,10,13] Placental abruption is diagnosed clinically and is unpredictable. The management has changed little over the recent past. It occurs in around one in 80 deliveries and remains a significant source of perinatal mortality and morbidity.[9.10,13] Recent large epidemiological study reports an incidence ranging from 5.9 to 6.5 per 1000 singleton births and 12.2 per 1000 twin births. Perinatal mortality reported to be is119per 1000 births complicated by abruption. The risk of abruption recurring in subsequent pregnancies is increased as much as 10 fold.[9,10,13]

Placental abruption is graded as follows:

0: Anasymptomatic retroplacental clot seen after placental delivery.

1: Vaginal bleeding and uterine tenderness, visible retroplacental clot after delivery.

2: Revealed bleeding may or may not be present but placental separation is significant enough to produce evidence of foetal compromise and retroplacental clot visible after delivery.

3: Revealed bleeding may or may not be seen, but there are significant maternal signs (uterine tetany, hypovolumia, abdominal pain),with late stage foetal compromise or foetal death.30% of these women will develop disseminated intravascular coagulation (DIC).

Abruption has historically been associated with poor maternal and foetal outcomes. In the last Confidential Enquiery into maternal deaths, two deaths were due to abruption, though these were not thought to have been preventable.[13]

Vasa praevia is the presence of unsupported foetal vessels below the foetal presenting part, where the cord insertion is velamentous.[11,13] It is rare but consequences are disastrous if not diagnosed prenatally. Vasa praevia has an incidence of approximately one in 6000 deliveries.[13] Oyeles et al, demonstrated the importance of prenatal diagnosis. In the group where prenatal diagnosis had been made, 97%survived as opposed to only 44%, where the diagnosis had not been made before birth. The diagnosis of vasa praevia can be confirmed by Doppler and endovaginal ultrasound studies if aberrant vessels are seen running over internal cervical os.

The exact cause of bleeding in late pregnancy is unknown in about half of the cases.[5,6,13] The women typically presents with painless vaginal bleeding without ultrasound evidence of placenta praevia. In a small proportion of cases where placenta praevia and abruption has been excluded, a cause may still be found. They include heavy show, cervicitis, trauma, genital tract tumours, infections, varicosities and haematuria. Many of these conditions are evident on speculum examination.

Maternal mortality due to antepartum haemorrhage has significantly decreased in developed countries due to better obstetrical outcome. In Pakistan maternal and perinatal mortality is still very high due to associated problems like anaemia, difficulties in transport in case of emergency and restricted medical facilities. Present study was planned to study maternal and perinatal outcome in patients of antepartum haemorrhage at tertiary care referral hospital.

MATERIALS AND METHODS

This is prospective study carried over a period of one year from Jan2013 to Dec 2013 on patient who presented to Gynae B labor room Khyber teaching Hospital Peshawar with antepartm haemorrhage. All the patients with antepartum Haemorhage were admitted and emergencies resuscitative measure taken if needed. Relevant information including age , parity , booking status, education, occupation and residence of the patients were noted in the study performa. Patients were followed till discharged. Record about mode of delivery, maternal complication, prceclampsia, malpresentation, anaemia, retained placenta or placenta accreta, postpartum haemorrhage need of blood transfusion and puerperal sepsis etc. were analyzed. Details of babies like weights, Sex, maturity apgar score whether live or dead were recorded and then all data analyzed.

RESULTS

Results are shown in table 1 to 6. There were total of 3085 deliveries during one year and 95 patients had antepartum Haemorrhage during the study period. So, the incidence of antepartum haemorrhage was 3.07%.Out of 95 deliveries, one woman had twin delivery while two had hystrotomy for previable fetuses with severe abruption, thus total number of babies delivered were 94.The women were in the age group of 18 – 40yrs, maximum number 50(52%) were in the age group of 28-40, while the rest were in age group of 18-28 85% women were multigravida while only 10% were primigravida. All women were from rural areas except for five women who came from urban areas. Out of the total 95 women only 9 were registered. Malpresentations were present in 9 women. Out of

these 9 women 5 and 4 were breech and transverse lie respectively. All the women were anaemic (haemoglobin less than 11gm%).7%had haemoglobin level less than 5gm%.More than half of the women had placenta praevia and about one fourth had abruptio placenta.13 cases of placenta praevia were associated with previous lower segment cesarean section. Out of these 13 cases 6 were associated with placenta accreta. 5 of six cases underwent hysterectomy for intrapartum haemorrhage. One case of placenta praevia with previous 4 cesarean section and accreta was complicated by bladder trauma and later on fistula formation. One other got expired due to severe intrapartum haemorrhage. One case of placenta accreta received post op methotrxate therapy and was cured. It was a small chunk morbidly adherent to endometrium, so left as such. This was later on expelled spontaneously after methotrexate therapy without any complication of postpartum haemorrhage. Cesarean section rate was very high (68%).50% were for placenta praevia and 15% were for abruption. Out of those 50% one c. section was for unclassified severe antepartum haemorrhage and 2 were for type 1 placenta praevia with severe haemorrhage. The rest were for type2, 3and 4 placenta praevia.40babies were transferred to nursery. Out of these 11 babies got expired, 4 left against medical advice and the rest discharged alive. All the women needed blood transfusion. The need for blood transfusion was one unit, two units,three units and more than three units in ten, fifty, twenty and fifteen women respectively. Three women had hysterectomy for postpartum haemorrhage due to couvalaire uterus. Two women who died,one had abruptio placenta complicated by disseminated intravascular coagulation, other had placenta praevia with accreta who went into irreversible shock due to severe intrapartum haemorrhage.

Table No.1: Demographic profile of women with Antepartum haemorrhage.

Parameter		Number of women	%age
Booking Status	Unregistered	86	90.5%
	Registered	9	10.2%
Residence	Rural	90	94.7%
	Urban	5	5.2%
Parity	Primi	10	10.5%
	Multi	85	89.4%
Occupation	Housewife	80	84.2%
	Labourer	11	11.5%
	Service	4	4.2%
Education	Illiterate	90	94.7%
	Matric	3	3.15%
	Higher	2	2.1%

Table No.2: Types of Antepartum haemorrhage

Parameter	Number of women	Percentage
Placenta Praevia	63	66.3%
Type 1 p.praevia	17	26.9%
Type 2 p.praevia	11	17.4%
Type 3 p.praevia	4	6.3%
Type4p.praevia	31	49.2%
Abruptio placentae	25	26.3%
Vasapraevia	0	0%
Unclassified Hemorrhage	3	3.15%
Accreta	6	19.3%

Table No.3: Details of Babies

Parameter	Number of women	Percentage
Maturity		
Less than 34 weeks	25	26.3%
34----------37weeks	15	15.7%
More than 37 weeks	55	57.8%
Weight of the babies		
Less than 1.5kg	7	7.3%
1.5---------2.5kg	33	34.7%
More than 2.5kg	55	57.8%
Perinatal mortality		
Stillbirth	25	26.3%
Died in nursery	11	11.5%
Alive	59	62.1%
Sex(male)	60	63.1%
Female	34	35.7%

Table No.4: Maternal Complications

Parameter	Number of women	Percentage
Post partum haemorrhage	11	11.5%
Blood transfusion	95	100%
Coagulation Failure	11	11.5%
Puerperal Pyrexia	13	13.6%
Maternal mortality	2	2.1%
Lower segment c.section	65	68.4%

Table No. 5: Perinatal complications:

Parameter	Number of women	Percentage
Low birth weight	35	36.8%
Prematurity	40	42.1%
Low Apgar score	29	30.5%
Iugr	2	2.1%
Shifted to nursery	40	42.1%
Perinatal mortality	36	37%

Table No.6: Associated Obstetrical conditions

Disorder	Number of women	Percentage
Anaemia	95	100%
Pre-eclampsia	15	15.7%
RH-negative	11	11.5%
Multiple pregnancy	1	1.05%
IUGR	2	2.1%s
Malpresentation	9	9.4%
Prematurity	40	42.1%
Previous C.Section	13	13.6%
Previous 1	7	7.3%
Previous 2	1	1.05%
Previous 3	3	3.1%
Previous 4	2	2.1%

DISCUSSION

There were 95 women with antepartum haemorrhage and incidence was 3.07% which is almost same as that of Arora et al, who reported 2.53% incidence of antepartum haemorrhage. Mean age was 28yrs, which is the same as the study of Das et al.Incidence of antepartum haemorrhage was more in multigravida (85%) than primigravida (10%).Other studies have also reported high incidence of antepartum haemorrhage in multipara, which was about 5-8 times higher than primigravida.40%women had preterm delivery while Silver et al and Cotton et al observed very high association of prematurity with antepartum haemorrhage of the range of 70% and 77.5% respectively. Incidence of blood transfusion was very high (100%) in the present study while Brenner et al and Willikan et al repoted 36% and 52.4%incidence of blood transfusion respectively. Very high rates of blood transfusion in the present study might be due to reasons that all patients were already anaemic at the time of admission.11%women had postpartum haemorrage (PPH) which is less than shown in study by Crane et al. (21%).Maternal mortality in the present study was 2.1%(2deaths) which is consistent with the study of Motwani et al.40% babies were low birth weight, while Arora et al and Khosla et al reported 77% and 66% low birth weight babies respectively. There were male predominance in the present study, 60% males and 34% females. Similar male predominance in antepartum haemorrhage is observed by other authors. The reason for this association is not clear. Perinatal mortality was 37% while other authors like Arora et al and Khosla et al reported a very high perinatal mortality rate of 61.3% and 53.5% respectively. There was very high maternal morbidity with increased rates of anaemia, postpartum hemorrhage, blood transfusion, cesarean section rate, puerperal pyrexia, sepsis, shock and coagulation failure. Similarly perinatal morbidity was very high in the form of low birth weight babies, Iugr and birth asphyxia

CONCLUSION

Antepartum haemorrhage was found to be associated with poor maternal and neonatal outcome in this study and the major predictor was booking status. There is need to improve on infrastructures, such as functional blood banks, quality of care and referral system in our health facilities to be able to cope with increasing challenges of this obstetric haemorrhage.

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Original Article

Appendectomy

Compare the Complications of Laparoscopic versus Open Appendectomy

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ABSTRACT5.

Objective: To compare the complications of laparoscopic versus open appendectomy.
Study Design: Retrospective study
Place and Duration of Study: This study was conducted at Dow University Hospital from June 2012 to June 2014.
Methodology: Data was analyzed by reviewing patient records, patients bills records and patient discharge sheet. Each data was double checked and thoroughly supervised by author himself to assure quality and validation of the data collected. The information reviewed of patients with diagnosis of acute appendicitis included, age , sex, time taken for bowel function restoration, use of analgesia, postoperative stay and its clinical evaluation and confirmed by USG of abdomen requiring operation and total charges. Patients included who were operated in surgical unit I. Patients who were identified with associated gynecological disease, to be at high risk for general anaesthesia, had a past history of lower abdominal surgeries, appendicular abscess were excluded.Data was analyzed through SPSS software.
Results: 73 patients who underwent appendicectomy. Out of which 24(32.87%) patients operated laparoscopically and 49(67.12%) patients by open method. The mean age for open appendectomy was 26.53 ± 12.3 years whereas, for laparoscopic appendectomy it was 29.9 ± 13.3 years. Intraoperative findings were normal appendix 4(16.66%) in OA group and 2(4.08%) in LA group, Acute appendicitis 12(50 %) in OA group and 31(63.26%) in LA group, Gangrenous appendicitis 3(12.5%) in OA group and (14.28%) in LA group, Appendiceal abscess 4(16.66%) in OA group and 5(10.20%) in LA group, Peritonitis 1(4.16%) in OA group and 3(6.12%) in LA group. Post operative complications were observed in both groups. Wound infection 5(20.83%) in OA group and 2(4.08%) in LA group, Intra-abdominal abscess 1(4.16%) in OA group and 1(2.04%) in LA group, Bowel obstruction 3(12.5%) in OA group and 2(4.08%) in LA group, Respiratory infection 2(8.33%) in OA group and 1(2.04%) in LA group.
Conclusion: This retrospective comparative assessment indicates that the patient chart reduces the incidence of complications in LA was wound infection, intestinal damage, intra-abdominal abscesses, intestinal obstruction and respiratory infections.
Key Words: Laparoscopic Appendectomy, Open Appendectomy, intraoperative complications, postoperative complications.

INTRODUCTION

Abdomen accommodates number of viscera and other anatomical structures, diseases of the abdomen which constitutes various clinical curiosity. A detailed abdominal examination is considered to be the best way to reach diagnosis. Acute appendicitis is one of the commonest causes of acute abdomen encounteres in surgical practice, requiring emergency surgery [1,2].

It has been observed that males had higher rates of appendicitis than females for all age groups with an overall ratio of 1.2 to1.3:1.3. Advance diagnostic tools, surgical skills, antibiotic therapy have decreased mortality from 50% to less than 1/1,00,000 persons. Morbidity is still around 5-8% just because of late diagnosis & treatment and leading to complications[3].

The laparoscopic technique provides an opportunity to manage the suspected cases of the acute appendicitis. It combines the benefits of diagnosis and required treatment in same setting. Patients experience less post-operative pain and return to daily activities of living earlier than those who underwent an open appendicectomy. Better cosmesis, exploring full peritoneal cavity to reach pinpoint diagnosis and peritoneal wash without further incision are other advantages of laparoscopy and furthermore its effectiveness is increasingly being employed in young women of child bearing age in whom the differential diagnosis of right lower abdominal pain is extensively difficult [4,5].

Semm, a German gynaecologist who performed first laparoscopic appendicectomy in 1981 [6]. Unlike laparoscopic cholecystectomy, laparoscopic appendectomy has not yet gained same popularity. Open appendectomy (OA) has withstood the test of time for more than a century since its introduction by McBurney the procedure is standardized among surgeons. It is most common intraabdominal surgical emergency, with a lifetime risk of 6% +7.

The validation of a minimally invasive technique for appendecectomy may improve the outcome in terms of patient management. Various studies and critical reviews in literatures published on LA revealed a general view that different measured variables and other weaknesses in the methodology have not allowed a concrete conclusion [4,5].

Bearing this concept, we designed a retrospective study (RS) comparing the effectiveness of LA to OA in the management of appendicitis.

MATERIALS AND METHODS

This is retrospective study conducted at Dow University Hospital from June 2012 to June 2014 . Data was analyzed by reviewing patient records, patients bills records and patient discharge sheet. Each data was double checked and thoroughly supervised by author himself to assure quality and validation of the data collected.

The information reviewed of patients with diagnosis of acute appendicitis included, age , sex, time taken for bowel function restoration, use of analgesia, postoperative stay and its clinical evaluation and confirmed by USG of abdomen requiring operation and total charges. Patients included who were operated in surgical unit I. Both elective and emergency procedures were considered in this study. Complete data of all patients who were admitted through the Emergency Department for surgery, with no known co-morbidities, and no previous lower abdominal surgeries were included for chart review. Patients who were identified with associated gynecological disease, to be at high risk for general anaesthesia, had a past history of lower abdominal surgeries, appendicular abscess were excluded.

Open appendicectomy was performed either under general anesthesia, through a muscle splitting incision in the right iliac fossa. The base of the appendix was crushed and ligated and the stump of the appendix was not invigilated. Laparoscopic technique performed under general anesthesia using a verse needle at Pamer's point for creating pnemoperitoneumand standardized 3 port approach . The appendix was divided after double ligation of the base. Appendix extraction was performed in glove made as endobag to protect the wound from contamination during removal.

RESULTS

The results of the analysis of data on 73 patients who underwent appendicectomy. Out of which 24(32.87%) patients operated laparoscopically and 49(67.12%) patients by open method. The mean age for open appendectomy was 26.53 ± 12.3 years whereas, for laparoscopic appendectomy it was 29.9 ± 13.3 years. There were younger people in the groupof open appendectomy compared to laparoscopic appendectomy. Overall, there were more male patients who had undergone both the surgeries.

Among open appendectomy group, 29(59.18%) patients were males and 20(40.8%) patients were female, as compared to 15(62.5%) patients were male and 9(37.5%) patients were female in laparoscopic appendectomy group. Overall, there was no significant statistical difference in demographics and clinical presentation between laparoscopic and open appendectomy groups.

Out of the total 73 procedures, 24(32.87%) patients operated laparoscopically and 49(67.12%) patients by open method. Intraoperative findings were normal appendix 4(16.66%) in OA group and 2(4.08%) in LA group, Acute appendicitis 12(50 %) in OA group and 31(63.26%) in LA group, Gangrenous appendicitis 3(12.5%) in OA group and (14.28%) in LA group, Appendiceal abscess 4(16.66%) in OA group and 5(10.20%) in LA group, Peritonitis 1(4.16%) in OA group and 3(6.12%) in LA group (Chart No.1).

Post operative complications were observed in both groups. Wound infection 5(20.83%) in OA group and 2(4.08%) in LA group, Intra-abdominal abscess 1(4.16%) in OA group and 1(2.04%) in LA group, Bowel obstruction 3(12.5%) in OA group and 2(4.08%) in LA group, Respiratory infection 2(8.33%) in OA group and 1(2.04%) in LA group(Chart No.2).

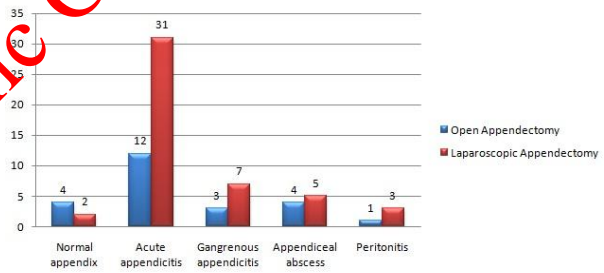

Chart No.1: Intraoperative findings

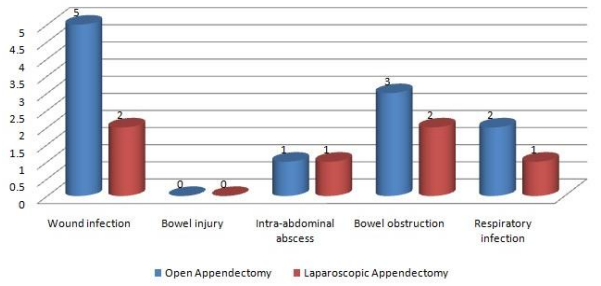

Chart No.2: Postoperative complications

DISCUSSION

In the past two decades, laparoscopic surgery has gained great popularity throughout world. Laparoscopic surgery has radically changed the field of surgery. With the improvement of equipment and increasing clinical experience is now possible to perform almost any type of procedures within the laparoscopic visualization[8].

