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Editorial

Malnutrition and the Economy

MohsinMasud Jan
Editor

A World Bank report has warned that malnutrition costs countries up to 3.0 percent of the yearly GDP and malnourished children lose 10 percent of their lifetime earning potential[1], while several other studies put this figure around 20%[2,3]. And as a cumulative effect, all malnourished children, create a huge impact on the National economy due to their reduced earning potential.[4]

Malnutrition in Pakistan is the severest in the region. Thus inferred, chronic malnutrition has been incurring a loss of three per cent of GDP per year through lack of optimum productivity, which makes the problem of malnutrition worse than the energy crisis that costs two per cent of the GDP in Pakistan annually.

Malnutrition is a life and death crisis for many. The World Health Organization (WHO) says that malnutrition is by far the largest contributor to child mortality globally, currently present in 45 percent of all cases.[5]More than 350,000 children die in Pakistan every year before their fifth birthday and 35% of these deaths are due to malnutrition.

Adequate food and nutrition is the right of every citizen as enshrined in Article 38 of the Constitution of Pakistan which states that "The State shall provide basic necessities of life, such as food, clothing, housing, education and medical relief". The Punjab government enacted the Punjab Protection of Breastfeeding and Young Child Nutrition (Amendment) Act 2012, however, it is important to notify the rules of the law and the Infant Feeding Board to monitor its implementation.

The statistics gathered from various United Nation (UN) and donor sources indicated that Pakistan ranks below China, India, Bangladesh and Sri Lanka on prevalence of stunting, micronutrient uptake, adolescent and adult nutrition status and various other indicators directly related with nutrition.

Delayed growth, especially stunting, is reported in children with clinical signs of vitamin A deficiency. A deficiency of zinc, essential for DNA and protein synthesis, leads to growth failure and delayed secondary sexual maturation. A balanced diet could provide these essential nutrients to the population; another way of providing these essential minerals is fortifying staple foods.

More than a third of all child deaths every year around the world can easily be attributed to malnutrition, specifically under nutrition, which weakens the body's resistance to illness. These malnourished and stunted children cannot be expected to grow up as productive adults when compared with those that were fed adequate food in the first five years of life, such nutritional deficiencies can easily be addressed at a nominal cost and the yields are enormous.

According to a report 'Food For Thought' by Save The Children, children who suffer from malnutrition on an average, score seven percent lower on math tests than non-stunted children; are 19 percent less likely to be able to read a simple sentence by the age of eight, and 12 percent less likely to be able to write a simple sentence. Stunted children are also 13 percent less likely to be in the appropriate grade for their age at school.[6]

A women oriented approach needs to be adopted in response to the situation of malnutrition in high risk districts of South Punjab with a focus on birth spacing and iron supplementation.

Given the circumstances in our country, there is a need to give repeated calls to action and relentless pressure from the civil society to help tackle the issue. Everyone, the government, NGOs, the Public, everyone needs to be made aware of this dire situation, and everyone needs to be rallied together to fight this menace, for the children, for their future, for our future, and for our country's future.

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6. Save the Children. Food For Thought. Accessed online.

Original Article

C Reactive Protein

C Reactive Protein Concentrations can Predict Metabolic Syndrome in Adults

1. Javed Akhtar Rathore 2. Zulifqar Ali Kango 3. Mohammad Saleem

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

ABSTRACT

Objective: This study analysedthe correlations between C reactive protein (CRP) serum concentrations and demographics and anthropometric aspects of developing metabolic syndrome components in adults.

Study Design: A cross-sectional study.

Place and Duration of study: This study was carried out in Azad Kashmir Sheik Khalifa Bin Zyad Hospital Muzaffarabad from March 2012 to April 2013.

Materials and Methods: Demographic, anthropometric parameters of MS such as body mass index (BMI) and waist hips ratio (WHR), biochemical and clinical data were collected from 115 adults of age ranged between 22-55yearsold.

Results: Adults BMI had direct correlation with CRP concentrations. In our study CRP concentrations were statistical significant correlated with age (r = 0.282, p = <0.002),BMI (r = 0.787, p = <0.001), waist hips ratio (r = 0.850, p =< 0.001) and weight (r = 0.662, p =<0.001). The height had poor correlation with CRP (r = 0.101, p = 0.825).Thecorrected CRP (r = 0.101, p =0.825) was also poorly correlated to CRP concentrations.

Conclusion: Statistical analysis has shown there is direct correlation between BMI, WHR and CRP concentrations which suggests that inflammation might be an important event in the development of metabolic disorders in adults.

Key words: Adults, Risk factors, C reactive protein, Metabolic syndrome, Obesity.

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INTRODUCTION

Overweight and obesity in adults are major public health hazardsworldwide. Obesity is defined as an excess of body fat. The body fat is clinically quantified by calculations of body mass index (BMI).It is calculated by dividing measured body weight in kilograms by height in meters squared.[1] Increase in nutritional status has shown significant increase of overweight. Overweight is defined as BMI 25-29.9 whereas obesity as 35-39.9.Distribution of body fat deposit aroundwaist and flank is greater hazardous than fat in buttocks and thighs. Obese patients with waist >102cm in men and 88cm in female or with waist –hip ratios >1.0 in men and >0.085in women have greater risk of diabetes mellitus, coronary artery disease.This abdominal obesity is associated with insulin resistance henceglucose intoleranceand poor fatty acid metabolism resulting in type 2 diabetes mellitus. Insulin resistance in tissue with associated Hyperinsulinemia and hyperglycemia, and adipokines lead to vascular endothelial dysfunction in addition to disturbances of lipid profile and hypertension.These changes promote the development of atherosclerotic coronary heart disease.Patientswith abdominal obesity with higher waist hipratios without excess of total body weight do develop coronary heart disease. The existence of theserisk factors likeabdominal obesity, hyperglycemia, Hyperinsulinemia, dyslipidemia, and hypertension have been named as metabolic syndrome.In obesity, excess of body fat deposits as visceral and abdominal fat and hence contribute to increase WHR. Fatty acids impair glucose mediated glucose uptake. Disturbances of lipid and glucose metabolism can cause hypertrigly ceridemia with accumulation in cardiac and skeletal muscles. The increased blood level of FFA and glucose enhance secretion of pancreatic insulin resultingin Hyperinsulinemia. Hyperinsulinemia inturnincreases sodium reabsorption, sympathetic nerve stimulation and promotes atherosclerosishence contributes to hypertension. FFA flux to liver is alsoassociated with increase triglyceride abundance of very low density lipoprotein hence resulting in hypertrigly ceridemia. High correlation between obesity and MS has been demonstrated in overweight/obese children, adolescents and adults[2-8]. The chronic mild inflammation in hepatocyte and adipose tissue is associated with higherconcentrations of proinflammatory cytokines such C reactive protein, interleukin (IL)-1IL-6 and tissue necrosis factor. These cytokines elevation have been observed in response to infection, trauma and malignancies .In obese patients CRP elevation has been observed in coronary vascular disease, diabetes mellitus and metabolic Syndrome.[9-14]

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The study was designed to investigate correlation between metabolic syndromecomponents and CRP concentrations in adults.

MATERIALS AND METHODS

Clinical, demographics, anthropometrics and biochemical data were obtained and entered in data processing. This study was approved by the Ethics Committee. Patients with pregnancy, breast feeding mothers, paraplegics and malignancies were excluded. Weight, height and waist hip ratios (WHR) were measured. Body Mass Index (BMI) was estimated by dividing weight in kilograms (kg) by height in square meters(m^2). Patients were categorized by BMI as under weight, overweight and obese according to standardized criteria.Metabolic syndrome components were assessed by body configurations i.e. BMI and abdominal adiposity by WHR .[15-17]

Data was analysed by using theStatistical Package for Social Science (SPSS) version 20.The level of significance was set at p<0.05.Chi square,Spearman correlation, Univariate analysis and PLUM-Ordinal Regression analysis were used to show association/ correlation of demographic anthropometrics component of MS and CRP concentrations.

RESULTS

A total of 115, 85 (73.9%) males and30 (26.1%) females were enrolled for study. The mean age of the adults was 29.29±7.71). Table no 1 and 2 shows the mean values for the MS components of the patients in association with CRP. BMI was directly correlated with CRP, WHR and weight in adults. In our study CRP concentration was directly correlated with age (r = 0.282, p = <0.002),BMI (r = 0.787, p = <0.001), waist hips ratio (r = 0.850, p =< 0.001) and weight (r = 0.662, p =<0.001).The height had poor correlation with CRP (r = 0.101, p = 0.825 1) and corrected CRP (r = 0.101,p =0.825) was also poorly correlated to CRP concentrations.