Early diagnosis and immediate surgery is the preferred treatment option for the prevention of complications such as perforation, which can lead to increased morbidity. Laparoscopic skills of experienced laparoscopic surgeons can be transferred to different tasks without increasing morbidity. Minimally invasive surgery requires different skills and technical knowledge[9]. Thus, the results of different studies are dependent upon experience and technique surgeons.

In our study mean age for open appendectomy was 26.53 ± 12.3 years whereas, for laparoscopic appendectomy it was 29.9 ± 13.3 years. However in the study of Yasmin Vellani [10] showed that mean age for open appendectomy was 23.85 ± 13.3 years and laparoscopic appendectomy it was 32.9 ± 13.3 years.

Women in the high rate of misdiagnosis gynecological and women may be due to functional abnormalities. Therefore, patients with suspected appendicitis, LA, visible improvements in accuracy and unnecessary appendectomy[11].In our study 29(59.18%) patients were males and 20(40.8%) patients were female, as compared to 15(62.5%) patients were male and 9(37.5%) patients were female in laparoscopic appendectomy group. While in the study of Manish M. Tiwari [12] showed male 52.9% in LA and 59.9% OA and female 47.1% LA , 40.1% OA.

In our study intraoperative findings were normal appendix 4(16.66%) in OA group and 2(4.08%) in LA group, Acute appendicitis 12(50 %) in OA group and 31(63.26%) in LA group, Gangrenous appendicitis 3(12.5%) in OA group and (14.28%) in LA group, Appendiceal abscess 4(16.66%) in OA group and 5(10.20%) in LA group, Peritonitis 1(4.16%) in OA group and 3(6.12%) in LA group. While in the study of Ioannis Kehagias [13], Of all the open procedures 165, 118 (71.5%) were for simple appendicitis and 47 (28.5%), including complicated appendicitis with perforation disease or extensive local peritonitis. In the laparoscopic group, 90 (70.3%) participated disease simple procedure and 38 (29.7%), complicated appendicitis. In addition, 16 (9.6%) open and 8 (6.2%) laparoscopic procedures, there was no pathology in the appendix and other structures in the abdomen.

Create an abscess in the abdominal cavity was more common after laparoscopic appendectomy in a complex disease. It was suggested that by passing carbon dioxide can promote the proliferation of bacteria in the mechanical peritoneal cavity, and especially in case of breakage of the additive. In order to reduce the bacterial load and thus the risk of abscess support a wide wash the abdominal cavity. However, in our practice, we can conclude that it was not necessary meticulous irrigation and even more dangerous, because it leads to contamination of the entire abdominal cavity. In our study we observed Intra-abdominal abscess 1(4.16%) in OA group and 1(2.04%) in LA group. However in the study of Ioannis Kehagias [13], reported Intra-abdominal abscess formation was more common after laparoscopic appendectomy (5.3% vs 2.1%).

The reduction of wound infection is a major advantage of wound infection LA. OA is greater partly because appendicitis was removed from the abdominal cavity through the wound directly, and LA is discharged through a bag or trocar. Furthermore, the wound site in the harbor of LA is smaller compared with OA majority of wounds, especially in obese patients[14]. In our study wound infection 5(20.83%) in OA group and 2(4.08%) in LA group. While in the study of Xiaohang Li [14] Thirty studies reported a frequency of postoperative wound infection. The meta-analysis of the model of stable, showed 3.81% (76/1994), the incidence of infection in the LA, compared to 8.41% (174/2069) for OA.

Postoperative bowel obstruction was observed in patients with complicated disease in both study groups (10.6% after conventional appendectomy and 7.8% after laparoscopic appendectomy) [13]. However in our study observed bowel obstruction 3(12.5%) in OA group and 2(4.08%) in LA group.

CONCLUSION

Our research has found that a change in the surgical approach to suspected appendicitis management is safe and effective. This retrospective comparative assessment indicates that the patient chart reduces the incidence of complications in LA was wound infection, intestinal damage, intra-abdominal abscesses, intestinal obstruction and respiratory infections.

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Original Article

Use of Intranasal Splints to Prevent Post Operative Nasal Synechia Formation

Nasal Synechia

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ABSTRACT

Objective: This study was conducted to see the effect of intranasal splints in preventing post operative nasal synechia in patients who underwent intranasal surgery.

Study Design: Observational and descriptive study.

Place & duration of study: This study was carried out at the Department of ENT, Islam Teaching Hospital, affiliated to Islam Medical College, Pasrur road, Sialkot, Pakistan: from June 2007 to December 2013.

Materials and Methods: Fifty four patients coming to Islam Teaching Hospital Sialkot from September 2012 to December 2013 were selected. Intransal splints were used in all patients after the intransal surgery. Nasal pack was removed on 1st or second post operative day. Intranasal splints were removed on 7th post operative day in the clinic without anesthesia. Follow up was done on 7th post operative day, 2 weeks and then monthly for 3 months.

Results: In this study there were 36 cases (66.7 %) were among male patients and 18 cases (33.3 %) were among female patients. The Maximum age of the patients in this study was 45 years and minimum age of the patients was 9 years and mean age was 25.70. There were 2 cases (3.7 %) of septal abscess drainage, 2 cases (3.7 %) of septal hematoma drainage, 8 cases (14.8 %) of Septoplasty, 2 cases (3.7 %) septoplasty and bilateral partial inferior turbinectomy, 6 cases (11.1 %) of septoplasty plus bilateral partial inferior turbinectomy, 4 cases (7.4 %) of septoplasty plus left inferior turbinectomy & septoplasty plus manipulation of fractured nasal bones, 2 cases (3.7 %) of septoplasty plus nasal cauterization, 20 cases (37 %) of septoplasty plus right inferior turbinectomy, 2 cases (3.7 %) of septoplasty plus right inferior turbinectomy plus trimming of right middle turbinate & septoplasty plus right intranasal polypectomy. There were 10 patients (18.5 %) in which the nasal pack was removed on 1st day and 44 patients (81.5 %) in which nasal pack was removed on 2nd day.

Conclusion: Intranasal splints made of intravenous fluid bottle soft plastic are well tolerated and they were effective in preventing nasal synechia formation.

Key Words: Intranasal splints, intravenous fluid bottle soft plastic, nasal synechia formation.

INTRODUCTION

Nasal adhesions/ synechia are a well established complication of intranasal surgery.[1] The most commonly performed intranasal procedures are septoplasty, turbinectomy, intransal polypectomy and endoscopic sinus surgery. The raw surfaces of the nasal cavity with injured nasal mucosa when come in contact during the post operative period result in nasal adhesions. Intranasal procedures which involve both lateral and medial walls of the nasal cavity result in a higher incidence of such adhesions.[2] Intranasal splints prevent nasal adhesion formation by not allowing the raw mucosal surfaces of the nasal cavity to come in contact during the post operative period. The intranasal splints are removed on 4th to 7th post operative day. The splints are usually secured in the midline with a non absorbable suture passing through the splints and the nasal septum.[3]

Nasal splints first time used in intranasal surgery by Salinger and Cohen in 1955 to keep the septum in position after septal surgery. [4] The commonest reason for using nasal splints which was mentioned by pringle in UK was to prevent the formation of adhesions.[05] The scope for using intranasal splint has includes holding septal grafts in position and as a means of securing anterior nasal packs in the treatment of epistaxis.[6]

Several types of materials have been used in the past such as strips of x-ray film, and the polyethylene tops of coffee cans, drug and intravenous fluid containers, silicon or soft splints, Wax plate splints, magnet-containing silicone rubber intranasal splints, Guastella/ Mantovani septo-valvular splint can be left in situ as long as needed (up to 4 weeks) without interfering with normal nasal physiology.[7] Since its introduction 56 years ago intranasal splints has become, after Pressure equalization tubes, the most frequently used prostheses in otolaryngology.[8] According to the Royal National Throat, Nose and Ear Hospital in London, UK, silicon is the most common material used for nasal splints.[9]

Many ENT specialists still use intranasal splints in nasal surgery, although their practice was not based on any scientific evidence of their effectiveness. Despite this the available literature does not give a clear definition of its role in intranasal surgery.[10].

MATERIALS AND METHODS

Fifty four patients coming to Islam Teaching Hospital Sialkot from September 2012 to December 2013 were selected.

Inclusion criteria: Patients who underwent intranasal surgery.

Exclusion criteria: patients with intranasal malignancy or congenital nasal deformities.

Informed consent regarding the procedure was taken.

Intransal splints were used in all patients after the intransal surgery.

Nasal pack was removed on 1st or second post operative day. Intranasal splints were removed on 7th post operative day in the clinic without anesthesia. Follow up was done on 7th post operative day, 2 weeks and then monthly for 3 months.

RESULTS

In this study there were 36 cases (66.7 %) were among male patients and 18 cases (33.3 %) were among female patients as shown in Table No 1.

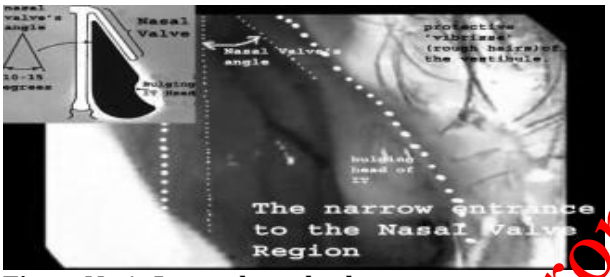
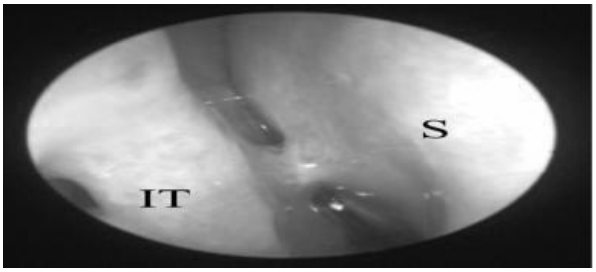


Figure No.1: Internal nasal valve.

Table No 1: Sex distribution

S. No	Sex	Cases	Percentage
01	Male	36	66.7 %
02	Female	18	33.3 %
	Total	54	100 %



Figure(2): Synechiae between right inferior turbinate and nasal septum.

Table No 2: The age of patients included in the study ranged from 9 years to 45 years.

S. No	Limit	Age
01	Maximum	45
02	Minimum	09
03	Mean	25.70

Table No 3: Distribution of types of surgical procedures.

S. No	Type of surgical procedure	No of Cases	%age
01	septal abscess drainage	2	3.7
02	septal hematoma drainage	2	3.7
03	Septoplasty	8	14.8
04	septoplasty and bilateral partial inferior turbinectomy	2	3.7
05	septoplasty plus bilateral partial inferior turbinectomy	6	11.1
06	septoplasty plus left inferior turbinectomy	4	7.4
07	septoplasty plus manipulation of fractured nasal bones	4	7.4
08	septoplasty plus nasal cauterization	2	3.7
09	septoplasty plus right inferior turbinectomy	20	37.0
10	septoplasty plus right inferior turbinectomy plus trimming of right middle turbinate	2	3.7
11	septoplasty plus right intranasal polypectomy	2	3.7
12	Total	54	100.0

Table No 4. Postoperative examination and timing of removal of nasal pack.

S. No	Pack removal	No of Cases	Percentage
01	1st day	10	18.5 %
02	2nd day	44	81.5 %
	Total	54	100 %

The Maximum age of the patients in this study was 45 years and minimum age of the patients was 9 years and mean age was 25.70 as shown in Table No 2. There were 2 cases (3.7 %) of septal abscess drainage, 2 cases (3.7 %) of septal hematoma drainage, 8 cases (14.8 %) of Septoplasty, 2 cases (3.7 %) septoplasty and bilateral partial inferior turbinectomy, 6 cases (11.1 %) of septoplasty plus bilateral partial inferior turbinectomy, 4 cases (7.4 %) of septoplasty plus left inferior turbinectomy & septoplasty plus manipulation of fractured nasal bones, 2 cases (3.7 %) of septoplasty plus nasal cauterization, 20 cases (37 %) of septoplasty plus right inferior turbinectomy, 2 cases (3.7 %) of septoplasty plus right inferior turbinectomy plus trimming of right middle turbinate & septoplasty plus right intranasal polypectomy as shown in Table No 3. There were 10 patients (18.5 %) in which the nasal

pack was removed on 1st day and 44 patients (81.5 %) in which nasal pack was removed on 2nd day as shown in Table No 4.

DISCUSSION

Intranasal adhesions are relatively common after septoplasty in combination with turbinate surgery[11]. In retrospective studies in up to 36% of cases intranasal adhesions could be found, however not all of them were functionally relevant[12, 13]. Investigations by Pirsig on more than 2000 patients could show that the use of nasal splinting for 4 to 7 days could avoid intranasal adhesions in almost all cases[14, 15]. Intranasal splints made of soft silicone are available in the market. Intranasal splints made of x ray films and suture packing tailored by the surgeon are also described.[16, 17] We used soft plastic material of Intravenous fluid bottles as intranasal splints. In our study 36 (66.7%) patients were male and 18(33.3%) patients were female (table 1). Maximum age was 45 years and minimum 09 years (table 2). The types of surgical procedures are shown in table .most common procedure done is septoplasty with right partial inferior turbinectomy followed by septoplasty alone (table 3). Intranasal splints tailored according to the size of the nose were placed in all patients and secured with a prolene stitch passing through and through the nasal septum. All patients were seen at 1st week post operative time, then 2nd week, then 4th week and then monthly for three months. Pack was removed on 2nd day in those who underwent turbinectomy along with septoplasty and on 1st day in those who underwent septoplasty alone (table 4). All patients were examined under the head light with nasal decongestion if required to look for adhesions. None of the patients were found to have developed nasal adhesions at any stage of their follow up.

Some authors found results in contrast to our findings as they found a significant difference between splinted and non splinted patients, due to high rate of adhesions when septoplasty combined with lateral wall surgery like Schoenberg et al., they found a low risk of adhesion early in the first week post operatively when intranasal splints were used, and the highest incidence of intranasal adhesions occurred in non splinted patients who had surgery to both walls of their nasal cavity (3.6% in splinted vs. 31.6% in non splinted). [18] Campbell et al. inserted a nasal splint into one side of the nose of 106 patients undergoing a variety of intranasal procedures, all adhesions occurred on the non splinted side and more commonly when bilateral wall procedures had been performed (8% in splinted vs. 26% in non splinted), they concluded that splints were justified for bilateral wall procedures but that their increased morbidity did not justify their use in single wall procedures.[19] Roberto et al. found the high efficiency to prevent post-surgical adhesion once any of the patient who underwent the septoplasty with turbinectomy (0% in splinted vs.10.6% in non splinted group).[20] Nabil-ur Rahman concluded that complications are related to the type of procedure performed and Adhesions are common complication if intranasal splint is not provided,[21] White and Murray concluded that adhesion may be prevented by insertion of nasal splint.[22]

After stratification by gender results showed 3 adhesions (10.0%) in females and 1(3.5%) in males (tables 5, 6), indicating there is no significant effect of gender on adhesion formation, Which is in agreement to White and Murray (14.5% males vs. 14.6% females) who pointed that an individual patient may have a greater propensity to develop adhesion and further studies on patient fibroblastic activity will be required to explore this possibility. [23]

CONCLUSION

Intranasal splints made of soft plastic material of intravenous fluid bottles are well tolerated. Intransal splints prevent nasal adhesion formation after intranasal surgery.

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Original Article

TB Stigma

TB Stigma, Attitude and Practices among Urban Dwellers. A Descriptive Study on TB

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ABSTRACT

Objective: objective of the study was to explore the Stigma, attitude and practices with special reference to TB in Urban areas.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted in UC-49. Tehsil Malikwal District Mandi Bahawaldin from Jan-2013 to March-2013.

Materials and Methods: To gather the data on set objective a structured questionnaire was implemented. To collect the data a sample of 70 was interviewed after verbal consent. Tool was refined as per the highlighted suggestions of pre-testing under similar environment. Data was entered in EpiData software and analyzed in SPSS.

Results: Tables show the participation of both male and female as 70:30% respectively. In case of TB symptoms; Doctor or other medical worker was consulted for sharing by 91.4% respondents, 71.4% respondents would like to visit health facility (Government or Private), 14.3% visit the pharmacy for treatment, 30% were those who visit the health facility when they observed TB signs especially duration of cough, 65.7% urban residents visit the care center as soon they realize they had TB, 8.6% hate TB patients, 30% response friendly but avoid TB patients, 40% show sympathy toward TB patients, and 60% were said that the life of Tb patients were poor.

Conclusion: In spite of health interventions aimed at awareness, treatment and rehabilitation of TB in Pakistan, the country still stands distinctively among the nations where TB is sky rising. The government and civil society need to move ahead from policy level to practical implementation of measures to prevent TB. At cultural perception level, there is a need to remove misconceptions about TB being the one that severely bars the social life mingling.

Key Words: TB, Stigma, Attitude and practices, Delay in treatment, Self treatment

INTRODUCTION

Tuberculosis (TB) is the world's a very old disease, is very common in developing countries. Once seemingly under control, it has now made a comeback never seen before with a retribution[1]. In the WHO Regional Office for the Eastern Mediterranean in 2004 gives an idea of such diseases prevalent in the eastern Mediterranean region, the number of , cases have been reported in the region (Afghanistan, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, the United Arab Emirates, Yemen and UNRWA) for 2005 were 321468 with Afghanistan contributing 25473 and Pakistan the leader at 163927 cases[2].

Pakistan has been included in one of the high TB burden countries[3]. A person's perception about TB is pretended by his previous information of the disease. Tuberculosis's better understandings depicted better health-seeking behavior. In Pakistan, 26 percent of TB patients have not heard about TB before diagnosis, surprisingly it is not worth noting that 10 percent of the total population have not heard about TB[4]. Researches from neighboring India, 56-99 percent of the population were well aware about the disease tuberculosis[5-7]. Also previous studies depicts that lack of knowledge is believed to be as one of the reason in Pakistan to increase TB burden[8].

Earlier studies evidences show that geographical factor of stigmatization among TB infected peoples, predominantly those living in urban communities. The results of existing studies showed that people in urban areas feel hindered and ashamed, if they find themselves suffering from tuberculosis. Tuberculosis has long been associated with similar feelings[9-12].

Fear of transmitting infection and to avoid potential inequity from the society is the result of individual stigma. Findings of the existing literature show that regardless of residential areas either rural or urban it was observed that communities normally reject TB patients. Graph of TB stigmatization among masses raises due to perceived threat of infection and supposed link between TB and low caste, poverty, infamous behavior and divine punishment[13].

Self treatment[14], stigma, perception and beliefs about TB (TB treatment, diagnosis, TB is curable, causes by evil spirits etc) were identified as risk factors[15]. It was observed that many TB patients were very reluctant to attend NTP health facility because it means that they have to disclose TB in public. In many countries, TB is so closely associated with HIV that is why patients fear and think that they reveal their HIV status to their neighbors[16].