Table No.1; Correlation(r) between C-reactive protein concentration and demographics, anthropometrics Components of MS

Clinical variable	Total	r	P-Value
N (%)	**115(%)**		
Age (mean ± SD)	29.3 ± 7.7	.282	.002
Male	85(73.9%)		.001
Female	30(26.1%)		.323
BMI(kg/m^2)	18(12.9.6%)	.778	<0.001
Waist hip ratio (WHR)	8(5.7)	.850	<0.001
Weight		.662	<0.001
Height	21(15)	.088	.347
Corrected CRP	39(27.9)	.101	.825

*P value for Spearman correlation between CRP concentration and component of MS

Table No.2 showed Chi square and Univariate analysis of CRP concentrations and demographic anthropometric parameters among the adults. Table no.3 showed PLUM-Ordinal regression analysis between BMI categories and CRP. Adults with BMI of each categories for normal, underweight and overweight had strong statistical significant association with CRP (p = <0.001)). A non significant correlation was observed between CRP concentrations and female gender (p = 0.323), height (p = 0.347) and corrected CRP (p = 0.825).

Table No. 2:C-reactive protein concentration and Demographics, anthropometrics Components of MS

Clinical variable	mean ± SD	P-Value
N (%)	**115(%)**	.
Age (mean ± SD)	29.3 ± 7.7	.001
Male N (%)	85(73.9%)	.975
Female N (%)	30(26.1%)	
BMI(kg/m^2)	28.3 ±3.6	.348
Weights (kg)	62.1 ±12.2	.002
Weight hips ratios	.92 ± .15	<.001*
Heights		.034
Corrected CRP		.020

*Univariate analysis of variances; Chi-Square

Table No.3: BMI Categories and CRP relationship

Clinical variable	Frequency	Valid Percent	P-Value
Normal	56	48.7	<0.001
Underweight	25	21.7	<0.001
Overweight	25	21.7	<0.001
Obese	9	7.8	
Total	115	100.0	

PLUM-Ordinal Regression analysis

DISCUSSION

In this cross-sectional study CRP concentrations were higher in overweight and obese adults(considering BMI).Most of the previous studies with children, adolescents and adult showed a positive association between CRP concentrations and BMI.[18-21] It is an established fact that BMI is not an accurate way to measure adiposity. Our findings are consistent with strong correlation between CRP and higher BMI.This may be suggestive of significantassociation ofadiposity and low grade inflammation. An apparent reason for these findings is that the excess of adipose tissue is able to secrete inflammatory adipokines.The studies have shown that interleukin-6 and a tumor necrosis factor stimulate liver for CRP production.[18-21]Gender body fat deposition has been associated with variedCRP concentration. In female higher mean values of BMI and CRP have been observedas compared to male. We observed direct correlation between CRP concentrations and MS componentse.i. BMI and WHR.

In our study Spearman correlation analysis revealed that MS components were strongly correlated to the concentrations of CRP. The mechanisms underlying the correlation of BMI due to obesity hadnot beenevaluated yet. Obesity is supposed to be to adipose tissue remodeling.This could be explained on the basis of hyperplasia, adipocyte hypertrophy and increased infiltration of immune cells such as lymphocytes and macrophages in adipose tissue.The imbalance between production of pro-inflammatory and anti-inflammatory adipokinesis also a proposed hypothesis. The macrophages infiltration inflammatory markers can act on adipose tissue to control metabolic activities. The disturbances of adipokines, immune system, angiogenesis, lipid metabolism and insulin sensitivity mechanisms come in to play to contribute to the ultimate outcome in obesity.Obesity measured by BMI and WHR are majordeterminants of the MS.[22-23]

The limitations in our study was, the inflammatory biomarker used to show relationship between the exposure and outcome. This CRP concentration was non-specific for subclinical chronic inflammation of adipose tissue metabolism. Parameters not considered in our study were lipid profiles, blood glucose, and insulin level because of logistics and cost implications. Our study demonstrates statistical significant correlation between demographics, anthropometric and CRP concentrations in adults. The elevatedCRP in turn might have implications as a high risk for developing CAD and T2DM later in life.[24]

CONCLUSION

Statistical analysis has shown there is direct correlation between BMI, WHR and CRP concentrations which suggests that inflammation might be an important event in the development of metabolic disorders in adults.

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Original Article

Dialysis in HCV Pts.

Serological Monitoring of HCV Marker in Hemodialysis Patients from Tertiary Care Hospitals of Karachi

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ABSTRACT

Objective: This study was conducted to estimate the seroprevalence of HCV in maintenance hemodialysis patients.
Study Design: Experimental prospective study.
Place and Duration of Study: This study had been carried out in the Department of Microbiology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre, Karachi from 1st July, 2010 to 30th April, 2011.
Materials and Methods: Irrespective of age and gender 200 samples were collected from the patients on chronic maintenance hemodialysis that at least had 20 cycles of hemodialysis from tertiary care hospital of Karachi. The nature of the sample was 5 cc blood. All the study subjects were briefed about the study program and a written consent form had been signed after getting permission from hospital ethical committee. Diagnosed patients of HCV prior to commencement of hemodialysis and patients who had less than 20 hemodialysis cycles were excluded from this study.
Results: Two hundred patients (125 male and 75 females) were between the ages of 30-77 years with mean 56.7±0.68. 29% patients were seropositive for HCV in chronic maintenance hemodialysis patients. According to duration of dialysis, 3.5% were seropositive in whom duration of dialysis was less than 1 year, 18.4% were seropositive in whom duration of dialysis is in between 1.1-2.0 years, 15.3% were seropositive in whom duration of dialysis is in between 2.1-3.0 years, 52.6% were seropositive in whom duration of dialysis is in between 3.1-4.0 years while 61% were seropositive in whom duration of dialysis is more than 4 years. Highly significant statistical difference is observed as the duration of dialysis increases as p-value is highly significant as 0.001 for HCV. Seroprevalence of HCV infection according to schedule of dialysis is insignificant as the p-value is greater then 0.05.
Conclusion: This study confirms that HCV infection is a serious and major problem in our hemodialysis units. Duration of dialysis and surgery is directly proportional to the seropositivity, while transfusion was not statistically related to the cause of HCV infections in hemodialysis patients.
Key Words: HCV, Hemodialysis, Tertiary Care Hospital

Citation of article: Chishti SMI, Khan AM, Bashir F. Serological Monitoring of HCV Marker in Hemodialysis Patients from Tertiary Care Hospitals of Karachi. Med Forum 2015;26(3):6-11.

INTRODUCTION

When conservative management of end stage renal disease (ESRD) is inadequate, hemodialysis, peritoneal dialysis, and kidney transplantation are alternatives[1].
Chronic maintenance hemodialysis in ESRD patients is a life saving procedure[2]. Patients undergoing chronic hemodialysis potentially have an increased risk of exposure to infections with viruses, such as hepatitis B (HBV) and hepatitis C (HCV) viruses[3].
Hepatitis C viral infections are an important cause of morbidity and mortality in hemodialysis patients and pose problems in the management of the patients in the renal dialysis units.[4]

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Hemodialysis patients do not clear these viral infections efficiently. Several outbreaks of hepatitis have occurred in these settings.[5]
The prevalence of HCV infection among hemodialysis is high and varies between countries (2-60%) and between dialysis units with in a single country.[6] Dual infection with HBV and HCV in hemodialysis patients leads to more aggressive liver diseases.[7]
Although dialysis is the treatment of choice for end-stage renal failure, dialysis patient are at risk for contacting blood-borne infections, including hepatitis C virus.[8,9]
HCV is efficiently transmitted by parenteral route. Therefore hemodialysis patients are at higher risk of acquiring hepatitis C, HCV infected hemodialysis patients have an increased risk of death when compared with those not infected.[10,11]
HCV infections continue to occur in patients on hemodialysis. Following a reduction in the transmission

from blood products, nosocomial spread of HCV infection has assumed more significance. Prevalence of infection correlates with duration of dialysis. GGT values are higher in HCV patients on dialysis and may be useful in predicting outcome of infection.[12]

In a study, fourteen hemodialysis patients with chronic hepatitis C received 135 µg PEG-IFN alpha-2a subcutaneously, once a week, after dialysis session for a period of 48 weeks. In the intention-to-treat analysis, sustained viral response was present in 36% of the patients (five out of fourteen patients) at the end of the follow up period.[13]

In US about 25,000 deaths occur annually due to chronic liver disease and cirrhosis; HCV appears to be a major contributor to this burden (40%).[14]

HCV infection has been frequently noticed in hemodialysis patients. When it develops, results in chronic liver disease and is likely to develop complications if they have renal transplantation, as immuno-suppressive therapy is required for prevention of rejection. High incidence of HCV has been noted in some countries like India where 83% prevalence is reported in dialysis patients. 71% prevalence has been noted in Venezuela and 46% in Saudi Arabia, while a low prevalence of 5.72% was noted in Switzerland.[15]

Approximately 4 million persons in the United States and probably more than 100 million persons worldwide are infected with hepatitis C virus (HCV).[16] It is estimated that there are more than 170 million chronic carriers world wide.[14]

The presence of anti HCV positive patients who had never been transfused, suggest nosocomial transmission of the virus in the dialysis units.[17]

Hepatitis C virus infection is a major health problem among dialysis patients in developing countries.[18] Mansour-Ghanaei[19] concluded in their study that hepatitis C infection has a high prevalence in dialysis patients and Anti-HCV Ab test should be performed before scheduling them.

Hypothesis: Seroprevalence of HCV is high in chronic maintenance hemodialysis patients..

MATERIALS AND METHODS

The study had been carried out in the Department of Microbiology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre, Karachi.