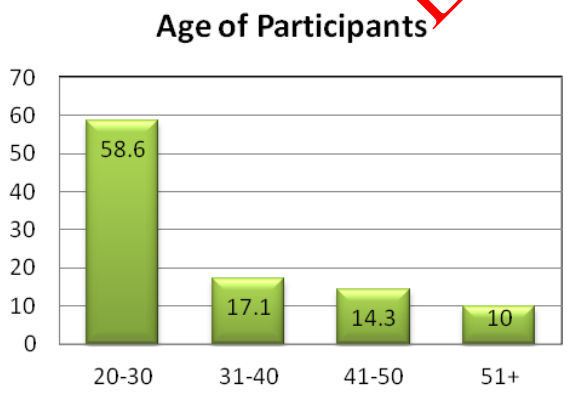
In Pakistani communities TB has long been associated as a disease that every one infected or supposed to be infected by TB virus wants to hide it from others people including their family, friends and neighbors in recent past. Situation regarding the awareness about TB signs and symptoms, diagnosis, treatment and treatment duration and beliefs of communities is getting improved after the interventions of NTP and other private line departments like NGOs with particular focus to cure TB from Pakistan. Still stigma, self treatment and to avoid sharing T status with other and delay in getting treatment from specialized TB health facility is grounded. This research was focused to explore stigmatization, attitude and practices of people urban areas regarding TB.

MATERIALS AND METHODS

To collect the data on study objective a structured questionnaire was implemented after improvement activity as suggestions were highlighted during pre-testing of the tool. Data was gathered form a sample of 70 people including 49 male and 21 female of UC-49 of *Tehsil Malikwal*, District Mandi Bahawaldin. Data was collected after the verbal consent of the participants and ethical consideration of research. With the help of experienced researchers the data was collected, verified and entered in EpiData. SPSS was used to do analysis and further analytical requirements.

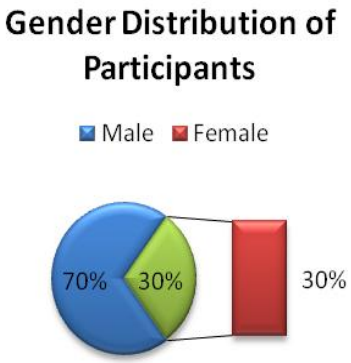
RESULTS

Below chart shows the 58.6% participation from the age group of 20-30 years. 17.1% of the participants were in the category of 31-40 years of age, 14.3% belongs to 41-50 years of age and 10% were those enjoying 51 and above year of age.



Bar Chart No. 1: Age of Participants

Pie chart explains the gender distribution of the participants of study. Percentile shows 70% involvement from male side and 30% from female side to collect the opinion of both sides of gender.



Pie-chart No. 1: Gender Distribution of Participants

Table No. 1: If you had TB Symptoms whom you shared with first?

Category	Frequency	Percent
Doctor or other medical worker	64	91.4
Other family member	4	5.7
Close friend	2	2.9
Total	70	100

Table 1 shows that 91.4% participants want to visit doctor to share TB if he had. In 5.7% cases they were likely to expose TB with their family members and 2.9% were those respondents who would like to share with their close friends if they had TB.

Table No. 2: If You Had Symptoms of TB Then Where You Go first?

Category	Frequency	Percent
Go to health facility	50	71.4
Go to pharmacy	10	14.3
Go to traditional healer	1	1.4
Pursue self-treatment?	7	10
Other treatment options	2	2.9
Total	70	100

Table No. 3: If You Had Symptoms of TB, When Would You Go to The Health Facility?

Category	Frequency	Percent
When treatment on my own does not work	3	4.3
When symptoms that look like TB signs especially duration of cough	21	30
As soon as I realize that my symptoms might be related to TB	46	65.7
Total	70	100

Table 2 explains the responses of study participants about where they want to go if they had symptoms of TB. 71.4% of the respondents would like to visit health facility, 14.3% were in favor to visit pharmacy only,

1.4% were those who inclined toward the services of traditional healer and 10% were those who would like to pursue self treatment if they had TB symptoms.

Table 3 shows that if someone had symptoms of TB then when would he visit health facility for specialized treatment of TB. Percentile shows that 4.3% of the respondents visit the health facility when their self medication does not work, 30% respondents were of the view that they would like to visit health facility when TB symptoms especially cough prolonged up-to 3 weeks because 3 weeks cough is main symptom of TB and 65.7% were those participants who said that as early they realize that they had TB symptoms they would like to visit health facility for treatment.

Table No. 4: What is the Response of Community toward TB patient?

Category	Frequency	Percent
Most people reject him or her	6	8.6
Most people are friendly, but they avoid TB patients	21	30
The community mostly supports and helps	43	61.4
Total	70	100

Table 4 explains that if a person had TB then what would be the expected response of the community toward that respective patient. In 8.6% cases respondents were of the view that community rejects TB patients, 30% were those who said that mostly community attitude toward TB patients were observed friendly and 61.4% respondents were of the view that community normally provide support and help to the patient and motivate them for the treatment.

Table No. 5: Your Feeling toward People who Have TB?

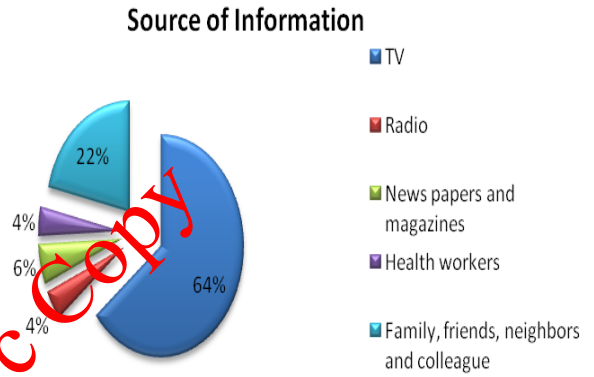
Category	Frequency	Percent
Sympathy	28	40
Hate	2	2.9
Friendly but I will try to avoid him or her	8	11.4
I will support and help him or her	31	44.3
Others	1	1.4
Total	70	100

Table 5 focused particularly about the feelings of respondents toward a TB patient. Percentile explains that 40% respondents were behave in sympathetic form toward TB patient, 2.9% said that they feel hate for TB patients, 11.4% were those respondents who used to behave in friendly way but also try to avoid them, predominantly 44.3% respondents inclined to support and help TB patients.

Table No. 6: Quality of Life of a Person with TB

Category	Frequency	Percent
Normal	11	15.7
Poor	42	60
Very Poor	16	22.9
Good	1	1.4
Total	70	100

Table 6 shows the perception of study participants about the quality of life of TB patients. In 15.7% cases respondents were of the view that Tb patients living their normal life, 60% of the participants were of the view that TB patients living poor lives, 22.9% were in favor of very poor life style of TB patients and only 1.4% respondents said that TB infected patients living good lives in routine.



Pie-Chart No. 2: Source of Information

Source is information is always very crucial to create awareness among masses. There are many way and techniques to spread information among communities about any particular topic. In this focused TB research 64% of the study respondents were mentioned TB as a source of information, still radio is in use as reported 4% times in current study, 6% respondents take information from newspapers and magazines, LHW as a source of information reported 4% and 22% of the respondents said that their friends, family members, neighbors and colleagues were the main source of information regarding TB.

DISCUSSION

Stigma, self treatment and delay in getting treatment are very obvious and life threatening factors associated with attitude and practices of general public regarding TB in Pakistan. Data of current study shows that situation is not as worse as depicted in earlier studies and literature existed on similar factors. In Pakistan, TB DOTS program almost working on 100% Government health facilities throughout rural and urban areas. Efforts of DOTS program along with the active participation and interventions of private sector including basic education project on TB disease with an appreciated effort to spread information about signs &

symptoms, diagnosis & treatment and to avoid every expected delay for treatment including stigma, self treatment and to utilize private health practitioners like spiritual healers, untrained medical staff, traditional and homeopathic consultants but still there is a need of improvement especially regarding attitude of health staff and to enhance the quality of services[17,18].

In previous studies degree of kinship was reciprocally coupled with stigmatization. Moral support provided by family members often plays an important role in early diagnosis and treatment compliance[19, 20]. Growing TB education among masses can help to reduce inequity and stigma as deficiency of primary information about the disease is played an important stigmatization contributing factor in TB[21].

Several existing studies depicted self-treatment as major contributing problem in treatment delay[15]. A study conducted earlier in Pakistan with the results that 50% of patients practiced self-treatment and 42% would like to visit pharmacy as first after getting TB symptoms[14], but the opinion of respondents in current study is different with the results to practices self-treatment as reported 10% and to visit pharmacy at first was reported 14%.

Previous studies show that in spite of having high class knowledge about TB more than half of patients did not practiced appropriate health seeking behavior in term of timely visit to suitable health facility for specialized care, which reflects the high level of stigma associated with the disease. Some other studies also reported that information alone is not the only factor to measure health seeking behavior of TB patients or their devotion to timely treatment, but importantly the patient's attitudes and practices[22-24].

Multiple factors affect natural attitudes and practices of human beings such as socio-cultural belief system, stigma, socio-economic status, access to health facilities and availability of quality care. A very intensive community-based media campaign is highly recommended to reduce the stigma associated with TB. Educational activities, such as increasing awareness in the community should be started instead of being limited to the target behavior modification[25].

CONCLUSION

Unfortunately, Pakistan is among the nations of the world that witness highest rates of case identification regarding TB. On the other hand, TB is more than a disease in cultural level. The TB is seen as a physical problem that not only damages the health of patient but also excludes him or her from the social relations, stops the patients from appearing in the social circles and meeting with family, relatives, friends, colleagues, co-workers and neighborhood. Though it can be said that few interventions regarding war against TB are already underway but there is a need for serious thinking, planning and adopting practical measures for TB control. The patients need proper screening, treatments and opportunities for physical rehabilitation. In addition, there is a need that the government may take one step ahead in order to work on the social stigma related to TB prevailing among the general masses of the country. People need to understand via social and attitudinal engineering that TB is curable as well as it does not restricts the patients to perform normal life routines and chores.

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Original Article

Diagnostic Tests of TB

Immune Response of Tuberculin test and Diagnostic BCG Test in Children Suffering from Tuberculosis

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ABSTRACT

Objective: To compare the immunological response of tuberculin test and diagnostic BCG test inoculation given simultaneously to children suffering from tuberculosis.

Study Design: Comparative – Cross sectional.

Place and Duration of Study: This study was carried out at the Department of Paediatric Medicine, Nishtar Hospital Multan from 6 April 2011 to 5 Oct 2011.

Materials and Methods: Fifty patients with tuberculosis were selected. Relevant data of cases including personal data, presenting complaints, physical examination finding and results of all the relevant investigations were collected. We injected 0.1 ml tuberculin intradermally on ulnar surface of right forearm and 0.1 ml BCG vaccine intradermally on deltoid muscle of left side. Both the BCG and tuberculin tests were performed at the same time by the same doctor. All information was recorded in a specifically designed proforma.

Results: 26 patients were male and 24 female. Out of 50 patients; BCG test was positive 36 patients and was negative in 14 patients. Mantoux test was positive in 26 patients and was negative in 24 patients. Both BCG and mantoux tests were positive in 26 patients. Ten patients had a positive BCG test where Mantoux test showed negative results. Both tests were negative in 14 patients.

Conclusion: BCG skin test is more superior to Mantoux test as a diagnostic tool in paediatric age group patients suffering from various types of tuberculosis.

Key Words: Tuberculosis, Baccilus Calmette Guerin (BCG), Mantoux test.

INTRODUCTION

Tuberculosis (TB) is one of the leading infectious disease,[1] responsible for 2.9 million deaths[2] and 8 million new cases per year in the world.1,3 Tuberculosis is one of the common infectious diseases of the developing world, resulting in high morbidity and mortality in these countries.[3,4] It is estimated that 95% cases occur in under developed world where diagnostic and treatment facilities are rudimentary or non-existent.[5]

Tuberculosis even today, remains a major cause of death throughout the world. Children under 3 years of age are more at risk. Almost 1.3 million cases and 450,000 deaths occur among children due to tuberculosis each year.[6]

In Pakistan it is estimated that 2, 68,000 new cases and 64,000 deaths occur due to tuberculosis each year.[7] Prevalence of tuberculosis in Pakistan assessed by tuberculin reaction is estimated as 2.8% in age group 0–4 years, 7.7% in age group 5–9 years while it is 12.9% in age group 10–14 years.[8]

Tuberculosis is caused by several species of mycobacteria often described as Mycobacterium tuberculosis complex which include; M. tuberculosis, M. microti, M. africanum, M. bovis and BCG. Out of them Mycobacterium tuberculosis is the most frequent cause of the disease in human. Other members of this complex are rare causes of TB.[9]

The rapid diagnosis of infectious diseases, particularly those that represent a public health problem, like tuberculosis, is a challenging problem. Pediatricians and even general practitioners often document the presence of tuberculosis by using diagnostic techniques namely tuberculin skin test, chest roentgenogram, sputum examination, lymph node biopsy or serologic tests.[10]

The tuberculin test is often resorted to but it has limitations in tuberculin negative individuals. Host related factors such as age, nutrition, immune-suppression, viral infections or immunization with live viral vaccines and presence of disseminated tuberculosis may alter the tuberculin reactivity of a patient. Also, recent exposure to environmental non-tuberculous mycobacteria (NTM) can result in cross sensitization and false positive reaction to purified protein derivative (PPD). In children, sputum examination is difficult to obtain. Furthermore, gastric washing culture is expensive and takes time.

There is no gold standard for diagnosis of tuberculosis. In children diagnosis has to take into account history, clinical examination and investigations including radiology, gastric lavage along with a mantoux test.[11-12] Polymerase chain reaction (PCR) is an emerging

diagnostic tool for diagnosis of TB in children.[13]

- Accelerated response to BCG has been used as a screening test for TB in Asian countries where tuberculin test was less reliable. Although some comparative studies have demonstrated the superiority of BCG test over mantoux's test, its use in routine clinical practice is still controversial.[11-12]
- In patients who are malnourished, mantoux test is expected to be inconclusive.[14-15] In such situation, the diagnostic BCG test has been recommended as an alternative, rapid, reliable and cost effective diagnostic test.[11-12]
- Present study is designed to compare the diagnostic accuracy of the two methods (i.e. diagnostic BCG test and tuberculin test) for the diagnosis of children suffering from tuberculosis.

MATERIALS AND METHODS

It was a cross sectional comparative study. Patients were selected from children suffering from TB admitted in ward or visiting outpatient department fulfilling inclusion criteria in the department of Paediatrics (Unit I and Unit II) , Nishtar hospital Multan. Fifty patients with tuberculosis were selected using Kenneth Jone's criteria. Fifty patients with tuberculosis were selected using Kenneth Jone's criteria. Both BCG and Tuberculin test were performed at the same time by the same doctor.

Parents/attendants were informed about the risks and benefits of the study and informed consent was taken. Permission of Ethical Committee of institution was taken before start of study.

Relevant data of cases including personal data, presenting complaints, physical examination finding and results of all the relevant investigations were collected. We injected 0.1 ml tuberculin intradermally on ulnar surface of right forearm and 0.1 ml BCG vaccine intradermally on deltoid muscle of left side.

To reduce the bias, both the BCG and tuberculin tests were performed at the same time by the same doctor. Reading of tests was taken by the same observer. As both the tests were done on the same patient, no confounding variable was there (like age, sex, nutritional status, severity of disease).

Investigations including hemoglobin, TLC, DLC with ESR were done in all cases. Chest X-ray was done in all patients. CT scan brain and examination of CSF was done in patient with suspected TBM. Lymph node biopsy of accessible lymph nodes in suspected case of TB lymphadenitis was performed.

BCG test was carried out in all patients by injecting 0.1 ml of freeze dried BCG vaccine, over the deltoid muscle on the left shoulder intradermally. BCG test results were noted between 48-72 hours. The criteria used for positive BCG test was taken from various studies of Udani and Imran. If induration more than 5 mm in diameter, was taken as positive and results were graded as:[11]

- Mild positive 5-9 mm induration.
- Moderate positive 10-20 induration.
- Strongly positive > 20 mm induration.

Along with BCG test mantoux test was also applied in all patients they were given 0.1 ml of PPD (5 units) on the volar surface of right forearm interdarmally. The criteria for positive mantoux test was used as described by Red book.16 The results were read by me between 48-72 hours and were graded as:-

- Doubtful positive 6-9 mm induration.
- Positive l+ 10-14 mm induration.
- Positive 2+ 15-19 mm induration.
- Positive 3+20-30 mm induratio16
- Positive 4+ >30 mm induration.

Data was analyzed by SPSS 10.0. Descriptive statistics were applied to calculate mean ± SD for age of the patients. Frequencies and percentages were calculated for sex, presenting complaints (fever, cough, weight loss, loss of appetite, fits), history of contact, history of measles, tuberculin test findings, diagnostic BCG findings, x-rays chest findings and clinical diagnosis. Chi-square test was used for comparison of positive response to Mantoux test and BCG test. P-value equal or less than 0.05 ($p \leq 0.05$) was considered significant.

RESULTS

Present study compares immune response of BCG test with mantoux test in children with suspicion of TB. A total of 50 patients were studied. Out of these, 26 patients were male and 24 female.

Majority of the patients were from 6–10 years. Regarding the various types of tuberculosis, 17 patients had involvement of respiratory system including 1 case of miliary TB and 2 cases of tuberculous pleural effusion. The TBM cases were 26 where as abdominal, pericardial TB was 4 and 1 case respectively. There was 1 case of disseminated TB. Five patients with pulmonary TB had measles at the onset of symptoms.

Out of 50 patients, BCG test was positive 36 patients and was negative in 14 patients. Mantoux test was positive in 26 patients and was negative in 24 patients.

Both BCG and mantoux tests were positive in 26 patients. Ten patients had a positive BCG test where Mantoux test showed negative results. Both tests were negative in 14 patients. All patients were fulfilling Keneth Jone's criteria (Table-1). Fifteen patients had TBM with neurological deficit and hydrocephalous on CT scan brain (Table No. 2).

In pulmonary TB, BCG was positive in 10 (71%) as compared to mantoux test 9(64%). In miliary form, BCG test was positive in 1 case and mantoux in no case. In pleural tuberculosis, BCG test was positive in 2 (100%) and mantoux in 2 (100%) cases. Both tests were negative in patients who had measles at the onset of

symptoms.

In TBM, BCG test was positive in 17(65%) as compared to mantoux test which was positive in 13(50%) cases. The BCG test was also positive in cases where mantoux test was positive. These patients had clinically suggestive for x-ray chest which was positive in 12(46%) cases. Tuberculous infection was also suspected due to contact with tuberculous patient which was present in 22 (85%) of cases.

Table No. 1: Kenneth Jone's Criteria for the Diagnosis of Tuberculosis in Children

Score Chart

Features	1	2	3	4	Score
I. History					
Age	Les than 2 year	_	_	_	Score
Contact	With TB Pt.	With sputum +ve TB Pt.	_	_	
BCG Scar	Absent				
History of Measles or Whooping cough	Within 3-6 months	Within 3 Months	_	_	
Immunocompromised/ immunosuppressant	yes				
PCM III *	yes				
II. Examination &investigations					
Interpretation					
Physical examination	-	Suggestive of T.B.*			
Radiological Findings	Non-Specific ***	Suggestive of T.B.**	_	_	
Tuberculin test	5-10 mm	_	>10 mm	_	
Granuloma	Non Specific	_	_	Specific T.B	
AFB				Positive	

Total Score

0-2	Points	T.B unlikely
3-4	points	keep under observation
5-6	Points	Tuberculosis probable Investigations may justify therapy
7 or more	Points	T.B unquestionable

III=Protein Caloric Malnutrition
(Wt<60% expected for age)

NOTE
*consolidation not responding to antibiotics/ For at least 3 months GibbuslMeningitis etc.
** Paratracheal,/Mediastinal Lymphadenitis, military mottling, consolidation Pleural effusion etc.
*** III defined opacity/ infiltrations, marked PCM bronchovascular markings etc.

Table No.2: Clinical Features at the Time of Presentation (n = 50)

Symptom	No. of Patients	Percentage (%)
Fever	48	96.0
Cough	30	60.0
Loss of appetite	36	72.0
Weight loss	36	72.0
Fits	26	52.0
Altered level of consciousness	26	52.0
Diarrhoea	4	8.0
History of measles	5	10.0
History of contact	39	78.0
Malnutrition	33	66.0

Table No.3: Comparison of BCG Test and Mantoux Test in Different Types of Tuberculosis (n = 50)

Type	BCG +tive	Man-toux +tive	Both +tive	Both -tive	BCG positive, mantoux negative	Total
Pulmonary TB	10	9	9	4	1	14
TBM	17	13	13	9	4	26
Miliary TB	0	0	0	1	0	1
Abdominal TB	4	0	0	0	4	4
Disseminated TB	1	1	1	0	0	1
Pleural TB	2	2	2	0	0	2
Pericardial TB	1	0	0	0	1	1
Lymph node TB	1	1	1	0	0	1
Total	36	26	26	14	10	50

In abdominal TB, BCG test was positive in all cases where mantoux was negative in all cases. These patients were clinically suggestive. Chest x-ray was positive in all cases with abdominal tuberculosis. Contact with tuberculous patient was present in 1 case.
In disseminated TB, BCG test and Mantoux test were positive in one case. In pericardial tuberculosis BCG was positive in one case where mantoux test was negative. In miliary tuberculosis, BCG and mantoux test were negative in one case. In lymph node tuberculosis BCG and mantoux test were positive in one case (Table No.3).

Table No.4: Results (n=50)

Response	No. of Patients	Percentage (%)
BCG Positive	36	72
Mantoux positive	26	52
Both positive	26	52
Both negative	14	28
BCG positive, mantoux negative	10	20

DISCUSSION

The BCG test has been shown to have an edge over mantoux test for the diagnosis of TB. The present study also favours the superiority of BCG test over mantoux test in children.
Majority of patients in present study were of TBM (52%) and respiratory TB (34%). In a study by Imran at Postgraduate Medical Institute Peshawar, patients were mainly of respiratory TB (43.9%) and TBM (40%). This difference is probably due to methodology of recruitment of study cases by Imran, who included only admitted cases.[18]
BCG test was positive in 72% patients while mantoux test was positive in 52% patients. In other studies, Imran showed BCG test positivity of 70% and positive mantoux test in 49%.[18] Udani showed BCG test positive in 88.8% patients and positive mantoux test in 52.3% patients.[19]
Velhal et al had 81.5% BCG test positive and 52.3% has positive mantoux test but they used 10 tuberculin units of PPD while in present study 5 tuberculin units of PPD were used.[20]
Goceman et al shows 100% positive BCG test in various forms of TB and only 44.5% mantoux test positive in pulmonary TB but no positive mantoux test in TBM and miliary TB.[21]
Ten (20%) patients had BCG test positive where mantoux test was negative. Imran.[18] showed 100% BCG test positive where mantoux test was positive and 31.1% had positive BCG test where mantoux test was negative and patients were mainly of respiratory TB (43.9%) and TBM (40%).
In TBM, BCG test was positive in 17 (65%) as compared with mantoux test positivity 13 (26%). All patients with positive mantoux test also had positive BCG test. In study by Imran[18] in TBM BCG was positive in 35 patients as compared with mantoux test positive in 12 cases.
In respiratory TB, BCG test was positive in 12 (71%) cases as compared to mantoux test which was positive in 11 (65%) cases. All patients with positive mantoux test also had positive BCG test.
The results of various Indian studies [22,20,19] and a study, from Turkey [21] and a local study also have shown the better diagnostic value of BCG test over mantoux test.[23] This study showed a better positivity with the BCG test than mantoux test.

CONCLUSION

BCG skin test is superior to Mantoux test as a diagnostic tool in paediatric age group patients suffering from various types of tuberculosis.

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Original Article

The Causes of Death on Exhumation in Pakistan

Exhumation

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ABSTRACT

Objective: To study the causes of death on Exhumation in Pakistan.

Study Design: Retrospective observational study.

Place and Duration of Study: This study was carried out at Forensic medicine Department BMC Banu, Saido Medical College Sawat, Baynzir District Hospital Rawalpindi and Baynzir District Hospital Abbottabad from Jan 2008 to 31 March 2014

Materials and Methods: 200 cases of exhumation were included in this study which were conducted approximately in six years and four months by the medical boards of Banu, Sialkot, Rawalpindi and Abbottabad. The data was taken on proforma with the permission of the authorities which was based on exhumation conducted in these districts. The data was analyzed for results. Cases of deceased where cause of death was determined either by external and internal examination or by histological examination / chemical analysis of viscerae were included in this study. Partially decomposed, advancedly decomposed or skeletonized bodies, with no internal or external injuries sufficient to cause death and histological and toxicological reports failing to reveal any abnormal findings, were also included in the study. Different variables of bodies e.g., sex, age, time of death & disinterment, corpse condition and burial site were analyzed using statistical package for social services (SPSS) version 13.

Results: There were maximum cases of exhumation 60 cases (30 %) at the disinterment time of 5 – 8 months and there were minimum cases 13 (6.5 %) at the disinterment time more than 2 years. It was seen that in 59 cases of exhumation (29.5 %) the dead body was fresh, 89 cases (44.5) the dead body was partially decomposed, in 29 cases (14.4 %) the dead body was advancedly decomposed and in 23 cases the corpse were almost skeletonized. There were 143 cases (71.5 %) belong to rural area and 57 cases (28.5 %) belong to urban area. The maximum cases 100 (50 %) were of age group 31 – 40 years and minimum cases of exhumation 12 (6 %) were of age group more than 50 years. It was also seen that there were 173 (86.5 %) male dead bodies were exhumed and only 27 cases (13.5 %) were of female dead bodies. In this study there was the cause of death in 13 cases (6.5 %) due to Fire arm injury, 07 cases (3.5 %) due to stab wound of the trunk, 9 cases (4.5 %) due cut throat, 18 cases (0.9 % due to blunt injury of head and chest, 0.5 cases (2.5 %) due to poisoning, 06 cases (03 %) due to asphyxia and 142 cases (71.5 %) the cause of death was unascertained due to advance decomposition or almost skeltonized corpse.

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

Key Words: Exhumation, causes of death, decomposition and skeltonized.

INTRODUCTION

Exhumation carried out after obtaining an appropriate permission from the state, is digging up or removal of buried body from the grave or ground[1]. The main purpose of performing the exhumation is to determine the cause of death when foul play is suspected[2], but this is also done for identification purposes required in some civil and criminal cases[3]. Though it is a key to determine the cause of death especially in homicidal cases but sometimes it is not determined and acknowledged as unascertained because examination of disinterred body is by no means infallible in revealing the cause of death[4], and herein no abnormality is detected on gross examination of body and histological, toxicological and microbiological procedures are insignificant[5]. Decomposition is not only a bar to successful examination but it may also reduce the possibility of obtaining samples, resulting in failure to establish the cause of death[6]. Various factors influencing the decomposition are time elapsed between burial and exhumation, seasonal environment, soil conditions and coffin material[7]. Other reasons for unascertainable cause of death are infectious diseases, cardiac lesions, metabolic & blood disorders, allergy, anaphylactic reactions, acute neurogenic cardiac failure, electrical injuries, sudden infant death syndrome etc[8]. This study was planned to look for rate and its possible reasons of unascertained cause of death in exhumation carried out in above said districts.

MATERIALS AND METHODS

200 cases of exhumation were included in this study which were conducted approximately in Six years and

four months by the medical boards of Banu, Sialkot, Rawalpindi and Abbottabad. The data was taken on proforma with the permission of the authorities which was based on exhumation conducted in these districts. The data was analyzed for results. Cases of deceased where cause of death was determined either by external and internal examination or by histological examination / chemical analysis of viscerae were included in this study. Partially decomposed, advancedly decomposed or skeletonized bodies, with no internal or external injuries sufficient to cause death and histological and toxicological reports failing to reveal any abnormal findings, were also included in the study. Different variables of bodies e.g., sex, age, time of death & disinterment, corpse condition and burial site were analyzed using statistical package for social services (SPSS) version 13.

RESULTS

There were maximum cases of exhumation 60 cases (30 %) at the death & disinterment time of 5 – 8 months and there were minimum cases 13 (6.5 %) at the death & disinterment time more than 2 years as shown in Table No 1. It was seen that in 59 cases of exhumation (29.5 %) the dead body was fresh, 89 cases (44.5) the dead body was partially decomposed, in 29 cases (14.4 %) the dead body was advancedly decomposed and in 23 cases the corpse were almost skeletonized as shown in Table No 2.

Table No.1: Frequency distribution according to time between death & disinterment (n=200)

S. No	Time of disinterment	No of cases	Percentage (%)
01	1 – 4 months	34	17 %
02	5 – 8 months	60	30 %
03	9 – 13 months	38	19 %
04	14 19 months	25	12.5 %
05	20 – 24 months	30	15%
06	> 2 years	13	6.5 %
	Total	200	100 %

Table No.2: Frequency distribution according to condition of the corpse (n=200)

S. No	Condition of the Corpse	No. of cases	Percentage (%)
01	Fresh	59	29.5 %
02	Partially Decomposed	89	44.5 %
03	Advancedly decomposed	29	14.5 %
04	Almost Skeletonized	23	11.5 %
		200	100 %

There were 143 cases (71.5 %) belong to rural area and 57 cases (28.5 %) belong to urban area as shown in Table No 3. The maximum cases 100 (50 %) were of age group 31 – 40 years and minimum cases of exhumation 12 (6 %) were of age group more than 50 years as shown in Table No 4. It was also seen that there were 173 (86.5 %) male dead bodies were exhumed and only 27 cases (13.5 %) were of female dead bodies as shown in Table No 5. In this study there was the cause of death in 13 cases (6.5 %) due to Fire arm injury, 07 cases (3.5 %) due to stab wound of the trunk, 9 cases (4.5 %) due cut throat, 18 cases (0.9 % due to blunt injury of head and chest, 05 cases (2.5 %) due to poisoning, 06 cases (03 %) due to asphyxia and 142 cases (71.5 %) the cause of death was unascertained due to advance decomposition or almost skeltonized corpse as shown in Table No 6.

Table No.3: Frequency distribution according to urban and rural areas (n=200)

S. No	Area	No. of cases	Percentage (%)
01	Rural	143	71.5 %
02	Urban	57	28.5 %
		200	100 %

Table No.4: Frequency distribution according to age (n=200)

S. No	Age group (years)	No. of cases	Percentage (%)
01	10 – 20	23	11.5 %
02	21 – 30	41	20.5 %
03	31 – 40	100	50 %
04	41 – 50	24	12 %
05	> 50	12	06 %
	Total	200	100 %

Table No.5: Frequency distribution according to sex (n=200)

S. No	Sex groups	No. of cases	Percentage (%)
01	Male	173	86.5 %
02	Female	27	13.5 %
	Total	200	100 %

Table No.6: Frequency distribution according to causes of death (n=200)

S. No	Causes of death	No. of cases	Percentage (%)
01	Fire Arm injury	13	6.5 %
02	Stab	07	3.5 %
03	Cut throat	09	4.5 %
04	Blunt injury	18	09 %
05	Poisoning	05	2.5 %
06	Asphyxia	06	03 %
07	Undetermined	142	71.5 %
	Total	200	100 %

DISCUSSION

Exhumation though considered as sacrilege, is some times requested by the heirs of deceased when there are

mysteries about the cause of death[9]. In this region the undue delay to conduct exhumation is due to fear of dishonor and elders of the family usually avoid disinterment of near and dear ones. In this study cause of death remained undetermined in two third of cases (71.5%) due to advanced decomposition of the corpse. The cause of decomposition was due to undue delay of disinterment. Our results are not similar to one national study (34% failure rate) conducted by Qazi et al in 2004. However Memon U & Memon A[10] have reported higher percentage of 42.85% of cases in which cause of death could not be determined. In various German studies, failure to reach the cause of death in exhumed bodies have been reported by Verhoff et al, Seibel et al, and Grellner et al[11] to be 0.8%, 4.23% and 22% respectively. Higher percentage of failure to reach the cause of death in exhumed bodies in our areas is because of early putrefactive changes due to hot climate, water logging and salinity and improper drainage system around the grave yard. Further more in neurogenic death, no pathological changes can be detected[12]**.** High successful exhumation rates in Germany is due to delayed putrefaction of corpse because of cold season in many months of year and application of sophisticated diagnostic techniques like immunocytochemistry[13].

Despite the limitations, exhumation may provide surprisingly good results about the cause of death but the same is less likely to be achieved with passage of every day[14]. In our study majority of bodies 30% (60) were exhumed at 5 – 8 months after the death, and most of the bodies, 50% cases were in stage of advanced decomposition or fully skeletonized. Our observations were consistent with Hussain et al[15] who found advanced putrefaction in 80.4% of bodies exhumed from 4 months to 01 year after the death. However Breitmeier et al[16] have shown evidence of significant morphological features in soft tissues and internal organs sufficient to diagnose the cause of death in exhumations performed after several years. Marked decomposition observed in exhumed bodies above two years after the death of persons is responsible for failing to reach the conclusion, as the cause of death is to be inferred from soft tissue in majority of cases[17].But delay in putrefaction observed in European countries like Germany improves the positive yield in exhumations many months or even years after burial of deceased.

In our study male corpse were more (86.5%) than females (13.5%) in the ratio of about 4:1. This finding is comparable with one national study conducted at Peshawar where male fatalities are reported in 86.4% of cases. Females in this society being least victims of violent deaths are due to fact that they hold honorable place even by enemies and spared from tribal and family disputes because of religious, cultural and traditional customs[18]**.** In this study majority of victims belonged to rural areas (about 71.5%), and some 28.5% were belong to urban area. Our study is comparable with Qazi et al[10] who have reported rural folk involvement in 77% of cases. Regarding age our findings are in contrast with an international study conducted at U.K[6] where the incidence of unascertained death appears higher in children and young adolescents. Predominance of rural people in our study is due to high illiteracy rate and their ignorance about codal procedures causing delay in conduct of exhumation process. More cases of middle age may be due to involvement in violent activities and this age is more vulnerable to different diseases like acute myocardial infarction where no positive findings are found on disinterment. It was also seen in this study the cause of death was more as blunt injuries of the head and chest and in 71.9 % the cause of death was undetermined due to advanced putrefaction of the corpse and non availability of advance techniques for exhumation.

CONCLUSION

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

Recommendations: On the basis of findings in our study we can recommend that:

1. Legal procedures may be simplified so that exhumation can be perfomred as early as possible to avoid putrefactive changes.
2. Proper drainage of graveyards be maintained to avoid early putrefaction.

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Original Article

Periodontal Health Status

Periodontal Health Status of Patients attending Isra Dental College OPD using CPI Index

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ABSTRACT

Objectives: To assess the periodontal health status among patients attending Dental OPD of Isra dental college Isra University Hyderabad. To predict for planning of periodontal care programmes for population attending Dental OPD of Isra dental college Isra University Hyderabad.

Study Design: Cross sectional study.

Place and Duration of Study: This study was carried out in dental OPD of Isra dental college Isra University Hyderabad. Duration of study was six months.

Materials and Methods: The study was conducted on 500 subjects. For the assessment of the periodontal status of a population visiting OPD of Isra Dental College, CPITN recording were made for patients visiting within 6 months and selected at random without consideration of sex, religion, education, socioeconomic condition and systemic health at filtration clinic of OPD. The subjects were examined by a single examiner with the help of a plane mouth mirror and CPITN Probe. The index teeth were selected for examination.

Results: A total of 500 subjects were surveyed in the study who visited filtration clinic of Dental opd of Isra dental college out of them 190 (38%) were female and 310 (62%) were males (fig 1). (Fig.2) showed the percentage of CPITN code 1 was highest (54.8%) which shows bleeding gums, followed by the percentage of code 2 (27.2%) which represents the presence of supra and sub gingival calculus. The percentage of code 3 was found to be 8% denoted by presence of periodontitis having pathological pocket depth of 4 to 5 mm. About 10 % patients were found having healthy periodontal tissues.

Conclusion: Using the research results, a greater effort can be made in providing periodontal health to the population of at or around the city of Hyderabad. Systemic diseases and environmental or genetic risk factors were not included in this study. A further broad scale study is needed to measure an accurate prevalence of periodontal diseases among the patients of at or around city of Hyderabad.