All the study subjects were briefed about the study program and a written consent form had been signed after getting permission from hospital ethical committee. Irrespective of age and gender 200 samples were collected from the patients on chronic maintenance hemodialysis that had at least 20 cycles of hemodialysis from tertiary care hospital of Karachi. The nature of the sample was 5 cc blood. All patients on chronic maintenance hemodialysis who had been at least 20 cycles of hemodialysis were included in this study.

Diagnosed patients of HCV prior to commencement of hemodialysis and patients who had less than 20 hemodialysis cycles were excluded from this study.

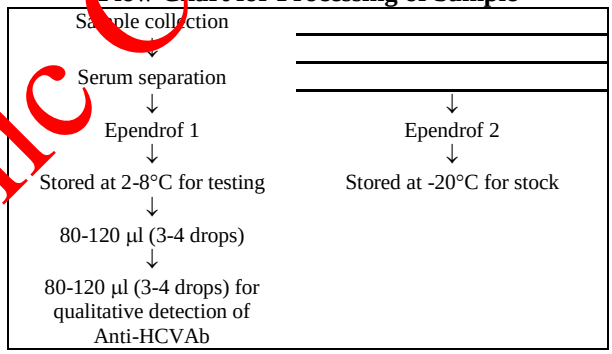
The study was started on 1st July, 2010 and continued till 30th April, 2011. After all necessary aseptic measures 5 cc of blood was collected by veni puncture and shifted to a clean sterilized tube and allowed to clot (non-hemolysed sample). Serum was separated and stored in two labeled ependroff's in equal quantity for further testing. One ependroff was stored at -20°C for long storage of stock. Second ependroff was stored at 2-8°C and tested within an hour or so.

Test procedures for detecting HCV. is described in Appendix.

Serum had been tested according to the guidelines and literature provided by the MK Bio GmbH Robert-Bosch-Breite 23, 37079 Goettingen, Germany.

Test kits are commercially available for measuring antibodies by enzyme linked immunoassay (EIA). If properly performed, these tests have a sensitivity and specificity exceeding 98%. When EIA based antibody tests are used for screening populations with a low prevalence of HCV infection (e.g. blood donors).

Flow Chart for Processing of Sample



RESULTS

Table 1 shows the gender and age outcome variables of the present study. Two hundred patients (125 male and 75 females) were between the ages of 30-77 years with mean 56.7±0.68.

Table 2 shows the basic parameters of hemodialysis patients which include Hospital/Dialysis centre, Cause of Chronic renal failure, Duration of dialysis, Surgical history, History of blood transfusion, Dialysis schedule and Hepatitis B vaccination.

Table 3 shows the seroprevalence of HCV in chronic maintenance hemodialysis patients, in which 29% were HCV seropositive.

Table 4 shows the seroprevalence of HCV infection according to duration of dialysis, in which 3.5% were seropositive in patients whom duration of dialysis is less than 1 year, 18.4% were seropositive in patients whom duration of dialysis is in between 1.1-2.0 years, 13.3 were seropositive in patients whom duration of dialysis is in between 2.1-3.0 years, 52.6 were

seropositive in patients whom duration of dialysis is in between 3.1-4.0 years while 61% were seropositive in patients whom duration of dialysis is more than 4 years.

Table No.1: Gender and Age Distribution of Hemodialysis Patients

Variables	Number	Percent
Gender		
Male	125	62.5
Female	75	37.5
Age in years		
< 40	9	4.5
40 – 49	31	15.5
50 – 59	76	38.0
60 – 69	63	31.5
≥ 70	21	10.5
Total	200	100.0

Table No.2: Basic parameters of hemodialysis patients (n=200)

Basic parameters	Number	Percent
Hospital/Dialysis centre		
The Kidney Centre	70	35.0
Dua dialysis centre	29	14.5
SIUT	51	25.5
Farhan dialysis centre	30	15.0
Imam Clinic dialysis centre	10	5.0
Sawab Medical Centre	10	5.0
Cause of chronic renal failure		
Chronic glomerulonephritis	49	24.5
Diabetic nephropathy	46	23.0
Hypertension	19	9.5
Polycystic Kidney	7	3.5
Chronic Pyelonephritis	4	2.0
Calculus	3	1.5
Not known	72	36.0
Duration of dialysis		
<1 year	57	28.5
1.1 – 2.0 years	49	24.5
2.1 – 3.0 years	15	7.5
3.1 – 4.0 years	38	19.0
>4 years & above	41	20.5
Surgical history present	**37**	**18.5**
Blood Transfusion	**58**	**29.0**
Whole blood	55	27.5
Fresh Frozen Plazma	3	1.5
Pack cells	2	1.0
Dialysis schedule		
Two / week	161	80.5
Three / week	39	19.5
Vaccinated for HBV	**51**	**25.5**

Highly significant statistical difference is observed as the duration of dialysis increases, there is increase in the chance of acquiring HCV infections in chronic maintenance hemodialysis patients, as the p-value is highly significant as 0.001 for HCV .

Table 5 shows the Hospital / dialysis centre wise distribution of HCV seropositive samples in which there is no statistical significant data obtained. While comparing different hospitals / dialysis centre, in which 28.6, were seropositive in Hospital A, 31.0, were seropositive .in Hospital B, 21.6, were seropositive in Hospital C, 33.3, were seropositive in Hospital D, 40 were seropositive in Hospital E while 40, were seropositive in Hospital F.

Table No.3: Seroprevalence Of Hcv In Maintenance Hemodialysis Patients

Test results	Number	Percent
HCV	58	29.0

Table No.4: Seroprevalence of HCV Infection According to Duration of Dialysis

Duration of dialysis	No. of Subjects	HCV No. (%)
<1 year	57	2 (3.5)
1.1 – 2.0	49	9 (18.4)
2.1 – 3.0	15	2 (13.3)
3.1 – 4.0	38	20 (52.6)
> years	41	25 (61.0)
P-value	0.001	

Table No.5: Seroprevalence of HCV Infection According to Hospital/Dialysis Centre

Hospital / dialysis centre	No. of Patients	HCV No. (%)
The Kidney Centre	70	20 (28.6)
Dua dialysis centre	29	9 (31.0)
SIUT	51	11 (21.6)
Farhan dialysis centre	30	10 (33.3)
Imam Clinic dialysis centre	10	4 (40.0)
Sawab Medical Centre	10	4 (40.0)
The Kidney Centre	70	20 (28.6)
P-value	0.718	

Table No.6: Seroprevalence of HCV infection according to history of surgery

Surgery	No. of Subjects	HCV No. (%)
Yes	37	17 (45.9)
No	163	41 (25.2)
P-value	0.012	

Table 6 shows the seroprevalence of HCV infection according to history of surgery, in which HCV is statistically related to the surgeries. History of surgery is present in 45.9% of seropositive for HCV.

Table No.7: Seroprevalence of HCV infection according to blood transfusion

Blood transfusion	No. of Subjects	HCV No. (%)
Yes	55	19 (34.5)
No	145	39 (26.9)
P-value	0.0186	

Table 7 shows history of blood transfusion and seroprevalence of HCV in which 34.5 have the history of blood transfusion, while 26.9 did not give the history of blood transfusion. The data analyzed, shows that there is no statistical significant correlation with transfusion and seropositivity of HCV.

Table No.8: Seroprevalence of HCV infection according to schedule of dialysis

Schedule of dialysis	No. of Subjects	HCV No. (%)
1-2 / week	161	42 (26.1)
3 / week	39	16 (41.0)
P-value	0.052	

Table 8 shows seroprevalence of HCV infection according to schedule of dialysis in which, 26.1% (HCV), 41% (HCV) infections are present in twice and thrice schedule of hemodialysis respectively. Data is statistically insignificant as the p-value is greater than 0.05.

DISCUSSION

Patients with renal disease are at increased risk of acquiring hepatitis C virus (HCV) infection because of their frequent exposure to HCV-contaminated medical equipment during hemodialysis. The prevalence of anti-HCV antibodies among hemodialysis patients varies between 5–10% in the developed world and 10–70% in developing countries.[13] Which is in agreement with our study.

Another study by Sinniah M and Ooi BG (1993) shows the prevalence of HCV Ab in chronic renal failure patients undergoing dialysis (CRFD) was 53.9 %(192 cases were seropositive against 356 CRFD sera tested patients). [20] This is in contrast very high from our study findings.

A cross sectional analysis among patients from two dialysis units in the period of six months (2009) was conducted by Bosevska G., et al. which show the prevalence of Anti HCV Ab. of 32.02%[21], which is in close approximation with our study 29%.

Nosocomial routes of transmission including the use of contaminated equipment and patient-to-patient exposure is considered more important.[22] This is in agreement with our study.

Fabrizi et al[10] in their study show seroprevalence of HCV to about 31.4% in Turkey which is in agreement with our study (29%).

Quaglio et al in its[23] study revealed the seroprevalence of HCV as 86% which is in contrast high as compared to our study.

Male and female percentage in our study is 62.5% and 37.5% respectively which is in close agreement with a study conducted by Mansour-Ghanaei[19] which shows 66% and 34% respectively.