Key Words: Periodontal, Health Status, CPI index

INTRODUCTION

The periodontal disease is the most prevalent disease in adult population[1]. It affects the supporting and investing tissues of the teeth and recognized as major health problem worldwide[2]. The severity of disease may vary, but in most countries the adult populations experience distressing symptoms of periodontal disease such as bleeding and receding gums and loosening and migration of teeth. These changes reduce the physiologic and social values of the dentitions[3]. Epidemiological studies that have been Performed in many parts of the world indicate that periodontal diseases of varying severity are of nearly universal in both children and adolescents[4,5]. The prevalence of gingivitis is virtually 100% in a population with no oral hygiene and declines with improved oral hygiene[4, 6]. Community periodontal Index of Treatment Needs (CPITN) is an index which has been formulated adopted and utilised by World Health Organisation (WHO) in epidemiological studies conducted in several countries of the world. This index entails study of both prevalence of periodontal disease in a population and assessment of treatment needs for the same[7]. It is claimed to be a quick and dependable index where a large population can be covered in a short period. Till now a good number of epidemiological studies have been conducted by CPITN in different countries[8-13]. The prevalence of periodontitis has been elucidated by the World Health Organization (WHO) presenting data on periodontal condition from many countries in its global oral data bank using the community periodontal index of treatment needs (CPITN) criteria. Reports from different places around the world showed a prevalence of severe Periodontitis in around 8-10% of the Population; Sweden 8%, England 7%, The Netherlands 10%, Italy 9.6 % and Srilanka 8%.[4, 6]. In India, periodontal diseases are the main cause of Dental extractions[4]. Using data from the 1999-2002to 2004 National Health and Nutrition Examination Survey (NHANES), United States of America (USA), Researchers demonstrated that adults with low

income and less than a high school education are approximately twice as likely to have periodontal diseases compared with more affluent adults with higher educational attainment[14,15]. The aim of this survey is to determine the periodontal health status of patients attending Isra Dental College OPD by using CPITN system. The establishment of the global goals for oral health for all by the year 2000 A.D. has made an implication that there is an increased need to collect epidemiological data on various oral health problems[(16)]. Data on prevalence, incidence and severity of the disease can help in evaluating the significance of the disease and its consequences.

MATERIALS AND METHODS

This cross sectional study was carried out in dental OPD of Isra dental college Isra University Hyderabad for a period of six months. The study was conducted on 500 subjects having non probability (Convenience).

Inclusion Criteria:

- Age ranges 18 to 70 years
- Male and female subjects.

Data collection procedure: For the assessment of the periodontal status of a population visiting OPD of Isra Dental College, CPITN recording were made for patients visiting within 2 months and selected at random without consideration of sex, religion, education, socioeconomic condition and systemic health at filtration clinic of OPD. The subjects were examined by a single examiner with the help of a plane mouth mirror and CPITN Probe. The index teeth were selected for examination.

16,17	11	36,37
26,27	31	46,47

The clinical condition and scoring were followed as suggested by Ainamo et al[17].

Clinical Condition	Score	Treatment Needs (TN)
No sign of disease	0	No Treatment
Gingival bleeding after gentle probing	1	Improvement in personal oral hygiene (TN1)
Supra and / or gingival calculus	2	Improvement in personal orgal hygine and scaling (TN2)
Pathological pocket 4 to 5 mm deep	3	Same as score 2
Pathological pocket 6 mm or deep	4	Same as score 2 and complex treatment (TN3)

Data Analysis: Data was analyzed by SPSS version 17.

RESULTS

A total of 500 subjects were surveyed in the study who visited filtration clinic of Dental OPD of Isra dental college out of them 190 (38%) were female and 310 (62%) were males (fig 1). (Fig.2) showed the percentage of CPITN code 1 was highest (54.8%) which shows bleeding gums, followed by the percentage of code 2 (27.2%) which represents the presence of supra and sub gingival calculus. The percentage of code 3 was found to be 8% denoted by presence of periodontitis having pathological pocket depth of 4 to 5 mm. About 10 % patients were found having healthy periodontal tissues.

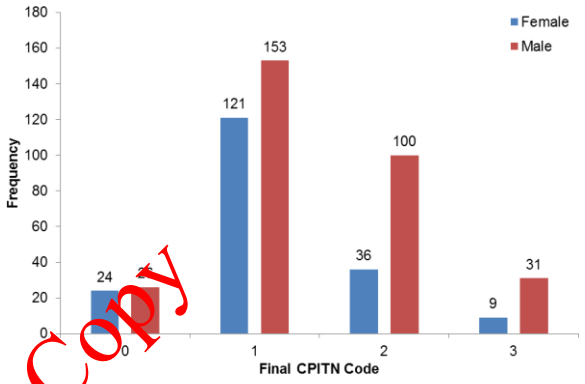

Figure No.1: CPITN Score Evaluation with Respect to Gender of the Patients (n=500)

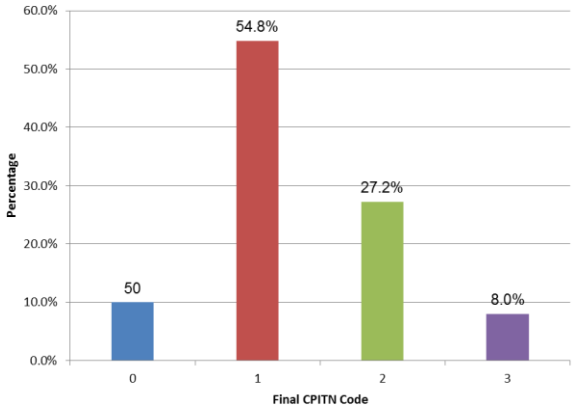

Figure No.2: CPITN Score Evaluation of the Patients (n=500)

DISCUSSION

Oral health is an integral part of general health. The universality of periodontal disease is very well established and Oral appearance affects self-esteem and the willingness to interact with others. Appropriate nutritional intake can also be influenced by incapacity to masticate or persisting pain due to oral diseases[17]. Several attempts have been made to develop methods for assessing periodontal disease status and treatment needs on a population basis which would help in the

planning of dental public health services. The CPITN is a useful approach to screening population because it uses accepted clinical criteria, partial mouth scoring and a simple recording procedure, which permits rapid assessment of individuals for periodontal conditions related to treatment needs.

From this study it is evident that though calculus is widespread, involvement by score 4 and score 0 are much less these findings are in line with an Indian studies named as chirag[18] et al and Vandana[19] et al. It indicates that periodontal disease is not common healthy people are less in number though destructive periodontal disease is not common, so it may be concluded that calculus in maximum cases does not produce advanced destructive periodontal disease. CPITN code 1and 2 were found more than code 3 and 4 which shows gingivitis is more prevalent than periodontitis in the studied population supporting the results of Saudi study named as Zahid[20]et al. Providing periodontal care (scaling/surgery) for such large population would put huge burden on the health care system. Therefore, a community based approach for general promotion of good oral hygiene practices should be carried out on large scales for control and prevention of periodontal disease[21]. If population is made aware of various oral hygiene measures, the treatment needs could be reduced considerably. The present study suggests that there is higher treatment needs in the studied population. So, more dental awareness camps should be organized in the targeted population to decrease the treatment needs and finally the burden on dental health sector.

CONCLUSION

Using the research results, a greater effort can be made in providing periodontal health to the population of at or around the city of Hyderabad. Systemic diseases and environmental or genetic risk factors were not included in this study. A further broad scale study is needed to measure an accurate prevalence of periodontal diseases among the patients of at or around city of Hyderabad.

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Original Article

Immunological Study of Type 2 Diabetic Patients with Periodontal Disease

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ABSTRACT

Objective: To evaluate the IgA, IgG and IgM levels in the serum samples of type 2 diabetic and Periodontal patients of the Peshawar area having different life style set up.

Study Design: Case control study

Place and duration of Study: This study was carried out on subjects who fulfilled our criteria and agreed to participate in the study were included. They were residents of Peshawar area and visited OPDs of Khyber College of dentistry, Peshawar during July, 2012 to June, 2013.

Patients and Methods: Among 120 participants, 30 were healthy, 30 were with periodontitis, 30 had diabetes and the remaining 30 had both diabetes and periodontitis. All of them had at least 20 natural teeth. Diabetic patients had the disease history minimum of five years while the periodontal patients had clinically confirmed the disease. Blood samples were collected from each of the participant and immunoglobulins A, G and M were measured. The observed data were analyzed accordingly through standard statistical methods.

Results: Male patients were found more as compared to females (ratio 1: 0.87) in the two diseases. The age range was 35 to 54 years with the mean 44±5. As per HBA1C results, 40 % had good control of diabetes, 26 % moderate while in 34 % control was poor.

Immunoglobulin A and G levels were found significantly higher ($p < 0.05$) in the three disease groups as compared to control group. Whereas the concentration of IgM was not changed by the said diseases.

Besides, the gender has no influence on the levels of the three immunoglobulins. The IgG levels increased with the increase in severity of the Periodontitis disease. While IgA showed slight decrease with the increase in clinical grades of the Diabetes disease.

Conclusion: The result of the current study indicates the role of humoral immune response in the two mentioned diseases. The higher levels of immunoglobins particularly IgA and IgG might be due to protective mechanism against the weak immune response and the increased bacterial challenge in diabetes and periodontitis.

Key Words: Immunoglobulins, Periodontitis, Diabetes Mellitus.

INTRODUCTION

Diabetes mellitus is a metabolic disease and a major health problem throughout the world. Its prevalence is increasing not only due to genetic factors but also due to stress and changing lifestyle modification. The number of estimated cases of diabetes increased from 30 million in 1985 to 135 million in 1995 and is projected to increase to 366 million by the year 2030[1]. About 1.5 million cases of diabetes with age above 20 were diagnosed in a single year, 2005[2.] Only in the United States, about 18 million people are suffering from this disease[3]. The prevalence of diabetes mellitus in our country is ranked 8th in the world[1] and its figure is 1.49% in the Khyber PukhtoonKhwa Province[4].

In diabetes, the body metabolism fails to utilize glucose for the production of energy and hence its levels increase in the blood. Besides, glucose levels in the saliva also increase, which act as a fuel substrate for the bacteria in the mouth and hence favor the growth of pathogens in periodontal pockets. In *addition*, *d*iabetic patients develop dry mouth a condition that predisposes to infection. Bacteria and infection in the mouth are a risk factor for initiation and progression of periodontitis. An early study described that people with poor blood glucose control tend to develop periodontal disease more severely and more frequently than people with good control of their diabetes[5]. The dental clinicians also highlighted that Periodontitis is the most widely noted manifestation of Diabetes mellitus[6].

Both diabetes mellitus and periodontal disease are contributing to the dysfunction in the immune system. Besides, self mediated immunity is reported to play a protective or aggressive role in the pathogenesis of periodontal disease[7]. Altered immune function in diabetic patients with periodontitis have been reported by several studies[7,8]. They used salivary immunoglobulins as parameters to assess the status of humoral immunity. Another scientist investigated immunoglobulins in the gingival tissue of diabetic

patients with periodontitis[9]. But there are no such data regarding serum samples, particularly of our population; having different nutrition, lifestyle, environment and socioeconomic condition. The present study was, therefore, undertaken to evaluate the immune profile (IgA, IgG and IgM) in serum among patients and control of this particular area (Peshawar).

MATERIALS AND METHODS

One hundred and twenty patients who visited Khyber College of dentistry, Peshawar, for treatment during July, 2012 to June, 2013, fulfilled our criteria and agreed for this case control study were investigated. The subjects were divided into four groups as described in table-1. Information regarding age, sex, education level, occupation, dietary history, family income and previous laboratory investigation were also collected from each of them.

The age range of all volunteers of the four groups was between 35 to 54 years. All of them had at least 20 permanent teeth in the mouth and without caries. Diabetic patients had history of the disease at least for the past 05 years. Periodontal patients had clinical attachment loss ≥ 2mm and pocket depth ≥ 4 mm in each quadrant of their mouth. Patients having severe respiratory tract infections, hypertension, liver disease, coexistent lesions, rheumatoid factor above 500 iu/ml, Albumin above 07 g/dl, allergy or autoimmune disorders were excluded from the study.

Participants were explained the objectives of the study and assured of the confidentiality. Informed consent was obtained from each subject enrolled in the study. The work was approved from the local ethical research committee of the institute. Five ml fasting venous blood was collected from all the patients and serum was separated. The specimens were stored at -20^{0}C till immunoglobulin estimations was carried out.

Immunoglobulins A, G and M were quantitatively determined with the help of diagnostic kits as used for instrument, Cobas Integra 400 Roche company[10]. The normal reference ranges as described by this method are 0.7 to 4.0 g/l for IgA, 7.0 to 16.0 for IgG and 0.4 to 2.3 g/l for IgM. The observed data was tabulated. Karl Pearson correlation test was used to correlate the association between various parameters. Comparison of different parameters between control and disease groups was done by t-test. A p-value less than 0.05 were considered statistically significant.

RESULTS

Sixty three (52.5 %) males and 57 (47.5 %) females were investigated in the present study. Their education levels are described in figure-1. Twenty two patients had diabetes for the past 20 years, 24 for the past 10 years, whereas 14 patients had duration of the disease in between 05 to 09 years. Figure-2 is regarding control of the disease(as per HbA1C result) among diabetic patients.

The reasons to visit the dentist are described in table-2. Besides, 58 % of the participants mentioned that they had visited the dental hospital for the first time. The most common reasons mentioned for the hesitation of no dental visits was viral transmission due dental instruments, unpleasant/time consuming dental procedure and the expensive treatment.

The average concentrations of the three immunoglobulins are described in table-3. Males and females had the same pattern of the three immunoglobulins among all the groups. The IgA and IgG levels were found significantly higher ($p < 0.05$) in the serum of the three disease groups as compared to control group. Whereas the concentration of IgM was not changed and showed almost similar patterns in all the four groups. Besides, the IgG levels increased with the severity of the periodontal disease. While IgA showed slight decrease with the increase in clinical grades of the diabetes disease. Both these immunoglobulins A and G decreased in all subjects with the progress of the age.

Table No.1: Distribution of subjects by sex.

Subject	Males	%age	Females	%age
Healthy	15	50.0%	15	50.0%
Periodontitis	17	56.7%	13	43.3%
Diabetes	16	53.3%	14	46.6%
Diabetes with Periodontitis	15	50.0%	15	50.0%
Total	63	52.5%	57	47.5%

Table No.2: Reasons to visit the dentist among the total.

Reason	Number of subjects	Percent
Tooth pain	36	30.0 %
Mouth Infection	24	20.0 %
Bleeding with a brush	22	18.3 %
Extraction	21	17.5 %
Periodontal problem	17	14.2 %

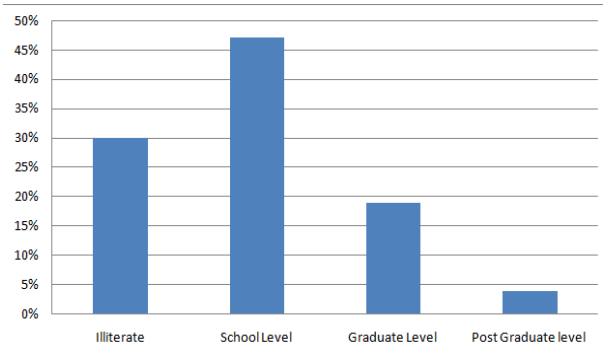

Figure No.1: Education Levels of the Participants

Table No.3: Mean Immunoglobulin Levels among Participants.

Group	IgA (g/l)	IgG (g/d)	IgM (g/l)
Healthy	2.3	10.21	1.05
Periodontitis	4.3	15.93	0.96
Diabetes	4.8	14.52	0.87
Diabetes with Periodontitis	5.3	16.34	0.81

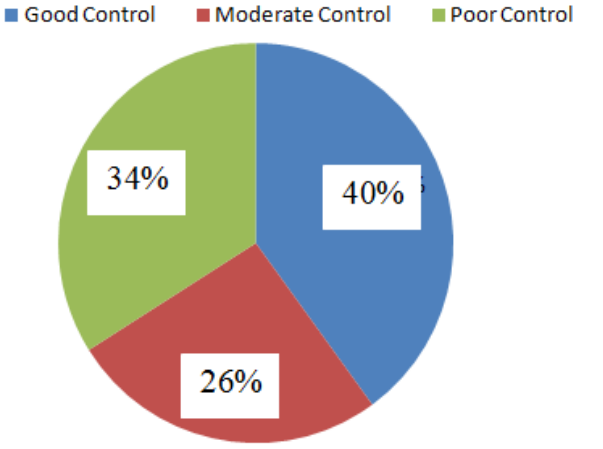

Figure No.2: Control of disease among diabetic patients

DISCUSSION

The humoral immune response plays an important role in the two diseases i.e. diabetes and periodontitis. We also found altered immunoglobulin levels in the mentioned diseases. The literature review highlighted that periodontitis is a frequent complication of diabetes, and diabetic subjects often exhibit decreased immune response and more complications[9]. Besides, like our study, other study also documented that the oral complications of diabetes increase with the age and poor control of the disease[11].

Both males and females exhibited a similar pattern of immunoglobulins in the controls as well as in the diseased subjects. Similar findings were observed earlier[7]. The level of serum IgA and IgG in the diseased group was found elevated. Another study also showed increased levels of IgA and IgG in the diseased group as compared to the healthy subjects[9]. The most probable reason for this elevation might be the tissue alterations in the same disease and increased antibody production as required for neutralization of toxins. Some scientists demonstrated that IgA and IgG play a protective role in the pathogenesis of periodontal disease[12]. While Vaziri and his coworkers reported no significant difference in the salivary IgA levels between control and diabetic subjects[13].

The IgG levels increased with the increase in severity of the Periodontitis disease. The reason might be that more antibodies are needed for chronic infection. Other scientists also agreed with such findings[9]. While IgA showed slight decrease with the increase in clinical grades of the diabetes disease. This may be either due to the weak response of the diabetes or special homeostatic mechanism of the body. The literature review is not clear regarding this point. Moreover, immunoglobulins A and G decreased with the progress of the age in the present study. This is in agreement with normal physiological function.

The IgM level was not changed in the diseased group. These findings are in accordance with the previous studies[7,9]. The possible explanation may be that local synthesis of immunoglobulin M does not occur in the periodontitis and hence there is no diffusion of IgM unlike IgA and IgG in the blood stream from a local source. In addition, the synthesis of the same immunoglobulin is slow in diabetes and increase usually in the autoimmune diseases and viral infections[14]. Hence the information regarding the immune response in the two diseases is contradictory and has not been studied extensively in our country. Therefore, it should be given special attention and further study comprising of large sample size including other parts of the country has to be designed so as to clarify all these observations.

CONCLUSION

The result of the current study indicates the role of humoral immune response in the two mentioned diseases. The higher levels of immunoglobins particularly IgA and IgG might be due to protective mechanism against the weak immune response and the increased bacterial challenge in diabetes and periodontitis.

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Original Article

Ocular Injuries

Ocular Injuries - An Experience at Anwar Paracha Eye Hospital Sukkur

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ABSTRACT5.