Another study on seroprevalence of HCV in hemodialysis patients conducted in Tehran (Iran) by Mohssen Nassiri Toosi et al[24] shows prevalence of HCV of 8.5%. This is in contrast to our study.

Prevalence of HCV among hemodialysis patients were 24.5% in Turkey. [25] Which we found is slightly higher (29%) in, our studied population.

Conclusion of the study conducted by Pisula et al is[26] in agreement with my study which shows the amount of hemodialyzed patients infected with HCV does not decrease and stays on a high level which is in agreement with our study.

Khokhar et al[27] in their study which was conducted in Islamabad show the mean age of study participants were 54.93years, which is coinciding with the mean age of our study population that is 56.7±0.68 years. Male were 66% and females were 34% which is in close approximation with our study that is 62.5% and 37.5% respectively.

Hemodializing patients without a screening blood test for HBV and HCV might lead to treating infected patients as non-infected ones.[28] This is well appreciated and observed during our study that patients usually do not have proper screening.

Multivariate analysis of risk factors showed that male gender, length of time on hemodialysis were associated with HCV positivity.[29]

CONCLUSION

This study confirms that HCV infection is a serious and major problem in our hemodialysis units. Duration of dialysis is directly proportional to the seropositivity. We found chronic glomerulonephritis to be the most common known cause of renal failure.

Transfusion was not statistically related to the cause of HCV infections in hemodialysis patients, while surgery is linked to increase the seroprevalence of HCV in our studies population.

Recommendations: This study emphasized the use of barriers (e.g., gowns, gloves, and eyewear) and adherence to routine hand washing, appropriate disposal of needles and other sharp instruments, and disinfection and sterilization procedures. To prevent transmission of blood-borne pathogens in hemodialysis settings, both universal precautions and the following hemodialysis-specific infection-control practices recommended in 1977 should be used:

1. Serum specimens from all susceptible patients should be tested monthly for Anti HCV Ab,

these results should be reviewed promptly.

2. Anti HCV Ab. positive patients should be isolated by room, machine, instruments, medications, supplies, and staff.
3. Instruments, medications, and supplies should not be shared between any patients. When sharing of multidose medication vials is necessary, medications must be prepared in a clean centralized area separate from areas used for patient care, laboratory work, or refuse disposal.
4. Routine cleaning and disinfection procedures should be followed, including clear separation of areas established to handle clean and contaminated items. Blood specimens should be handled with gloved hands and stored in designated areas away from medication preparation or central supply areas.
5. Serological evaluation of hemodialysis seronegative patients should have to be done on every three month interval.

However, 50% of hemodialysis patients can be protected from hepatitis B by vaccination, and maintaining immunity among these patients will reduce the frequency and costs of serologic screening.

More multicenter studies should be arranged on timely (6 months) basis to further evaluate the confidence interval and prevalence, as it changes from time to time.

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Original Article

Social Behaviour of Medical Students

Perceived Effects of Undergraduate Medical Study on Social Life: A descriptive Study at Poonch Medical College in Rawlakot Azad Kashmir

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ABSTRACT

Objective: This study explored how second year medical students of Poonch Medical College related studying in medical college with their social activities.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted with the first batch of students at PMC in Rawlakot AJ&K from January 2013 to July 2014.

Materials and Methods: This study obtained data in a purposive sample from the entire second year class using a structured self-administered questionnaire, with 88% response rate.

Results: Of total 88 respondents, 63 girls (72%) and 25 boys (28%) with a mean age of 19 participated. More than 80% respondents had many friends, 81% girls and 36% boys didn't have time to meet them ((p<.000). Around 89% girls and 68% boys didn't have time to play ((p.029), 49% girls and 44% couldn't see their families (p<.197), 40% hostelite and non-hostelite could play (p<.991), and 76% boys and 65% girls perceived burdensome medical study which deprived them from regularly meeting with their family and friends.

Conclusion: Findings of this study have broader implications for furnishing academic environment in medical institutions of Pakistan more conducive, supportive and effective. Medical institutionsshould review their curriculum and teaching/learning schedules and try to redesign their educational programs keeping a balance between study load and the social life of a medical student. Students should also be encouraged to set their educational and social priorities and try to ensure this balance.

Key Words: Undergraduate Medical Study, Effects, Social Life.

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INTRODUCTION

Medical studies at undergraduate level are generally perceived to be highly demanding, depriving a student from enjoying his/her social life. A person's social life mainly involves availability of friends, time spent with family members, and access to recreational activities and sports. Academic environment in medical colleges is stressful which promotes competition rather than co-operation. Among various stress relieving factors, availability of social and emotional support by family and friends during tough situations and decreased workload [1](Solanki P, et al, 2012) have been realized as important components of the social environment of an institution [2](Welsh A, 2010). Social support is an essential ingredient of a medical student's life for him/her to successfully transit through the tense educational environment. Social support, in terms of sustained connection and communication with family and friends gives the feeling to a student that he/she is cared for, loved, esteemed and valued. The perceived social support, though subjective, entails that family and friends would provide quality assistance and useful help during the times of trouble [3](Khodarahimi S, 2012). Though anecdotal with lack of scientific evidence, it is generally perceived that highly demanding medical studies socially isolate the students [4](Blakey H, et al, 2008). The effect of unrelenting strain and stress on medical students' development into caring professionals is of great concern [5](Sidhu J K, 2007). There is a need to further explore what seems to be an inverse relationship between the availability of a viable social support system and the highly demanding medical education and to identify factors which can help strengthen this relationship in a positive direction. This is very important to help alleviate undue stresses among the medical students by providing opportunities for social interactions with families, friends and peers which in turn can enhance their learning motivation, competency and the future performance.

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There is a dearth of literature on this topic, particularly in this part of the world, and for areas similar to AJ&K where social support system and family ties are the hallmark of socio-cultural infrastructure. Keeping its need and importance, we conducted this study for assessing how second year medical students at Poonch Medical College (PMC) perceived the effects of studying in a medical college on their social lives. The purpose of this study was to draw lessons for suggesting appropriate strategies to concerned authorities in Azad Jammu & Kashmir (AJ&K) so that a balance could be ensured between social and academic lives of undergraduate medical students

MATERIALS AND METHODS

This study was conducted during July 2014 with the first batch of students at PMC in RawlakotAJ&K. The PMC started operating in 2013. The study was conducted after approval by ethical committee.

Study Population and Design: A cross-sectional descriptive study was conducted with the second year undergraduate medical students at PMC.

Sampling and sample size: Using Purposeful Sampling, we invited the entire second year class of 100 students (70 girls, 30 boys) to participate in the study.

Data Management: A self-administered structured questionnaire was used to obtain the data. Overall response rate was 88%.Each questionnaire took around 30 minutes for completion. The key study variables included age, sex, status of studentship (Hostelite, non hostelite), parents' occupation, number of friends, frequency of visits, and time spent with friends and family members before and after the admission in the medical college, time spent on sports, and factors (if any) which prevent them from spending desirable time with friends and family.

Data Analysis: Collected data was reviewed and cleaned manually, and entered into SPSS 19. Simple frequencies and proportions were generated. Cross tabulations for key study variables were doneto draw statistically significant relationship. We also applied Pearson's Chi-square test on cross-tabulation to determine the p-value.

RESULTS

General and Demographic Information: We collected data from 88 (88% of total enrolled) undergraduate medical students of which 63 (72%) were female and 25 (28%) were male. Mean age of study population was 19.4 A. Twelve boys (48%) and 30 (48%) girls lived in hostels. About 28% boys and 35% girls reported that their fathers worked in a government institution while fathers of 20% boys and 21% girls had their own business **(Table.1).**Mothers of most students (84% boys, 67% girls) were house wives while 12% girls and 16% boys informed that their mothers were teachers. Most parents (89%) of responding students were alive and lived together **(Table.1).**

Table No.1: Socio-demographic characteristics of study participants by gender

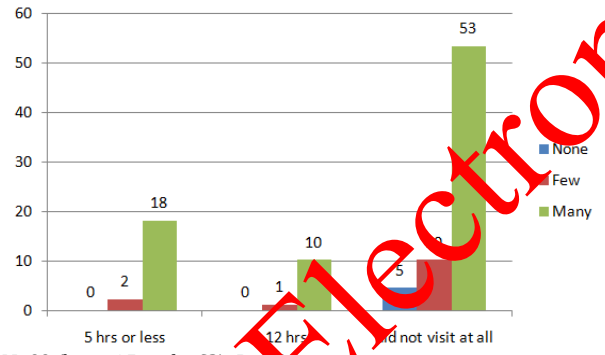
Characteristics	Variables	Male		Female	
		Number	Percentage	Number	Percentage
Age	<18	3	12	4	6
	19	11	44	34	54
	20	8	32	22	35
	21 or >	3	12	3	5
Status of studentship	Living with parents	8	32	31	49
	Living with relatives	3	12	1	2
	Living with friends	2	8	1	2
	Hostelite	12	48	30	48
Father's Occupation	Govt. servant	7	28	22	35
	Own business	5	20	13	21
	Teacher	3	12	9	14
	Doctor	2	8	5	8
	Other*	8	32	14	22
Mother's Occupation	House Wife	21	84	42	67
	Govt. servant	0	0	3	5
	Own business	0	0	2	3
	Teacher	4	16	14	22
	Doctor	0	0	2	3
Status of Parents	Living together	22	88	57	90
	Father died	2	8	6	10
	Mother died	1	4	0	0

***Other:** Fruit Seller, Working abroad (3), Nothing (2), Contractor, Cook, Electric Engineer, Civil Engineer, deceased (4), Mason, Retired (2), Working in NGO, Banker

Table No.2: Social behaviors and characteristics of study participants by gender

Characteristics	Variables	Male		Female		P-value
		Number	Percentage	Number	Percentage	
Number of friends	Many	21	84	51	81	.417
	Few/None	4	16	12	19	
Frequency of visit to a friend in a week	12 hours or less	14	56	12	19	.000*
	More than12 hours	2	8	0	0	
	Don't visit at all	9	36	51	81	
Perceived effect on frequency of visits to friends due to admission in the medical college	Visited friends more before admission in the medical college	15	60	36	57	.807
Average time spent on sports activities in a week after admission in the medical college	12 hours or less	6	24	6	10	.029*
	More than12 hours	2	8	1	2	
	Don't have time to play at all	17	68	56	89	
Time spent with family members in a week after admission in the medical college	10 hours or less	9	36	12	19	.197
	11 hours or less	5	20	20	32	
	No time at all	11	44	31	49	
Perceived factors which affected time spending with family or friends	Hectic study schedule	19	76	41	65	.685
	Living in hostel hence away from friends	4	16	15	24	
	I am not social	2	8	7	11	

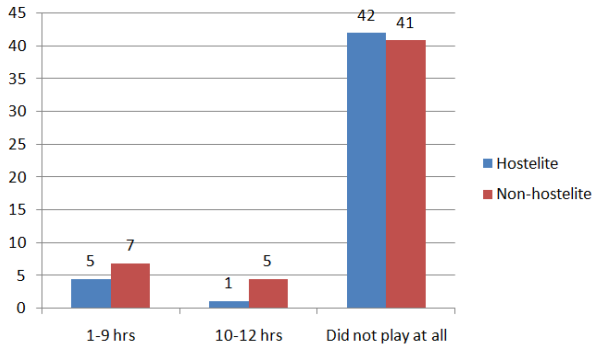
*** 0.05 significance level**



N=88 (boys=25, girls=63), P=.0[illegible]

Figure No.1: Percentage of frequency of visits to friends in relation to the number of friends

Perceived Effects of Medical Studies on Social Activities: Cross-tabulations of various variables by gender pertaining to social activities were done. There was no statistically significant difference (p<.417) among boys and girls regarding the number of friends. However, the difference in gender-based response regarding the frequency of visit to friends was strongly statistically significant (p <.000). Similarly the gender difference for the amount of time spent on sports activity was also highly statistical significant (p <.029). More than 96% boys and girls informed that their families were social, but 49% girls and 44% boys reported that they didn't have time to spend with their family members after the admission in the medical college (p <.197)**(Table 2).**However, 40% boys and 33% girls confessed that they didn't like social gathering. Further analysis of data revealed that 53% students who reported to have many friends, did not find any time to visit them, though difference between those who had many friends and those who had few/none was not statistically significant (p <.884) **((Figure 1).** The difference between hostelite and non-hostelite respondents regarding the amount of time spent on sports activity was also not statistically significant. More than 40% hostelite and non-hostelite participants informed that they didn't have time to spend on any sports activity(p <.991)**(Figure 2).**



N=88 (boys=25, girls=63), P=.991

Perceived factors which affected students' social activities: Around 60% study participants were not

satisfied with their level of interaction with friends and family after the admission in medical college. Among various factors which reportedly affected their visits to friends and families, 76% boys and 65% girls mentioned hectic study schedule as the main factor, a very important finding but not statistically significant (p <.685). Around 24% girls and 16% boys attributed decreased frequency of visits to friends to their hostelite status **(Table 2).**

DISCUSSION

Medical education at undergraduate level is a lengthy and stressful process which aimed at producing knowledgeable, skillful and professional health care providers. The protracted medical educational process requires sustained integrity and stability among the students, which is generally determined by the academic environment and the available social support system. Our study aimed to explore perceived effects of studying in medical college on social and sports activities among the second year medical students of Poonch Medical College Rawlakot.

Our study primarily focused on determining the level of social exclusion among our study population. We used amount of interaction with friends and families, and the time spent on sports activities as the main variables for determining social activities. Most of our study participants who had many friends couldn't visit them and majority of them had a social family, but about half of them could not visit the family. These participants attributed it to studying in the medical college. The perception and attitude of new medical students towards medical education in relation to their social support is alarming and should be looked into the broader context of wellbeing. Six separate studies in Sri Lanka, UK, Iran, India, Malaysia and Bangladesh using the same instrument assessed students' perceptions of the educational environment [7,8,9,10,11] (Palmgren P J., Chandratilake M, 2011, Lee J, Graham AV, 2001, Aghamolaei T, Fazel I, 2010, Unnikrishnan B, 2012, Lai NM, 2009, Nahar N, 2010). The instrument used "availability of friends" as one of the determinants of good educational environment. Another cross-sectional study regarding students' perception of medical school stress (Lee J, Graham AV, 2001) considered "talking and interacting with friends" as an important coping mechanism for decreasing stress[7]. Mane Abhay B et al. (2011) in a cross-sectional study on perceived factors of stress among medical students found "talking to friends" and "talking to parents/relatives" as perceived coping mechanisms by the responding students[12]. In another study regarding factors associated with stress among nursing students (Sharma S, Kaur A, 2011), 49% respondents mentioned "lack of close and intimate friend" as an important stress factor[13].A study in UK compared effect of graduate studies on level of social exclusion among medical and economic students [4](Blakey H et al., 2008). Medical students were found having significantly decreased interaction with their close friends and housemates than economics students, and felt separated from the rest of university life.Besides sustained interaction with friends and families, the value of positive interaction in relation to learning from peers, clinicians and patients can also increase students' sense of accomplishment and their quality of life[14] (Marcus H et al., 2010)

A significant finding of our study was the lack of participation of majority of study students in sports activities which they also attributed to studying in the medical college.Literature on relationship between participating in sports activities and academic performance of medical students was not found.A cross-sectional study involving eight thousand schoolchildren found that academic ratings were significantly correlated with the level of physical activity [15](Dwyer T et al, 2001).In a review of 43 articles, positive associations were found between physical activity and academic achievement, academic behavior, and cognitive skills and attitudes [16](Centers for Disease Control and Prevention, 2010)

Among various perceived factors which prevented our study students from meeting their family and friends, and participating in sports activity, the most striking was the hectic study schedule (referred as 'heavy workload' in this study). The heavy workload and examinations have been reported in several studies as the most significant causes of stress among medical students. The strongest predictor of well-being was academic stress mainly comprising of large workload, and the academically stressful and competitive environment of medical school. These results show that students who appraise their workload as stressful also report lower levels of well-being[17]. (Rogers M E (2012)

A study in Saudi Arabia (Abdulrahman K B A, 2007) found thataround 90% responding students of a medical school mentioned heavy workload (high number of lectures) as the major factor of reduced academic achievement[18]. Heavy workload, besides affecting academic performance has been reported to lead to very serious consequences even suicidal tendencies. A renowned medical institution in Pakistan has experienced a series of suicides by undergraduate medical students in last two decades. Four medical students committed suicides since 1991. Lack of social support system and heavy study load have been reported as underlying reasons[19](The Express Tribune, 2010).

There are limitations to this study, which are inherent in the methods used. Besides high influence of subjectivity of collected data due to perceived responses, there is an issue of generalizability as our study participants wereselected from one medical college.In order to increase external validity

(Generalizability), inclusion of other medical colleges is needed.

CONCLUSION

A large proportion of study participants correlated studying in medical institution withthe reduction in their social support system. The findings may not add to existing knowledge but provide an important aspect of attitude of newly enrolled medical students, which may affect their future professionalism. Findings of this study have broader implications for Pakistan where mushrooming of new medical institutions across the countryis notable. Our findings suggest that medical institutions, particularly the newly established ones in Pakistan should review their situation with their faculty and students to assess the design and content of curriculum, teaching/learning strategies, and the overall schedule in order to render these adequately flexible and more facilitating of an effective and motivating teaching/learning environment. Medical institutions should be aware of the issues explored in our study while planning their curricula and educational programs. Prospective medical students should also be informed what social consequences they can face while studying in the medical college/university. On the other hand, medical colleges/universities should encourage their students to try to achieve a balance between study work and their social lives, and find feasible options for healthy coping strategies and socialization.