Objective: To provide the spectrum of ocular trauma, their potential hazards and propose preventive measures**.**

Study Design: Retrospective Descriptive

Place and Duration of Study: This study was conducted in the departments of Anwar Paracha Eye Hospital (APEH) & Forensic Medicine Ghulam Mohammmad Mahar Medical College Sukkur (GMMMCS) & Chandka Medical College Larkana (CMCL), constituent colleges of Shaheed Mohtarma Benazir Bhutto Medical University Larkana (SMBBMUL) from January to December 2013.

Materials and Methods: The present study was conducted from the records of patients of ocular injuries who attended Anwar Paracha Eye Hospital GMMMC Sukkur with association of departments of Forensic Medicine of GMMMC Sukkur& CMC Larkana, the constituent colleges of SMBBMUL.

Results: Of all patients visited APEH, 1.016% cases were of ocular injuries with Male to Female ratio of 8.34:1. The most vulnerable age group was 11-30 years (67.14%). On presentation in most of cases 130 (46.43%) had visual acuity 6/9 & on follow up 6/6 in 200 (71.43%) cases. The mainly sharp objects in 200 (71.43%) cases were to cause injury and mostly manner of injury was an accident in 212(75.72%) cases.

Conclusion: Majority of the cases were male of young age injured by sharp object due to accident with good prognosis of visual acuity.

Key word: Ocular, Injury, Frequency, Accidents

INTRODUCTION

In our body eyes are in prominent location, though protected by the blinking lids, orbital bones and cushioned retro-bulbar fat but more prone to trauma by variety of substances specially at workplace in daily life[1]. Every year more than half a million ocular injuries causing blindness worldwide that restrict activities for more than a day and approximately 19 million have unilateral permanent reduction in sight at least & 1.6 million people are blinded because of ocular injuries[2].

The variety of articles that may be put to use as weapon like knife, razor, stick, stone, needle dagger, icepick, fire-arm[3]. The weapon is described as any article made or adapted for use to cause injury to the person[4]. The weapons causing eye injuries are categorized into blunt, sharp/penetrating and foreign bodies. A trauma produced by blunt weapon to the eye may result in a spectrum of injuries ranging from a simple ‘ Black eye’ to traumatic mydriasis, iridodialysis, hyphaemia, concessional cataract, lens subluxation or complete dislocation, retinal dialysis, retinal oedema & haemorrhage, vitreous haemorrhage, a retinal blood vessel injury by compressing anterio-posteriorly & stretching in the equatorial plane correspondingly[2]. Sharp/Penetrating eye injuries depend on where & how for the object enters into the eye, Isolated to cornea or corneo-sclera, Anterior & posterior segments of eye ball. Foreign bodies as they enter & pass through the eye if not removed rapidly (1) may cause toxicity to tissues as they degrade or oxidize or (2) damage to the intraocular contents.

The rationale is that the eye injuries are generally considered in the context of clinical eye care delivery system and not awareing the public of their potential hazards and preventive strategies commonly, so the present study is an attempt to address this deficit in this zone by providing the profile of ocular injury cases.

MATERIALS AND METHODS

The present study was conducted from the records of patients of ocular injuries who attended Anwar Paracha Eye Hospital GMMMC Sukkur with association of departments of Forensic Medicine of GMMMC Sukkur& CMC Larkana, the constituent colleges of SMBBMUL from January to December 2013. The variables considered gender, age, type of weapon, visual acuity assessed by Snellien chart& manner of injuries were entered in Statistical Package of Social sciences (SPSS) version-17. Findings were expressed in numbers & percentage. This study was approved by the Ethical Review Committee of Shaheed Mohtarma Benazir Bhutto Medical University Larkana.

RESULTS

A total 27542 patients visited to eye Hospital, of which 280 (1.016%) were enrolled of ocular injuries as shown in graph No: 1. Out of 280, males were 250 (89.29%) and females 30 (10.71%) with M:F ratio 8.34:1 as shown in graph No: 2. Majority of the patients 106

(37.86%) were between 21-30 years of age followed by 82 (29.28%) patients in 11-20 years age group and the least number of cases 07 (2.50%) in age group of 61 & above years as shown in table No: 1.

Table No. 1: Age distribution (n=280)

Age group	No	%age
Less than 10 years	25	8.93
11- 20 years	82	29.28
21-30 years	106	37.86
31-40 years	26	09.28
41-50 years	24	08.57
51-60 years	10	3.57
61 & above	07	2.5
Total	**280**	**100%**

Table No. 2: Co-relation of kind of weapon to type of injury. (n=280)

Type of injury	Kind of weapon	No	%	Total (%)
sharp	Scissor	77	27.5	200 (71.43%)
	Knife	42	15.00	
	Screw driver	30	10.71	
	Used syringe needle	16	05.71	
	Wind screen glass	12	04.29	
	Iron rod	10	03.57	
	Tip of ball point pen	05	01.79	
	Air gun	04	01.43	
	Kite stick	04	01.43	
Blunt	Stone	12	04.29	50 (17.43%)
	Hand bell	10	03.57	
	Tennis ball	08	02.86	
	Gili danda	06	02.14	
	Edge of brick	04	01.43	
	Tree twig	02	00.71	
	Door handle	02	00.73	
	Unknown	06	02.14	
Foreign body	Cracker	09	03.21	30 (10.71%)
	Explosive material	07	02.50	
	Air gun pellets	04	01.43	
	Metallic foreign body	10	03.57	
Total	_____	280	100%	280 (100%)

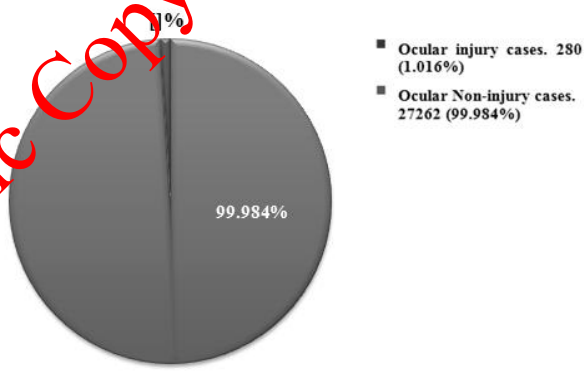
Sharp objects were the most common 200 (71.43%) followed by blunt 50 (17.86%) and the least involvement by Foreign bodies 30 (10.71%) to cause the ocular injuries as shown in table No: 2. The visual acuity on presentation was as; in patients 90 (32.14%) 6/6, 130 (46.43%) 6/9, 12 (4.29%) 6/18, 18 (6.43%) 6/36, 23 (8.21%) 6/24, 05(1.79%)<6/60 and 02 (0.71%) PI +ve on Snellen Chart while on final presentation had visual acuity as; 200 (71.43%) 6/6, 46 (16.43%) 6/9, 04 (1.43%) 6/18, 07 (2.5%) 6/36, 17 (6.07%) 6/24, 04 (1.43%) <6/60 & 02 (0.71%) +ve as shown in table NO. 3. The manner of injuries was accidental in 212 (75.72%) and 68 (24.28%) homicidal as shown in table No. 4.

Table No. 3: Visual acuity. (n=280)

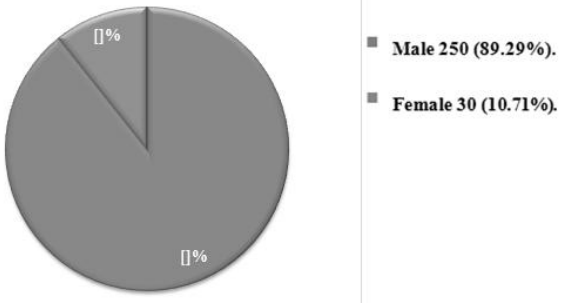
No of patients on presentation	Visual acuity	No of patients on final presentation	Visual acuity
90 (32.14%)	6/6	200 (71.43%)	6/6
130 (46.43%)	6/9	46 (16.43%)	6/9
12 (4.29%)	6/18	04 (1.43%)	6/18
18 (6.43%)	6/36	07 (2.5%)	6/36
23 (8.21%)	6/24	17 (6.07%)	6/24
05(1.79%)	<6/60	04 (1.43%)	<6/60
02 (0.71%)	PI+ve	02 (0.71%)	PI+ve
Total: 280 (100%)	-----	**280 (100%)**	------

Table No.4: Distribution manner of injury. (n=280)

Manner of injury	No	%age
Accidental	212	75.72
Homicidal	68	24.28
Total	**280**	**100%**



Graph No. 1 Distribution of ocular injuries (n=27542)



Graph No. 2: Distribution of gender (n=280)

DISCUSSION

Injuries to the eye are more common & deleterious in their effects specially in developing countries than developed. In this study among 280 patients 250 (89.29%) were male and female 30 (10.71%) with M:F ratio of 8.34:1 while in other studies M:F ratiois 2.56:1[5], 2.85:1[6], 3:1[7], 4.78:1[8],5:1[9],5.49:1[10].High

incidence of ocular injury was seen in males because of occupational exposure, taking part in aggressive activities. Our study shows the age distribution for the occurrence of ocular trauma is maximum106 (37.86%) in 21-30 years age group and the second peak82 (29.28%) in the 11-20 years. The propensity towards young and school going children in our study is respectively parallel to the trends reported by Akram et al[11], Gyasi et al[12], Maurya et al[13], Sukati & hansraj[14,15].Higher preponderance in children & young individuals indicates that children have decreased ability to detect and avoid potential hazards because of non-supervision at play & domestic activities while young ones are more aggressive, occupational exposure, participation in dangerous sports & hobbies, alcohol use & risk taking behavior. Our study represents 71.43% injuries caused by sharp objects and studies conducted by L.O One we 13.4%[16]& Guly et al3.3%[17] are in contrast. Injuries by blunt weapon in our study shows 17.86% that is in consistent to study conducted by Sintuwong & Winitchai 19.2%[8] and in contrast in studies by Voon et al 12.6%[18],Nqo & Leo 4%[19], Gyasi et al 41.3%[12],Zelalem Addisu 40%[20]& Zaqeiboumet al 60%[21]. Foreign bodies lodged in eyes in our study is 10.71% while in studies by Babar et al11.8%[22], Cilino et al 16.8%[10], Aghadost & others 6.1%[9] are almost in same incidence. Higher incidence by sharp objects is due to urban population, industrial area where there is easy accessibility to such objects. This study shows a good initial visual acuity 78.57% study by Cilino et al[10] because of minor injuries in most of the cases involving the eye- lid, conjunctiva, cornea and anterior chamber of an eye having association with a good visual prognosis than posterior chamber trauma and the modern surgical & medical management as well as the better awareness of urban population than rural population to reach the Eye emergency room earlier. Our study shows in 212 (75.72%) cases accidental injuries which is in parallel to study conducted by Vats & other authors 87.1%[23] and assault cases are 68 (24.28%) in our study that is nearly in consistent with study of Babar et al 37.37%[24] and in contrast to Shashikal & others 3.3%.[25]The high rate of accidental injuries is due to ill-fitting or non-availability of protective measures at work place, poor vision due to fogging from sweat, specially in children & young people because of decreased ability to detect & avoid potential hazards, unsupervision at play and domestic activities as well as taking part in dangerous sports.

CONCLUSION

The mostly cases were of male gender in the age of children & adults. The injuries caused mainly by sharp objects resulted in visual impairment initially but with good final vision because of advanced technology. The accident was the main manner of injury.

Recommendation: Adequate supervision of children Educational measures to reduce accidents by arranging seminars, information through media etc.
Maintain Eye Trauma Registry in the department of ophthalmology nationwide in order to provide proper ocular trauma statistics.

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Original Article

Diabetes Mellitus

Incidence of Orthostatic Hypotension and Postural Dizziness in Patients with Type II/Non–Insulin-Dependent Diabetes Mellitus

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ABSTRACT

Objective: To evaluate the association between orthostatic hypotension and postural dizziness, and determined the factors most likely related to orthostatic hypotension in patients with diabetes.
Study Design: Comparative study.
Place and Duration of Study: This study was conducted at the Hamdard University Hospital, Karachi between October 2010 and September 2012.
Materials and Methods: The subjects were 102 consecutive non–insulin-dependent patients with diabetes and 204 age- and sex-matched control subjects. Orthostatic hypotension was defined as a decline of 20 mm Hg or more in systolic blood pressure 1 minute after standing. Postural dizziness was any feelings of dizziness, light-headedness, or faintness that occurred while standing during the examination.
Results: The prevalence of orthostatic hypotension and postural dizziness in patients with diabetes was higher than in control subjects. Those patients with both diabetes and orthostatic hypotension were older and had higher supine systolic blood pressures and higher plasma glycosylated hemoglobin and fasting glucose levels. They had higher prevalence of postural dizziness, hypertension, and cerebrovascular disease, and lower standing systolic blood pressures than those without orthostaticl hypotension. They also were more often being treated with antihypertensive agents. Only 30.8% of patients with diabetes with orthostatic hypotension suffered from postural dizziness. Postural dizziness, hypertension, cerebrovascular disease, and plasma glycosylated hemoglobin levels were independently associated with orthostaticl hypotension in patients with diabetes.
Conclusion: Postural dizziness, glycemic control, hypertension, and cerebrovascular disease were important determinants of orthostatic hypotension in patients with diabetes. Orthostaticl hypotension was associated with postural dizziness, but it cannot be determined clinically just from the presence of postural dizziness because the sensitivity for diagnosis of orthostatic hypotension is low.
Key Words: Orthostatic Hypotension, Postural Dizziness, Diabetes Mellitus

INTRODUCTION

Orthostatic hypotension is considered the most dramatic clinical manifestation and hallmark of diabetic autonomic neuropathy.[1-2] In patients with diabetes, autonomic neuropathy with abnormal cardiovascular reflex tests has been associated with increased mortality from unexpected sudden death and renal failure.[3-4] However, there is no uniform criterion for postural hypotension that may be symptomatic or asymptomatic[5] Although orthostatic hypotension is most commonly defined as a drop of 20 mm Hg or more in systolic blood pressure from the lying posture to the upright posture,[6-11] the lack of symptoms associated with orthostaticl hypotension raises a question about the clinical value of this definition. It is reasonable to define orthostatic hypotension as a particular decline in blood pressure that can predict a poor outcome.[10] A study of the Hypertension Detection and Follow-up Program6 revealed that a decline of 20 mm Hg or more in systolic blood pressure after standing was associated with a high 5-year mortality rate, which indicated a poor prognosis for patients with diabetes complicated with hypertension. Epidemiological evidence also suggested that postural change with a decrease of 20 mm Hg or more in systolic blood pressure was a significant risk factor for fall and syncope.[7-8] Furthermore, a drop of more than 20 mm Hg in postural systolic blood pressure was a risk factor for symptomatic occlusive cerebrovascular disease[9]. Therefore Lipsitz[10] thought that orthostatic hypotension with a decline of 20 mm Hg or more in systolic blood pressure on standing should be used to define a potentially dangerous hypotensive response.

Postural dizziness was believed to be due to reduced cerebral perfusion.[8,12-13] However, Ohashi et all [4] used single photon emission computed tomography to examine cerebral blood flow and showed that regional cerebral autoregulation was not associated with postural dizziness. Thus, the mechanism of postural dizziness may be heterogeneous.[15] Clinically, postural dizziness is often strongly associated with orthostatic hypotension, but the evidence is conflicted.[11,16-18] Some people with minor drops in systemic blood pressure develop clinical signs of cerebral ischemia and complain of dizziness or faintness on standing, whereas

others with greater drops in blood pressure remain asymptomatic. 12 Thus, some reports indicate that orthostatic hypotension is related to postural dizziness,[16,18] while others show that there is no association between orthostatic hypotension and postural dizziness.[11,17]

Certain medications, normal aging, and some pathological changes such as diabetes mellitus, hypertension, and cerebrovascular disease are believed to be associated with orthostatic hypotension.[10,19-20] Similarly, postural dizziness is also associated with age, medication use, and comorbid diseases such as diabetes and stroke.[16,21-22] Some of these associated factors are interrelated and interdependent, which may confound the relationship between orthostatic hypotension and postural dizziness.

MATERIALS AND METHODS

The subjects were 102 consecutive non–insulin-dependent patients with diabetes and 204 age- and sex-matched nondiabetic control subjects who underwent physical examinations for preventive reasons at the Hamdard university Hospital between October 2010 and September 2012. Subjects were excluded from the study for anemia, thyroid disorder, pregnancy, chronic liver disease, andcongestive cardiac failure. The subjects with diabetes included 57 men and 45 women with a mean age ± SD of 57.9 ± 10.5 years. The nondiabetic control subjects were 228 men and 180 women with a mean age ± SD of 57.1 ± 9.5 years.

Demographic characteristics, medical history, and use of medications were assessed using a standard structured questionnaire. All the subjects received a complete physical examination, measurement of seated blood pressure, body weight, height. The laboratory tests included blood chemistry analysis,Lipid profile, fasting blood sugar and random bood sugar.

Blood pressure and heart rate were measured based on the American Heart Association recommendations[26] with a vital sign monitor . Measurements were obtained at least 3 hours after a meal in a quiet room. The appropriate-sized cuff was wrapped around the right upper arm and blood pressure and heart rate were recorded after the subject had rested in a supine position for at least 5 minutes. The subject was then asked to stand, with the entire forearm relaxed and supported at the heart level (fourth intercostal space) on an adjustable table; measurements of blood pressure and heart rate were repeated after 1, 2, and 3 minutes of standing.[5,26] The subjects were asked about any feelings of dizziness, light-headedness, or faintness during the standing procedure and a positive or negative response was recorded.

Clinical diagnoses and definitions were determined as follows: (1) Diabetes mellitus was diagnosed with a fasting plasma glucose measurement of 7.8 mmol/L (140 mg/dL) or greater or 11.1 mmol/L (200 mg/dL) , when a history of diabetes was reported, or if the subject currently used insulin or an oral hypoglycemic agent.[27] (2)Orthostatic hypotension was defined as a drop in systolic blood pressure from the lying position to the upright position of 20 mm Hg or more after 1 minute of standing.[11,16,25] (3) Postural dizziness was defined as any feelings of dizziness, light-headedness, or faintness while standing during the examination.[11,16,25]

Comparisons of categorical variables were analyzed using the χ^2 test. Comparisons of continuous variables between the 2 groups were carried out using the Student *t* test or the Mann-Whitney *U* test, where appropriate. Analysis of variance was used for comparisons of blood pressure and levels of fasting plasma glucose, glycosylated hemoglobin, cholesterol, and triglycerides with covariance of age and BMI between the 2 groups. Stepwise multiple logistic regression analysis was used to assess the association of clinical variables with postural hypotension. *P* values of .05 or lower indicated statistical significance.