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Original Article

Diffuse Lung Disease

Role of High Resolution Computed Tomography (HRCT) in the Evaluation of Diffuse Lung Disease

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ABSTRACT

Objective: To determine the accuracy of High Resolution Computed Tomography in the evaluation of Diffuse interstitial lung disease.
Study Design: Descriptive study.
Place and Duration of Study: This study was conducted in the Department of Diagnostic Radiology, Pakistan Institute of Medical Sciences, Islamabad during the year June 2008 to December 2008.
Materials and Methods: 30 patients were selected from OPD and Emergency department with history, clinical signs and plain chest radiograph suggestive of diffuse lung disease. Multi-slice high resolution spiral CT scanner "Asteion VR" (Toshiba) was used to conduct the study with High Resolution Computed Tomography (HRCT) protocol used in the evaluation of diffuse lung disease.
Results: The 30 patients included in this study comprised of 15 male and 15 female with a male to female ratio of 1:1. The mean age of patients was 50.33 years. Cough was present in 100% of patients, dyspnea (83%), hemoptysis (17%), body aches (43%), joint pains (13%), and occupational exposure (20%). Different clinical signs were wheezing (70%), coarse crepitation's (47%) and clubbing (7%). In this study of all 30 patients (n=30) sarcoidiosis was (23%), pneumoconiosis (27%), idiopathic pulmonary fibrosis (20%), extrinsic allergic alveolitis (7%), lymphangitic carcinomatosa (10%) and systemic sclerosis (3%). Normal or non-diagnostic chest X-rays were seen in 20% patients which were then diagnosed by HRCT. The inter observer agreement on chest X-rays was found to be around 27% and that of HRCT is 52%.
Conclusion: HRCT is the diagnostic tool of choice in the diagnosis of diffuse interstitial lung disease.
Key Words: High Resolution Computed Tomography, Evaluation, Diffuse Lung Disease

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INTRODUCTION

The chest radiograph remains the first imaging modality for the approach to diffuse infiltrative lung disease (DILD), but, 23 years after its introduction, high-resolution CT (HRCT) is still considered the best imaging tool for the evaluation of the pulmonary interstitium and to diagnose and assess DILD. The introduction of multidetector computed tomography (MDCT) has provided the thoracic radiologist with a powerful tool with which to image the lung. Moreover MDCT has enabled radiologists to understand better the functional information contained within CT images of DILD.[1] Interstitial lung diseases (ILDs) encompass a wide range of diffuse pulmonary disorders, characterized by a variable degree of inflammatory and fibrotic changes of the alveolar wall and eventually the distal bronchiolar airspaces.[2] The idiopathic interstitial pneumonias are diffuse lung diseases characterized by interstitial inflammation and fibrosis. High resolution computed tomography (HRCT) is the best imaging technique for the study of interstitial disease. The general term "idiopathic interstitial pneumonia" includes usual interstitial pneumonia/idiopathic pulmonary fibrosis, nonspecific interstitial pneumonia, desquamative interstitial pneumonia, respiratory bronchiolitis-associated interstitial lung disease, cryptogenic organizing pneumonia, acute interstitial pneumonia, and lymphocytic interstitial pneumonia.[3] Various HRCT findings, taken together, can represent typical patterns. These patterns, in conjunction with the anatomical distribution of findings and with clinical data, can narrow the differential diagnosis of diffuse interstitial lung disease and, in many cases, indicate the correct diagnosis with a high degree of accuracy.[4-6] The widespread use of HRCT has been stimulated by numerous published series, which have evaluated the accuracy of HRCT in cohorts of patients.[7]

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MATERIALS AND METHODS

This is a descriptive study which included thirty patients. The study was conducted in the Department of Diagnostic Radiology, Pakistan Institute of Medical

Sciences, Islamabad during the year June 2008 to December 2008. The patients were selected from OPD and Emergency department with history, clinical signs and plain chest radiograph suggestive of diffuse lung disease. The patients with clinical signs and history of occupational exposure with a normal/non-diagnostic chest radiograph. Multi-slice high resolution spiral CT scanner "Asteion VR" (Toshiba) was used to conduct the study with High Resolution Computed Tomography (HRCT) protocol used in the evaluation of diffuse lung disease. The essential features of HRCT include the use of thin collimation of 2mm slices with pitch 1.0 and reconstruction interval of 2-mm data reconstructed with FC 30 bone algorithm or high spatial resolution. High spatial resolution resulted in increased image sharpness with window width of 600 and window length of 1500 HU. For HRCT no specific patient preparation or intravenous contrast was needed. High resolution CT was typically obtained in suspended full inspiration and in the supine position at preselected levels such as aortic arch, tracheal carina, and extreme lung bases. When needed prone images were taken. When needed prone images were taken. HR protocol was used for confirmation of abnormality is patients with symptoms suggestive of diffuse lung disease with a normal or near normal chest radiograph, while further assessment was done in patients with an abnormal but non diagnostic chest radiograph. The signs that indicate the presence of diffuse lung disease on HRCT include the presence of thickened interlobular septa, irregular linear attenuation, cystic air spaces, small nodules, ground glass attenuation and parenchymal consolidation.

RESULTS

The 30 patients included in this study comprised of 15 male and 15 females with a male to female ratio of 1:1. The distribution of patients according to age and mean age of patients was 50.33 years (Table 1). Cough was present in 100% of patients, dyspnea (83.3%), hemoptysis (16.6%), body aches (43.3%), joint pains (13.3%), and occupational exposure (23%). Different clinical signs were wheezing (70%), coarse crepitation's (46.7%) and clubbing (6.7%) (Table 2).

Table No.1: Age distribution of patients

Age (years)	No.	%age
1 – 20	3	10.0
21 – 40	5	16.6
41 – 60	11	36.7
61 – 80	11	36.7

In this study of all 30 patients (n = 30) sarcoidiosis was (23.3%), pneumoconiosis (26.7%), idiopathic pulmonary fibrosis (20%), extrinsic allergic alveolitis (6.7%), lymphangitic carcinomatosa (10%) and systemic sclerosis (13.3%) (Table 3). In this study of 30 patients, normal or non-diagnostic chest X-rays were seen in 6 patients (20%) which were then diagnosed by HRCT. The inter observer agreement on chest X-rays was found to be around 27% and that of HRCT is 52%.

Table No.2: Frequency of symptoms and signs

Signs/Symptoms	No.	%age
Cough	30	100.0
Dyspnea	25	83.3
Hemoptysis	5	16.6
Body aches	13	43.3
Joint Pains	4	13.3
Wheezing	21	70.0
Coarse Crepitation	14	46.7
Clubbing	2	6.7

Table No.3: Frequencies of different diseases

Disease	No.	%age
Pneumoconiosis	8	26.7
Sarcoidosis	7	23.3
Idiopathic pulmonary fibrosis	6	20.0
Acute interstitial pneumonia	2	6.7
Extrinsic allergic alveolitis	3	10.0
Lymphangitis carcinomatosa	3	10.0
Systemic sclerosis	4	13.3

DISCUSSION

The mean age of the patients was 50.33 years, with no gender bias which is consistent with international studies.[8-10] However an Iranian study showed a slight younger drift in age.[8] A study from Kuwait showed that 80% of patients were above 40 years of age.[11] The mean age was 59±11 years in a Turkish study.[12] Workers form Spain found that the mean age of the patients was 61±0.7 years and the male to female ratio was 1.2:1.[13] In India Meheshwari and others found the mean age to be 50.6±11.9 years.[14] This study found cough to be a universal symptom and this is consistent with other international studies.[8,14] Dyspnea was a prominent symptom and this has been described by other workers in Netherland[15] and Iran.[8] Our study showed hemoptysis in only 17% of patients while other workers have showed it to be 54%[16] and 4%.[17] However these studies were conducted in children and our study included only adults. The frequency of arthralgia in our study was lower than described in other study conducted in Jordan[18], but that study had predominant population of inflammatory myopathies. Occupational exposure has been described as a major factor in diffuse pulmonary disease[19,20] but our study only had a minority of patients with occupational exposure, this was because it was conducted in a tertiary care hospital which drained myriad groups of affected patients. Wheezing which may suggest small airways involvement was present in the majority of patients.[21] Crepitation's were found in almost half of the patients which is less than other studies conducted in the region.[8] Our frequency of clubbing was also less

than found by workers in Iran[8] but that study was mainly focused on idiopathic pulmonary fibrosis.

Our study showed the predominance of Pneumoconiosis which consistent with other studies conducted around the globe.[22,23] We found the frequency of Sarcoidosis second to pneumoconiosis. In a study in France Sarcoidosis was forth in frequency following idiopathic fibrosis, asbestosis and silicosis.[24] HRCT is the study of choice for the diagnosis of this condition for the last twenty years.[25] Indian workers found that idiopathic pulmonary fibrosis, Sarcoidosis, interstitial lung disease secondary to collagen vascular disease and extrinsic allergic alveolitis, among others, were the most common etiological causes of interstitial lung disease.[26] Our study found interstitial fibrosis third in frequency, the differences cannot be explained and more studies are needed to determine this. Our study also found extrinsic allergic alveolitis to a an etiologic entity and this is collaborated by other studies.[26,27] Italian workers have shown the diagnostic role of HRCT in assessing and confirming the extent of lung damage in systemic sclerosis.[28] Our study also highlights systemic sclerosis as one of the main etiologic factors in diffuse lung disease. Lymphangitic carcinomatosa was also found to be an important etiologic factor in this study and this is consistent with other international studies.[24,29]

High-resolution computed tomography was confirmed to be superior to conventional radiography in the accurate diagnosis of diffuse interstitial lung disease in clinical practice and this is consistent with other international studies.[25] Some studies show that it has obviated the need for lung biopsy in many conditions.[3] HRCT is a useful investigative method both for diagnosing diffuse infiltrative pulmonary disease as well as in following up the effectiveness of treatment.[30] Chest radiography is the initial tool for diagnosis, HRCT can provide routine visualization of structures of less than 500 mu. HRCT can be useful in formulating a differential diagnosis with recognition of pattern and distribution of the disease.[31]

CONCLUSION

HRCT is the diagnostic tool of choice in the diagnosis of diffuse interstitial lung disease.

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Original Article

Adverse Effects in HCV Treatment

Hematological Adverse Effects in HCV Patients Treated With Pegylated Interferon and Ribavirin in a Tertiary Care Hospital Peshawar

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ABSTRACT

Objective: To know the frequency of common hematological adverse effects during treatment of HCV.

Study Design: comparative study

Place and Duration of Study: This study was carried out OPD of gastroenterology unit HMC Peshawar from November 2013 to August 2014

Materials and Methods: This study comprising of 42 patients. Patient age more than 17 years, both genders, previously treatment experienced patients with normal hematologic and radiological parameters were included in the study. Patients age more than 70 years, patients with uncontrolled depressive illness, pregnant ladies, treatment naïve patients and decompensated cirrhotics were excluded from the study. Patients were evaluated for treatment with pegylated and ribavirin by history, clinical examination, routine laboratory investigations, ultrasound abdomen, HCV genotyping and upper GI endoscopy where considered necessary. Patient's who fulfilled the inclusion criteria were included in the study.

Results: Total of 42 patients, 24(57.14%) male and 18(42.85%) female were included in this study. The mean age was 39.05±8.54 with minimum age of 18 years and maximum age of 55 years. Genotype 3 was the most frequent genotype, present in 26 (61.90%) patients followed by untypeable genotype, present in 12(28.57%) patients. Anemia was present in 18(42.85%), thrombocytopenia in 10(23.80%) patients. Leucopenia was present in 6 (12.28%) patients.

Conclusion: Haematological abnormalities are common during treatment for HCV, so patients should be regularly followed to diagnose and treat the cytopenias in time.

Key Words: Pegylated interferon, SVR, Anemia, Leucopenia, Thrombocytopenia

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INTRODUCTION

Hepatitis C virus (HCV) infection is one of the main aetiologies of chronic liver disease, with a global prevalence of 3 %[1] and prevalence in Pakistan during 1999-2002 of 4.57%.[2] HCV is a positive strand RNA virus, characterized by high sequence heterogeneity. Seven HCV genotypes, numbered 1 to 7, and a large number of subtypes have been described.[3] Genotypes and subtypes differ among themselves by about 30% and 20% of their sequences, respectively. Genotype 1 is the most prevalent genotype worldwide, with a higher proportion of subtype 1b in Europe and 1a in the USA. Genotype 3a is highly prevalent in the European population of people who inject drugs. This group is currently experiencing an increasing incidence and prevalence of infections with HCV genotype 4. Genotype 2 is found in clusters in the Mediterranean region.[4] The novel genotype 7 was identified in patients from Canada and Belgium, possibly infected in Central Africa.[5]

It is estimated that approximately 85% of patients with a HCV infection go on to develop chronic disease and up to 20 % will eventually develop cirrhosis, which may lead to liver failure, hepatocellular carcinoma (HCC), and death.[6,7] The primary goal of HCV therapy is to cure the infection, which is generally associated with resolution of liver disease in patients without cirrhosis. Patients with cirrhosis remain at risk of life threatening complications, albeit at a lower rate, even after viral infection has been eradicated. The infection is cured in more than 99% of patients who achieve a sustained virological response (SVR), defined as undetectable HCV RNA 24 weeks after treatment. Completion until 2011, the combination of pegylated interferon-a and ribavirin was the approved and effective therapeutic regimen for infection with hepatitis C virus, which yields sustained virologic

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response (SVR) in up to 56% of patients in genotype 1.[8,9]

However, one of the main drawbacks of this combination therapy is the development of side effects, which can result in suboptimal dosing or discontinuation of therapy. That can limit the likelihood of SVR, since one of the determinants of SVR is adequate dose and duration of therapy. Among the side effects of combination therapy, haematologic abnormalities such as anaemia, neutropenia, and thrombocytopenia have been reported to result in dose reduction and discontinuation of therapy in up to 25% and 3% of patients, respectively.[10]

There are several mechanisms by which anaemia occur during combination therapy for HCV infection. Ribavirin causes a dose-dependent and reversible hemolytic anaemia. After entering red blood cells, ribavirin is phosphorylated into its active form, leading to depletion of adenosine triphosphate.[11] This leads to impaired antioxidant mechanisms, resulting in membrane oxidative damage and subsequent extravascular red blood cell removal by the reticulo-endothelial system.[11] Interferons also contribute to anaemia, mainly through bone marrow suppression.[12] Leucopenia occurs because bone marrow suppression or a reversible impairment in the release of neutrophils and lymphocytes[12]. Thrombocytopenia is caused primarily by reversible bone marrow suppression, although autoimmune- related thrombocytopenia may also occur.[13] The main aim of this study was to know the frequency of common haematological side effects of antiviral therapy in patients of chronic hepatitis C treated in the gastroenterology unit HMC Peshawar.

MATERIALS AND METHODS

This cross sectional descriptive study comprising of 42 patients was carried out in the Out-patients Department of Gastroenterology Unit Hayatabad Medical Complex Peshawar from November 2013 to August 2014. Patients of age more than 17 years, both male and female gender, previously treatment experienced patients either non-responders or relapsers and with normal haematologic and radiological parameters were included in the study. Patients age more than 70 years, patients with uncontrolled depressive illness, pregnant ladies, treatment naïve patients and decompensated cirrhotics were excluded from the study. Informed consent was taken from all patients and were evaluated for treatment with pegylated and ribavirin by taking detailed history, clinical examination, routine laboratory investigations including FBC, liver enzymes, liver synthetic function tests, renal function tests ,blood glucose level, ultrasound abdomen, HCV genotyping and upper GI endoscopy where considered necessary. All those patients who fulfil the inclusion criteria and gave consent were included in the study. Patients were started on pegylated interferon-alpha 2a 180ug subcutaneously once a week with oral ribavirin 800mg in two daily divided doses for genotype 2, 3 and untypeable and 1200mg in three daily divided for genotype 1. All patients were followed initially every 2 weeks for 2 month and thereafter 4 weekly by doing complete blood count and looked for any haematological adverse effects. All patients were followed for 6 months irrespective of the genotypes. All those patients who dropped Hb below 12gm/dl, leucocytes count below 3500 and platelets count below 150000 were labelled as having anaemia, leucopenia and thrombocytopenia respectively. All those patients who developed haematological adverse effects were treated. Patients who developed mild anaemia (Hb 12-10gm/dl) were treated with erythropoin injection 10000 IU SC weekly, patients with who developed moderate anaemia (Hb 10-8.5gm/dl) were by dose reduction and blood transfusion and in patients with severe anaemia (Hb less than 8.5Gm/dl) were treated with blood transfusion and antiviral treatment was discontinued. Patients with neutropenia and thrombocytopenia were observed infection and bleeding respectively and were treated supportively. After completion of the study, data was analyzed by using statistical software (SPSS version 10). Mean±SD was calculated for continuous variables like age and Frequencies were calculated for categorical variables.

RESULTS

Total of 42 patients were included in this study. Out of 42 patients 24 (57.14%) were male and 18 (42.85%) were female with a male to female ratio of 1.33 (Table 1). The mean age was 39.05±8.54.

Table No.1: Distribution of patients according to gender

Gender	No.	%age
Male	24	57.2
Female	18	42.8

Table No.2: Distribution of patients according to age

Age	No.	%age
18 – 30	8	19.1
31 - 45	28	66.6
46 - 55	6	14.3
Mean±SD	39.05±8.54	

Table No.3: Distribution of patients according to genotype

Genotype	No.	%age
Genotype 1	2	4.7
Genotype 2	2	4.7
Genotype 3	26	61.9
Genotype unbeatable	12	28.7

The minimum age in this study was 18 years and the maximum age was 55 years. Majority of the patients, 28 (66.66%) were in the age range 31-45 followed by

age range 18-30 having 8 (19.06%) patients (Table 2). Genotype 3 was the most frequently occurring genotype in our study which was present in 26 (61.90%) patients followed by untypeable genotype which was present in 12(28.57%) patients, while genotype 1 and 2 was the least frequent genotypes each of which was present in 2(4.76%) patients (Table 3). Anaemia was the most frequently occurring haematological adverse effect in this study and was present in 18 (42.85%) patients followed by thrombocytopenia which was present in 10 (23.80%) patients, while leucopenia was present only in 6 (12.28%) patients (Table 4).