RESULTS

Table 1 shows the clinical characteristics of subjects with diabetes and nondiabetic control subjects. Subjects with diabetes had significantly higher BMI, seated blood pressure, and heart rate; they had significantly higher plasma creatinine, cholesterol, triglyceride, fasting glucose, and glycosylated hemoglobin levels, and a significantly higher prevalence of hypertension and use of antihypertensive agents than nondiabetic control subjects. However, there were no significant differences between subjects with diabetes and nondiabetic control subjects in age, sex, prevalence of cerebrovascular disease, or left bundle-branch block or ischemic patterns on electrocardiograph.

Table No.1: Clinical characteristics of subjects with diabetes and nondiabetic control subjects

Variable	Subject with diabetes (t=102)	Control subject (t=204)	p
Age y	56 ±11	55±8	36
Men %	26	26	≥99
BMI kg/m^2	26	25.5	≤.001
Heart rate beats per min	76±7	80±9	≤.001
Seated blood pressure mm Hg			
Systolic blood pressure	140±10	120±9	≤.001
Diastolic blood pressure	90 ±10	80 ±6	≤.001
Fasting blood glucose mg/dl	184±60	104±30	≤.001
Glycosylated haemoglobin %	8±2	5.6±2.5	≤.001
Triglyceride mg/dl	160±120	153±80	≤.001
Cholesterol mg/dl	220±55	170±40	≤.001

Figure 1 reveals the prevalence of orthostatic hypotension and postural dizziness in subjects with diabetes and nondiabetic control subjects. Subjects with diabetes had a significantly higher prevalence of orthostaticl hypotension and postural dizziness than nondiabetic control subjects (subjects with diabetes vs those without:orthostatic hypotension, 27.4% vs 15.4%, *P*<.001; postural dizziness, 22.5% vs 15.3%, P=.03).

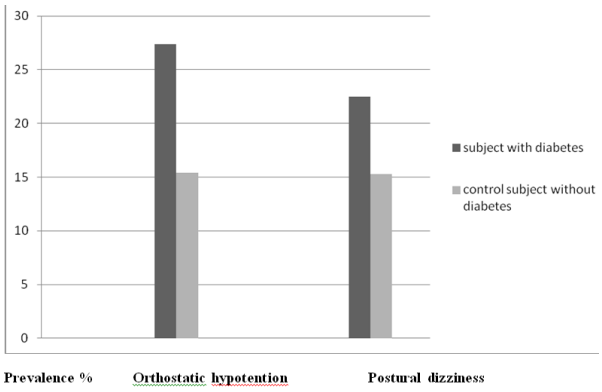

Figure No.1: Prevalence of orthostatic hypotension and postural dizziness in subjects with diabetes and nondiabetic control subjects.

Figure 2 illustrates the prevalence of postural dizziness in subjects with diabetes and nondiabetic control subjects with and without orthostatic hypotension. Among subjects with diabetes, those with orthostatic hypotension had a higher prevalence of postural dizziness than those without. However, only 30.8% of 18.5% subjects with both diabetes and orthostatic hypotension suffered from postural dizziness. Among nondiabetic control subjects, there was no significant difference in the prevalence of postural dizziness between those with and those without orthostatic hypotension.

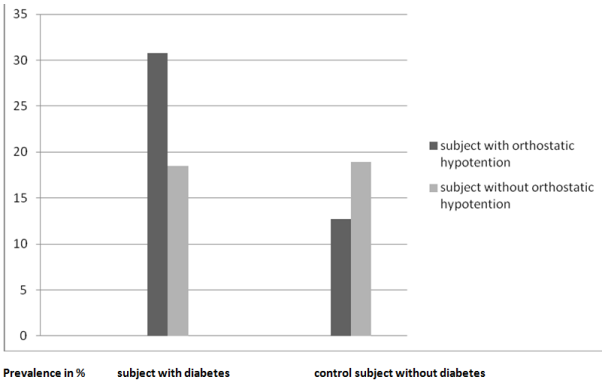

Figure No.2: Prevalence of postural dizziness in subjects with diabetes and nondiabetic control subjects with and without orthostatic hypotension

To examine the relationship between orthostatic hypotension and postural dizziness, the outcome variable was orthostatic hypotension and the predictor variables included postural dizziness and other clinical variables in multiple logistic regression analysis . For total study populations, the predictor variables included postural dizziness, age, BMI; plasma cholesterol, triglyceride, and creatinine levels; and diabetes mellitus, hypertension, cerebrovascular disease, and use of insulin or oral hypoglycemic and antihypertensive agents. The results show that an independently positive correlation existed between orthostatic hypotension and the following variables: age (*P*=.005), diabetes mellitus (*P*=.005), and hypertension (*P*=.001). An increase in the number of these independently associated factors increased the likelihood of orthostatic hypotension. In subjects with diabetes, the predictor variables of multiple logistic regression included postural dizziness, age, BMI; plasma cholesterol, triglyceride, creatinine, and glycosylated hemoglobin levels; and duration of diabetes, diabetic retinopathy, hypertension, cerebrovascular disease, and use of insulin or oral hypoglycemic and antihypertensive agents. The results demonstrated that postural dizziness (*P*=.02), glycosylated hemoglobin levels (*P*=.002), hypertension (*P*=.002), and cerebrovascular disease (*P*=.04) were independently associated with postural hypotension. In nondiabetic control subjects, the predictor variables included postural dizziness, age, and BMI; plasma cholesterol, triglyceride, creatinine, and glycosylated hemoglobin levels; and hypertension, cerebrovascular disease, and use of antihypertensive agents. The results indicated that age (*P*=.01) and hypertension (*P*=.01) were independently related to orthostatic hypotension.

DISCUSSION

Diabetes mellitus was an independently associated factor of postural hypotension in our study, which is consistent with the literature.[1,3,19,32] Regarding the mechanism of orthostatic hypotension in diabetes, there is more commonly a neurogenic cause usually associated with efferent involvement of the baroregulatory reflex arc with damaged sympathetic vasoconstrictor fibers in the splanchnic bed, muscle, and skin.5 In contrast, diminished cardiac acceleration may play a lesser role in the development of orthostatic hypotension.[33-34]

Our patients with diabetes had a higher resting heart rate than nondiabetic control subjects, which is consistent with other reports. A higher resting heart rate is often observed in patients with diabetes, and this is due to cardiac vagal neuropathy. With progression of diabetic autonomic neuropathy, some patients experienced initial tachycardia that may be followed by a decreased heart rate and, ultimately, a fixed heart rate due to the progression of cardiac sympathetic nerve dysfunction. The increase in heart rate on standing results from the dual effects of inhibition in cardiac vagal tone and increase in sympathetic tone. The heart

rate change after standing in those subjects with orthostatic hypotension was lower than in those without because sympathetic abnormalities in patients with diabetes are detectable almost exclusively after cardiac vagal neuropathy is impaired. Although all of our subjects with postural hypotension, both with and without diabetes, had lower heart rate changes than those without orthostatic hypotension, the difference was not significant. This may be due to the high fatality rate in subjects with orthostatic hypotension[3 - 4] and the minor role of diminished cardiac acceleration in the development of orthostatic hypotension,[33 - 34] thus causing and underestimate in the relationship between orthostatic hypotension and heart rate change after standing.

Reported studies have revealed that poor glycemic control of diabetes mellitus, which is shown by increasing plasma glycosylated hemoglobin levels, was vulnerable to orthostatic hypotension.[23 - 24] In our patients with diabetes, plasma glycosylated hemoglobin was an independently positive factor correlated with orthostatic hypotension. Therefore, good glycemic control is important in the prevention of orthostatic hypotension in subjects with diabetes, which is also suggested in other reports.[1 ,23 - 24]

Duration of diabetes has often been perceived as an associated factor of orthostatic hypotension, but the evidence was sparse. The prevalence of orthostatic hypotension (the criteria of orthostatic hypotension with a systolic blood pressure change of 30 mm Hg or more) increased with duration of diabetes in a young group (aged 18-34 years).[24] However, our study and another report[23] showed that duration was not independently associated with orthostatic hypotension. Because porthostatic hypotension was associated with increased mortality,[3 - 4] the prevalence of orthostatic hypotension in survivors would be diminished.[24] This may be the partial explanation for the discrepancy between the prevalence of orthostatic hypotension and duration of diabetes.

The prevalence of orthostatic hypotension was 27.4% in our subjects with diabetes. Hilsted and Low[1] reported 2 studies on diabetes mellitus complicated with orthostatic hypotension in 19 (26%) of 73 patients and 7 (43%) of 16 patients. Tsutsu et all[23] reported on 157 (18%) of 886 cases of patients with diabetes. The variation was considered to be due to the referral bias.[1]

The literature has revealed that cerebrovascular disease is a risk factor associated with orthostatic hypotension,[10 - 11 ,19] because it may interrupt the central nervous system pathways that control autonomic reflexes.[32] Cerebrovascular disease was an independently associated factor of postural hypotension in our patients with diabetes. Our results suggest that hypertension is associated with orthostatic hypotension in subjects with diabetes and in nondiabetic control and total subjects as well, which is consistent with the findings of other studies[11,16,18,25]. Hypertension has been shown to be associated with impaired baroreflex sensitivity, which may be due to a decrease in vascular compliance and consequent diminution of baroreceptor stretch and relaxation during blood pressure changes. Moreover, an increase in blood pressure and the duration of hypertension may exacerbate the decline in baroreflex sensitivity, in part, causing orthostatic hypotension[20] Although the literature has shown that antihypertensive medication was related to orthostaticl hypotension,[10 ,19] our study and another report revealed that there was no significant association between orthostatic hypotension and antihypertensive medication. Masuo et al[35] showed that the incidence of orthostatic hypotension decreased significantly followed by decreasing blood pressure and normalizing blood pressure with the use of antihypertensive drugs (especially calcium channel blockers, β-blockers, and angiotensin-converting enzyme inhibitors) in elderly patients with hypertension. This may be a partial explanation for the dissociation between orthostatic hypotension and antihypertensive medication. Another factor could be due to an underestimation in a cross-sectional study if a past occurrence of a treatment adverse effect or related symptom led to an adjustment of the treatment regimen.

The mechanism of postural dizziness remains obscure and may be heterogeneous.[12] Some reports have suggested orthostatic hypotension or cerebral ischemia may be involved in postural dizziness,[12- 13] and others have suggested vestibular dysfunction, vision impairment, and disorders in the proprioceptive system may be also involved.[15,] Thus, orthostatic hypotension is just 1 of the causes of postural dizziness, and it is not surprising that only 19 (32.8%) of 58 subjects with diabetes and orthostatic hypotension suffer from postural dizziness. This is consistent with other reports suggesting that orthostatic hypotension may be a cause of postural dizziness, but most subjects with orthostatic hypotension in the studies of the elderly[16 ,18] did not suffer from postural dizziness. Thus, the sensitivity was low for the diagnosis of orthostatic hypotension based solely on the presence of postural dizziness relative to the diagnosis based on the orthostatic blood pressure changes. Therefore, orthostatic hypotension cannot be clinically determined just from the presence of postural dizziness.

CONCLUSION

The prevalence of orthostatic hypotension and postural dizziness in patients with diabetes was higher than in nondiabetic control subjects. Only 32.8% of subjects with both diabetes and orthostatic hypotension suffered from postural dizziness. Age, diabetes mellitus, and hypertension were independently associated with orthostatic hypotension. Plasma glycosylated hemoglobin levels, postural dizziness, hypertension,

and cerebrovascular disease are independent determinants of orthostatic hypotension in subjects with diabetes. Clinically, older adults and patients with diabetes mellitus or hypertension should receive regular monitoring of supine and upright blood pressure changes. Good glycemic control is important in preventing orthostatic hypotension in patients with diabetes. Orthostatic hypotension was associated with postural dizziness in subjects with diabetes, but it cannot be diagnosed clinically just from the postural dizziness because of the low sensitivity in the diagnosis of orthostatic hypotension based only on postural dizziness relative to the diagnosis based on postural systolic blood pressure changes.

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Original Article

Anti Diabetic Effects of Cinnamon Extract in Albino Rats with Effects on the Serum Insulin Levels

Comparison of Oral Hypoglycemic

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ABSTRACT

Objective: To determine the changes in the serum insulin levels in alloxan induced diabetic albino rats in comparison with oral hypoglycemic drugs.

Study Design: An experimental study**.**

Place and Duration of Study: This study was conducted at Al Tibri Medical College Karachi during December 2012 to December 2013.

Materials and Methods: The present study was conducted on 60 Albino rats which were group from A to F consisting of 10 rats in each group. These groups were further divided into two sub groups which were treated with low dose and high dose of the cinnamon and oral hypoglycemic drugs.

Results: The results showed that there is significant reduction in serum insulin level in the alloxan treated group animals which was improved in group C animals treated with low dose of cinnamon extract in alloxan induced diabetic rats. Also animals in group D and group E treated with tolbutamide and acarbose respectively showed higher increase in serum insulin level as compared with cinnamon extract treated groups, however when cinnamon extract was used in combination with tolbutamide or acarbose it showed synergetic effects.

Conclusion: Tolbutamide and Acarbose treated groups showed better anti diabetic effect by increasing the serum insulin level in comparison with cinnamon extract treated groups when used individually. This effect was enhanced when cinnamon extract was used in combination with either tolbutamide or acarbose.

Key Words: Diabetes, Alloxan, Serum insulin

INTRODUCTION

Diabetes mellitus is one the leading cause of the death resulting in about 2.9 million of deaths every year and is considered as third largest cause of death in industrialized countries. The prevalence of diabetes mellitus is expected to rise in recent years across the world[1,2,3]. The prevalence rate of this disease across the world is increasing remarkably[4,5]. In Pakistan, males are usually affected more with this disease due to impaired glucose tolerance. Also the people living in urban areas suffered with this disease more as compared to people living in rural area due to change in their life style [6,7].

Diabetes mellitus can be surgically or chemically induced in various species of animal. Chemical induction of the diabetes can be gained by administration of either alloxan or streptozotosin[8,9]. Research have been conducted in the last few decades on plants mentioned in ancient literature have anti-diabetic property[10].

As far as the management of this disease is concerned different other parameters should be carried out like diet, weight control, regular exercise, nature of physical activity, use of hypoglycemic drugs as prescribed by the physicians and continuous monitoring the status of this disease[11-14]. The present study is designed to determine the effects cinnamon extract in comparison with two hypoglycemic drugs tolbutamide and acarbose (glucobay) in allaxon induced diabetic rats.

MATERIALS AND METHODS

The present experimental study was carried out in the Department of Physiology Al-Tibri Medical College and Hospital, Karachi from December 2012 to December 2013. In this study 60 Albino rats of both sexes were included which were grouped from A to F. Each group of 10 rats was further divided into two sub-groups containing 5 rats in each subgroup.

- Animals in Group A1 were treated with normal saline only where as Group A2 as Diabetic Control were treated with Alloxan.
- Animals in Group B1 were treated with low dose cinnamon extract where as Group B2 were treated with high dose cinnamon extract.
- Animals in Group C1 were treated with low dose tolbutamide where as Group C2 were treated with high dose tolbutamide.
- Animals in Group D1 were treated with low dose acarbose where as Group D2 were treated with high dose acarbose.
- Animals in Group E1 were treated with combination of low dose cinnamon extract plus low dose tolbutamide where as Group E2 were

treated with low dose cinnamon extract plus low dose acarbose.

- Animals in Group F1 were treated with combination of high dose cinnamon extract plus high dose tolbutamide where as Group F2 were treated with high dose cinnamon extract plus high dose acarbose.

All the data obtained after experimental work was analyzed statistically by SPSS version 21, Chi-square test and student T-test was used to compare the findings between the affected and control group. Statistically P value < 0.05 was considered significant.

RESULTS

The serum insulin level of cinnamon extract were observed and compared with the control animals and anti-diabetic drugs groups.

1. Comparison of Serum Insulin Level (µU/ml) Within Group A: Mean serum insulin level of group A1 was 56 where as in group A2 it was 28 as shown in Table 1. Group A2 showed significant decrease in serum insulin level after alloxan induction.

Table No.1: Mean serum insulin level of Group A1 and A2

Serum Insulin (µU/mL)						
Group	Initial	1ST DAY	07TH DAY	14TH DAY	21ST DAY	30TH DAY
Normal Saline	57.38 ± 1.43	56.84 ± 1.49	57.72 ± 2.16	57.93 ± 1.40	56.17 ± 2.05	56.88 ± 2.30
Alloxan	54 ±2.34	19 ±3.12	20 ±2.12	22 ±2.45	26 ±3.12	28 ±.24

Table No.2: Mean serum insulin level of Group B1 and B2

Serum Insulin (µU/mL)						
Group	Initial	1ST DAY	07TH DAY	14TH DAY	21ST DAY	30TH DAY
Cinnamon extract 200mg/kg	56± 2.24	28± 3.14	32± 2.45	35± 2.65	40± 3.45	42±\ 3.15
Cinnamon extract 600mg/kg	52± 2.12	25± 3.23	30± 2.15	34± 2.11	38± 3.12	40± 4.12

Table No.3: Mean serum insulin level of Group C1 and C2

Serum Insulin (µU/mL)						
Low Dose	Initial	1ST DAY	07TH DAY	14TH DAY	21ST DAY	30TH DAY
Tolbutamide 20 mg/kg	50	28	35	40	42	45
Tolbutamide 40 mg/kg	52	24	38	42	45	48

2. Comparison of Serum Insulin Level (µU/ml) Within Group B: Mean serum insulin level of group B1 was 42 where as in group B2 it was 40 as shown in Table 2. Group B1 showed significant rise in serum insulin level as compare to Group B2.

3. Comparison of Serum Insulin Level (µU/ml) Within Group C: Mean serum insulin level of group C1 was 45 where as in group C2 it was 48 as shown in Table 3. Group C2 showed significant rise in serum insulin level as compare to Group C1.

4. Comparison of Serum Insulin Level (µU/ml) Within Group D: Mean serum insulin level of group D1 was 40 where as in group D2 it was 42 as shown in Table 4. Group D2 showed significant rise in serum insulin level as compare to Group D1.

Table No.4: Mean serum insulin level of Group D1 and D2

Serum Insulin (µU/mL)						
Low Dose	Initial	1ST DAY	07TH DAY	14TH DAY	21ST DAY	30TH DAY
Acarbose 30mg/kg	50± .56	30± 0.31	35± 1.86	38± 1.35	40± 0.89	43± .01
Acarbose 60mg/kg	50± 0.12	32± 1.31	35± 2.76	39± 2.18	42± 0.34	45± 0.61

Table No.5: Mean serum insulin level of Group E1 and E2

Serum Insulin (µU/mL)						
Group	Initial	1ST DAY	07TH DAY	14TH DAY	21ST DAY	30TH DAY
Cinnamon ext 200 mg/kg Tolbutamide 20mg/kg	52± 2.12	30± 1.31	38± 2.76	42± 2.18	45± 2.34	47± 2.61
Cinnamon ext 200 mg/kg Acarbose 30mg/kg	47± 1.33	33± 2.21	37± 2.24	40± 2.11	45± 2.68	46± 2.65

Table No.6: Mean serum insulin level of Group F1 and F2

Serum Insulin (µU/mL)						
High Dose	Initial	1ST DAY	07TH DAY	14TH DAY	21ST DAY	30TH DAY
Cinnamon ext 600 mg/kg Tolbutamide 40mg/kg	52± 2.56	30± 2.33	40± 2.65	43± 2.87	45± 2.67	48± 2.64
Cinnamon ext 600 mg/kg Acarbose 60 mg /Kg	50± 2.56	34± 2.34	38± 2.89	42± 2.56	45± 2.35	47± 2.33

5. Comparison of Serum Insulin Level (µU/ml) Within Group E: Mean serum insulin level of group E1 was 47 where as I group E2 it was 48 as shown in Table 5. Group E1 showed significant rise in serum insulin level as compare to Group E2.

6. Comparison of Serum Insulin Level (µU/ml) Within Group F: Mean serum insulin level of group F1 was 48 where as in group F2 it was 46 as shown in Table 6. Group F1 showed significant rise in serum insulin level as compare to Group F2.

DISCUSSION

Many herbal and medicinal plant materials have been used traditionally in folk medicine in the management of diabetes throughout the world. Main goal of these herbs is to lower the blood glucose level either decreasing the peripheral insulin resistance or increasing the serum insulin level. Some of these herbs are also used as medicine in clinical trials same to that of drugs used in western countries[15,16].

The mode of action of hypoglycemic activity of cinnamon extract may be due to the increase in serum insulin level[17]. In the present study alloxan was used to induce the diabetes in albino rats and when animals with low dose of cinnamon extract were compared with other groups of animals, there was an increase in serum insulin level. Hypoglycemic drugs (i-e tolbutamide and Acarbose) treated group show better anti diabetic effect in comparison with cinnamon extract treated group p value<0.011 and p value<0.016 respectively. When cinnamon was used in combination with either tolbutamide or acarbose it showed synergetic effects. The same finding was also noted by Mahmood et al.[18]. Also when animals in cinnamon extract treated group were compared with other groups with high dose 600 mg/kg there was an increase in serum insulin level. The present study also agreed with the study of Qin et al.[19]. Therefore, the present study has identified that cinnamon extract has less anti-diabetic effect as compared with hypoglycemic drugs but it may be used as adjuvant therapy in combination with anti-diabetic agents.

CONCLUSION

Tolbutamide and Acarbose treated groups showed better anti diabetic effect by increasing the serum insulin level in comparison with cinnamon extract treated groups when used individually. This effect was enhanced when cinnamon extract was used in combination with either tolbutamide or acarbose.

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Original Article

Drugs Effect on different Strains

Study to Determine the Antimicrobial Sensitivity and Resistance pattern of Various Strains against Commonly prescribed Antibiotics

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ABSTRACT

Objective: The main objective of this study was to determine the sensitivity and resistance of various bacterial strains both gram negative and gram positive against commonly used antibiotics.

Study Design: Experimental / Retrospective study.

Place and Duration of Study: This study was conducted in Hayatabad Medical Complex at Microbiology Laboratory for a period of six month studies from 6.8.2013 to 10.02.2014.

Materials and Methods: The study was conducted in which both in-door and out-door patients were randomly selected for this specified period of time. Bacterial strains used were Staphylococcus Aureus, Escherichia Coli, Pseudomonas Aeruginosa and Proteus Mirabilis against commonly prescribed antibiotics i.e; Ceftraixone, Amoxicillin, Amikacin and Cefepime and to find out the sensitivity and resistance pattern.

Results: Among the selected antibiotics Ceftraixone was found to be sensitive in 84.6% of out-door patients and 75 % of in-patient against Pseudomonas Aeruginosa, 71.4% of out-door patients and 68.4% of in-patients against Escherichia Coli, 52% of out-door patients and 60% in-patient against Staphylococcus Aureus and least sensitive against Proteus Mirabilis 25% out-patients and 16.7% in-patients. Amoxicillin was 40%, 6.6% and 0% sensitive in in-patients and 16%, 17.1%, 0.7% and 0% in out-patients against Staphylococcus Aureus, Escherichia Coli, Pseudomonas Aeruginosa and Proteus Mirabilis respectively. Amikacin was 44%, 35%, 33.3% and 0% sensitive in in-patients and 36%, 37.2%, 32% and 0% in out-patients against Staphylococcus Aureus, Escherichia Coli, Pseudomonas Aeruginosa and Proteus Mirabilis respectively. Cefepime was most sensitive against Proteus Mirabilis 25% in out-door patients and 16.7% in in-door patients while least sensitive against Pseudomonas Aeruginosa both in out-door and in-door patients.

Conclusion: It is concluded from the results obtained that Ceftraixone, Amoxicillin and Amikacin were more than 60% sensitive against the selected strains of bacteria except Proteus Mirabilis while Cefepime is least sensitive i.e; less than 25% against all these antibacterial strains. These results should be considered in future prescribing of antibiotics against these bacterial strains to avoid resistance and to prescribe appropriate treatment for the patients.

Key Words: Antibiotic Sensitivity, Bacterial Strains, In-door Patients, out-door Patients

INTRODUCTION

Antibiotics are an important group of pharmaceuticals used in health care for the treatment and prevention of bacterial infections. The irrational use of drug is a major problem of present day medical practice and its consequences include the development of bacterial resistance to antibiotics, ineffective treatment, adverse effects of the drug and economic burden on the patient and the society. Irrational or misuse of drugs refers to the distribution or consumption of drugs in ways that negate or reduce the efficacy or in situations where they are unlikely to have the desired effect.[1] As accepted by the WHO the rational use of drug requires the patients receive medication appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time and at the lowest cost to them and their community. Antimicrobial resistance (AMR), a growing public health concern where the microorganism is able to survive exposure to antibiotic treatment.[2] This is evident from the first report of vancomycin resistant *Staphylococcus aureus* (VRSA) from the US in 2002, Brazil in 2005, Jordan and India in 2006. Similarly, resistance was reported in the late 1980s, with vancomycin resistant *Enterococci*. Controlling infections is going to be a tough job in developing countries where infectious diseases still hold high morbidity and mortality. Several intrinsic factors such as point mutation, gene amplification and extrinsic factors like horizontal transfer of resistant gene between bacteria within and across species by transposons, integrins or plasmids have been postulated for the development of resistance, which cannot be reduced once developed even by restricting the antibiotic usage.[3] Social factors such as demographic changes, deficient hygienic practices and overcrowding

have been enumerated for the emergence of AMR. Antibiotic resistance has been a low priority area in most developing and many developed countries.[4] Compared with the immediate challenges of HIV/AIDS, tuberculosis, malaria, pneumonia and many other infectious diseases, the loss of antibiotics at some future time does not capture the same attention. Resistance against certain antibiotics is already at high levels in developing countries but the problem has remained largely unknown because relatively few studies were published.[5]

This study has been carried out in an hospital with the aim of determining the commonly prescribed antibiotic susceptibility of *Staphylococcus Aureus, Escherichia Coli, Pseudomonas Aeruginosa and Proteus Mirabilis*, in order to utilize that information to formulate antibiotic policy and appropriate control measures.

MATERIALS AND METHODS

The study was conducted in Hayatabad Medical Complex Peshawar at Microbiology Laboratory for a period of six months in which in-door and out-door patients data were collected. In the selected data both male and female were included. Total 354 isolates were selected out of which 206 were indoor-patients and 148 outdoor-patients for the selected four bacterial strains i.e; Staphylococcus Aureus, *Escherichia Coli*, Pseudomonas Aeruginosa and Proteus Mirabilis and they were studied against the sensitivity of commonly prescribed antibiotics Ceftraixone, Amoxicillin, Amikacin and Cefepime. These were isolated from various clinical samples including pus, sputum, urine, high vaginal swabs, blood, and body fluids. Screening swabs were inoculated into a 7% sodium chloride solution on day one and sub cultured after overnight incubation at 35°C onto Blood agar and MacConkey agar.[6-7] All other samples were directly inoculated onto blood agar and MacConkey agar plates and incubated aerobically at 35ºC for 24 hours. The isolates were identified with standard tests used to identify the selected strains such as Gram stain, catalase, slide and tube coagulase and Staphylase (Oxoid) tests. Antibiotic sensitivity testing was performed using Mueller Hinton agar by standard disc diffusion method recommended by the Clinical and Laboratory Standard Institute (2008),[8-9] for the following antibiotics: Ceftraixone, Amoxicillin, Amikacin and Cefepime.

RESULTS

Over a period of six months total 354 isolates were selected as shown in table 1. Indoor patients were 206 out of which 114 were male patients and 92 were female and 148 were obtained from outdoor patients in which 78 were male patients and 70 were female patients.

Among the selected antibiotics Ceftraixone was found to be sensitive in 84.6% of outdoor patients and 75 % of indoor patient against Pseudomonas Aeruginosa, 71.4% of outdoor patients and 68.4% of indoor patients against *Escherichia Coli, 52% of outdoor patients and 60% indoor patient against* Staphylococcus Aureus and least sensitive against Proteus Mirabilis 25% outdoor patients and 16.7% indoor patients as shown in table 2 and Fig 1-4. Amoxicillin was less sensitive against these bacterial strains as compared to Ceftraixone. Amoxicillin was 40%, 6.6% and 0% sensitive in indoor-patients and 16%, 17.1%, 0.7% and 0% in outdoor-patients against Staphylococcus Aureus, *Escherichia Coli*, Pseudomonas Aeruginosa and Proteus Mirabilis respectively. Amikacin was 44%, 35%, 33.3% and 0% sensitive in in-patients and 36%, 37.2%, 32% and 0% in out-patients against Staphylococcus Aureus, *Escherichia Coli*, Pseudomonas Aeruginosa and Proteus Mirabilis respectively. Cefepime was most sensitive against Proteus Mirabilis 25% in outdoor patients and 16.7% in indoor patients while least sensitive against Pseudomonas Aeruginosa both in outdoor and indoor patients.

Table No.1: Total number of isolates obtained from indoor and outdoor patients

Total Number of Male and Female In-Patients against various Bacterial Strains				
	Staphylococcus Aureus	***Escherichia Coli***	***Pseudomonas Aeruginosa***	***Proteus Mirabilis***
Male	24	68	14	08
Female	26	52	10	04
Total	**50**	**120**	**24**	**12**
Total Number of Male and Female Out-Patients against various Bacterial Strains				
	Staphylococcus Aureus	***Escherichia Coli***	***Pseudomonas Aeruginosa***	***Proteus Mirabilis***
Male	20	30	22	06
Female	30	40	04	02
Total	**50**	**70**	**26**	**08**

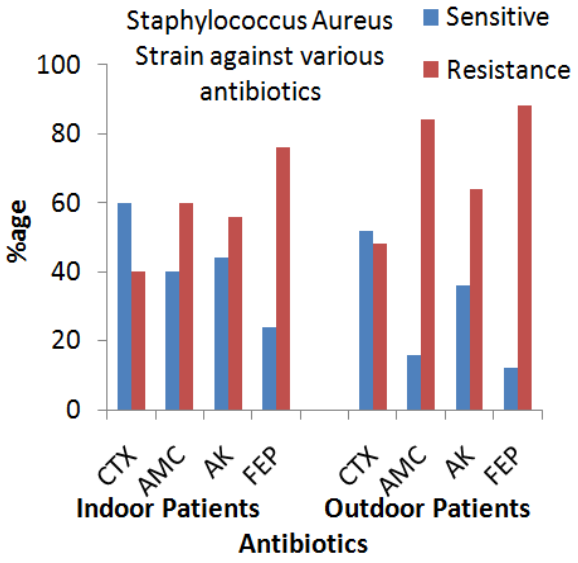

Figure No.1: %age of Indoor and outdoor Patients Sensitivity against bacterial strains

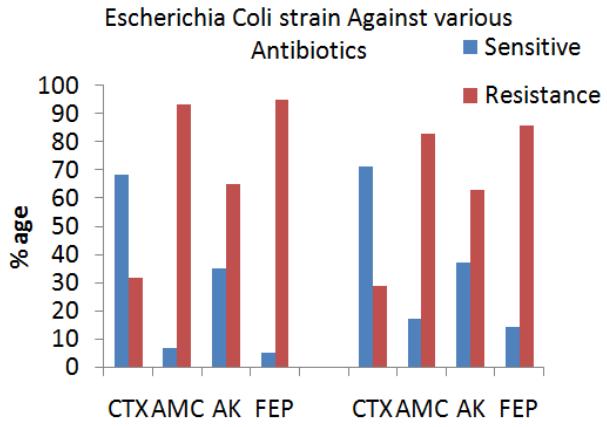

Figure No.2: %age of Indoor and outdoor Patients Sensitivity against bacterial strains

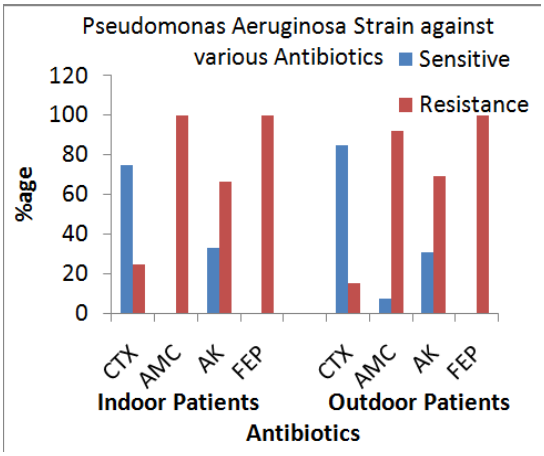

Figure No.3: %age of Indoor and outdoor Patients Sensitivity against bacterial strains

Table No.2: Percentage of Antibiotic Sensitivity and Resistance against various strains of microorganisms

Percentage of Antibiotic Sensitivity and Resistance against various strains of microorganisms								
Bacterial Strains	***Staphylococcus Aureus***				***Escherichia Coli***			
	IP		OP		IP		OP	
Antibiotics	**S%**	**R%**	**S%**	**R%**	**S %**	**R%**	**S%**	**R%**
CTX	60.0	40.0	52.0	48.0	68.4	31.6	71.4	28.6
AMC	40.0	60.0	16.0	84.0	6.6	93.4	17.1	82.9
AK	44.0	56.0	36.0	64.0	35.0	65.0	37.2	62.8
FEP	24.0	76.0	12.0	88.0	05.0	95.0	14.3	85.7
Bacterial Strains	***Pseudomonas Aeruginosa***				***Proteus Mirabilis***			
	IP		OP		IP		OP	
Antibiotics	**S%**	**R%**	**S%**	**R%**	**S %**	**R%**	**S%**	**R%**
CTX	75.0	25.0	84.6	15.4	16.7	83.3	25.0	75.0
AMC	00.0	100	07.7	92.3	00.0	100	00.0	100
AK	33.3	66.7	30.8	69.2	00.0	100	00.0	100
FEP	00.0	100	00.0	100	16.7	83.3	25.0	75.0
IP= Indoor Patient, OP= Outdoor Patient, S= Sensitive, R= Resistance, CTX=Ceftraixone, AMC=Amoxicillin, AK=Amikacin, FEP= Cefepime								

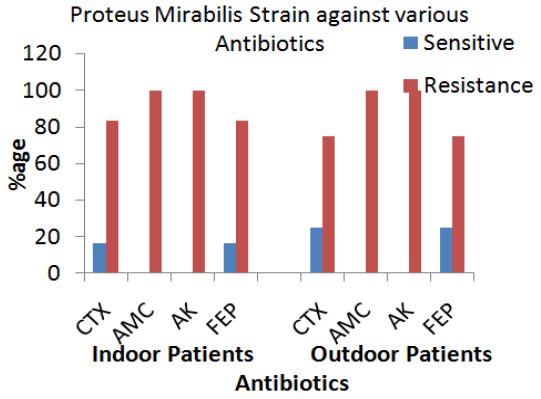

Figure No.4: %age of Indoor and outdoor Patients Sensitivity against bacterial strains

DISCUSSION

Antimicrobial agents are among the most commonly used drugs in hospitalized patients. The emergence of antimicrobial resistance is of great concern as it increases the likelihood of drug interactions/side effects and cost of therapy due to use of newer antibiotics. Resistance may also be responsible for *Staphylococcus Aureus* prolonged hospital stays and can affect prognosis. The problem of resistance in a hospital is difficult to understand without the knowledge of antimicrobial use pattern.[10-11] Monitoring the use of antimicrobial and review of sensitivity pattern are, therefore, important.

Organisms were isolated in 59.6 % out of cultures investigated. *Escherichia Coli* was the predominant organism isolated from this study compared with, *Pseudomonas Aeruginosa*, respectively. While *Proteus Mirabilis* was the least organism isolated.[12]

The isolation pattern of organisms appears to vary with time and hospital settings.[13] Our data showed that there were more Gram-negative than Gram positive isolates. This is not surprising since the former are known to

develop resistance more rapidly and extensively than the latter.[14-15]

In our study it was found that *Staphylococcus Aureus* was sensitive up to 60.0% against Ceftraixone, 40% against amoxicillin, 44.0% against Amikacin and 24.0% against Cefepime in indoor patients which is a bit higher %age as compared to outdoor patients as shown in Table 2 and Fig.1. *Whereas Escherichia Coli shows more sensitivity as compared to Staphylococcus Aureus* against Ceftraixone and in outdoor patients 71.4% sensitive. while 17.1%, 37.2% and 14.3% against amoxicillin, Amikacin and Cefepime respectively while indoor patient shows fewer sensitivity as shown in Table.2 and Fig 2. As shown in Fig 3 and Table 2 *Pseudomonas Aeruginosa* was highly sensitive against Ceftraixone, about 84.6% in outdoor patient while it is completely resistance against Amoxicillin and Cefepime and 30.85 sensitive against Amikacin as shown in Fig 3 and Table 2.

Similarly *Proteus Mirabilis* also showed least sensitivity among all the isolates against antimicrobial agents. *Proteus Mirabilis* was 25.0% sensitive against Ceftraixone and Cefepime while it is completely resistance against Amoxicillin and Amikacin as shown in Fig 4 and Table 2.

CONCLUSION

It is concluded from the present study that Ceftraixone showed promising results and was most sensitive against all the selected isolates whereas Cefepime showed least sensitivity and were mostly resistance against all the selected microorganisms. Antimicrobials like Cefepime have developed resistance to such a level that, prescribing them would definitely lead to treatment failure.[16] Development of resistance against Cefepime can be predictable, which might be due to wide spread use.

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