Table No.4: Distribution of patients according to cytopenias

Cytopenia	No.	%age
Anaemia	18	42.8
Leucopenia	6	12.3
Thrombocytopenia	10	23.8

DISCUSSION

Infection with hepatitis C virus (HCV) is an increasing epidemic with over 180 million people infected worldwide.[14] Hepatitis C virus (HCV) infection is the leading cause of chronic liver-related diseases, including cirrhosis, liver failure, and hepatocellular carcinoma and currently, no effective vaccine is available for the prevention HCV infection.[15] Polyethylene glycol interferon-α (PegIFN-α) in combination with ribavirin (RBV) is the standard of care (SOC) for chronic hepatitis C. Both drugs have a significant effect on virological and histological responses and this combined therapy provides a SVR rate of 40% to 50% in patients with HCV genotype 1 and of 80% in patients with HCV genotypes 2 or 3 in randomised controlled trials.[16-17].

The primary aim of anti HCV therapy is permanent eradication of the virus or a sustained viral response thereby reducing the risk of progression to end-stage liver improving quality of life. A sustained viral response (SVR) is defined as undetectable plasma HCV RNA 6 months after the end of treatment, which lasts typically 6-12 months. This leads to a long term clearance of the virus in 98.3% of patients.[18] However this combination antiviral therapy is associated with many side effects like general malaise, fever, body aches, neuropsychiatric manifestation and haematological adverse effects.

In the present study out of 42 patients, 18 (42.85%) patients developed anaemia during the course of antiviral therapy. This occurrence of dropping Hb in our study is almost similar to other studies like the study done by JB Wong et al[19] in America and Lashin et al[20] in Egypt. However Majority of the patients in our study exercised severe dietary restriction despite counselling especially some to some specific meal like meat intake which was considered to be a major contributor to anaemia in this patient population which need further studies to clarify this association of dietary restriction and anaemia in these patients. So it is very necessary in our local set-up to counsel the patients before starting on antiviral therapy to avoid dietary restriction during the antiviral treatment especially meat intake.

In our study 6 (12.28%) patients developed leucopenia during the antiviral treatment and beside the antiviral therapy, no other cause for dropping leucocyte count was identified, however majority of the patients were asymptomatic, and leucopenia was an incidental finding during the routine follow up and no patient needed any granulocyte colony-stimulating factor, reduction in the dose or discontinuation of antiviral treatment. This suggests that neutropenia may be well tolerated by HCV-infected patients receiving combination therapy. This might be explained by a temporary enhanced innate immune cells activity. A recent study demonstrated that in patients with chronic hepatitis C neutrophil chemotaxis and oxidative burst significantly increased during treatment and returned to baseline at the end of therapy.[21]

Ten (23.80%) patients in our study developed varying degree of thrombocytopenia during the course of antiviral treatment, however no patient had serious consequences of thrombocytopenia like bleeding, discontinuation or reduction of the dose antiviral treatment. Other studies also gave the same result, meaning that beside antiviral treatment, other causes of thrombocytopenia should also be considered in HCV patients like Decreased platelet production occurs, due to decreased hepatic production of thrombopoietin[22], virus-induced bone-marrow suppression[23], an increased peripheral destruction of platelets, both immune-mediated[24] and due to portal hypertension and hypersplenism leading to increased splenic platelet sequestration.[25]

CONCLUSION

The antiviral treatment is without haematological side effects and it is extremely necessary to discuss all the pros and cons of antiviral treatment with the patient before starting antiviral, to do regular follow up of the patients, to check the compliance and to diagnose and treat any type of cytopenia in time, to avoid reduction or discontinuation of the antiviral dose and to increase the chances of achieving SVR.

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Original Article

Diabetic Retinopathy

Frequency of Subclinical Hypothyroidism in Patients with Proliferative Diabetic Retinopathy

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ABSTRACT

Objectives: To determine the frequency of subclinical hypothyroidism in patients with proliferative diabetic retinopathy.

Study Design: Cross Sectional Study.

Place and duration of study: This study was conducted in Dow University Hospital, Dow University of Health Sciences , Karachi from 1st January 2012 to 31st December 2012.

Materials and Methods: One hundred and nineteen patients attending the medicalOPD Dow University of Health Sciences were included in study.

Results: 119 patients were enrolled in study .47.1% were male and 52.9% were female patients mean age was 55.75±7.85 years , Mean $HbA1_c$ value was 8.02 ± 1.46%,Subclinical hypothyroidism was identified in 26.9% the patients.

Conclusion: Subclinical hypothyroidism is associated with the development of proliferative diabetic retinopathy in the patients suffering from type 2 diabetics.

Key Words: Subclinical hypothyroidism, Proliferative diabetic retinopathy, type 2 diabetes mellitus, $HbA1_c$

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INTRODUCTION

Type 2 diabetes is a global public health burden causing great load on the economy of developing nations.[1] Diabetic retinopathy is a common complication of diabetes that affect blood vessels of the retina and leads to blindness2 Its frequency ranges from 15.7% to 28.9% in Pakistan.[3,4] Risk factors include duration of diabetes, poor glycemic control and dyslipidemia and they are amenable to therapeutic intervention.[5] Subclinical hypothyroidism is defined when peripheral thyroid hormone levels are within the normal range but serum thyroid stimulating hormone levels are elevated (>4.0µU/ml).[6]

subclinical hypothyroidism is associated with atherogenic lipid profile, impaired vascular function and increased systolic blood pressure[7].Researchers have investigated and found that the presence of subclinical hypothyroidism in type 2 diabetics not only needs to be screened but treated as it causes an increased risk of development of proliferative diabetic retinopathy, leading to blindness in such patients. In a recent study Guang-Ran Yang found that the prevalence of subclinical hypothyroidism increased to 27.3% in patients with proliferative diabetic retinopathy and showed that subclinical hypothyroidism was independently related to proliferative diabetic retinopathy The recent international evidence of the relationship between subclinical hypothyroidism and proliferative diabetic retinopathy warrants the need of further studies locally to evaluate and substantiate this very crucial relationship. Therefore, this study aims to determine the frequency of subclinical hypothyroidism in patients with proliferative diabetic retinopathy to verify the need of routine screening of type 2 diabetics for subclinical hypothyroidism, so as to identify patients at risk of a severe morbidity (proliferative diabetic retinopathy leading to blindness) and help develop a national guideline for routine surveillance of subclinical hypothyroidism in type 2 diabetics for early recognition and treatment of subclinical hypothyroidism so that they do not develop proliferative diabetic retinopathy

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MATERIALS AND METHODS

This is a cross sectional study was conducted in medical OPD Dow University of Health Sciences, Karachi from 1st January 2012 to 31st December 2012

Inclusion Criteria: Patients of either gender, 40-70 years of age group, diagnosed as having proliferative diabetic retinopathy on fundoscopyand diabetes mellitus for more than 10 years.

Exclusion Criteria:

1. Patients who are on thyroid medications or have history of thyroidectomy or radioactive iodine.
2. Patients who were found to have goiter on examination.
3. Patients who turned out to have clinical hypothyroidism or subclinical hyperthyroidism after investigation.

119 patients fulfilling the inclusion criteria were included in the study their fundoscopic findings were recorded on pre designed proformawhich included patients demographics (age and gender) , duration of diabetes , duration of proliferative diabetic retinopathy , thyroid stimulating hormone value , haemoglobin A1c , status of diabetes (controlled or uncontrolled), and final outcome that is presence of subclinical hypothyroidism.

Operational Definitions: Subclinical hypothyroidism defined as when peripheral thyroid hormone levels are within the normal range but serum thyroid stimulating hormone levels are elevated (>4.0µU/ml).[7]

Proliferative diabetic Retinopathy: proliferative diabetic retinopathy defined as when there is presence of: neovascularization (tiny, abnormal leaky blood vessels inside the eye) and vitreous hemorrhage (leakage of blood around the vitreous humor of the eye), on fundoscopic examination.[15]

Controlled Diabetes: $HbA1_c$ level of less than 6.5%.

Data was analyzed using SPSS Version 13; P-value at 5% confidence interval was calculated with 0.05 taken as significant.

RESULTS

Between 1stJanuary 2012 to December 2012, 119 known diabetic patients with proliferative diabetic retinopathy, who visited outpatient clinics of medicine, Dow University Hospital were identified and were investigated for subclinical hypothyroidism, which fulfilled the inclusion criteria. Frequency of subclinical hypothyroidism was determined.

Age Distribution: The mean age of the one hundred and nineteen participants of this study was 55.75 ± 7.85 years. (Table 1).

Gender Distribution: Fifty six participants of the study were male accounting for 47.1% of the study group, while sixty three participants were female representing 52.9% of the study population. The male to female ratio of this study was 1:1.12.

Duration of Diabetes Mellitus: In this study, eighty patients had a history of diabetes mellitus less than 15 years. This represented 67.2% of the study group. Thirty nine patients had duration of diabetes mellitus of more than 15 years accounting for 32.81% of the group. The mean duration of diabetes in this study group was 13.80 ± 2.50 years. (Table 2)

Heamoglobin $A1_c$ and Thyroid Stimulating Hormone: The mean value of the haemoglobin$A1_c$ in this study population was 8.02 ± 1.46%. The mean value of serum thyroid stimulating hormone was 2.52 ± 1.73 µU/ml (Table 3).

Status of Diabetes Mellitus: Out of the 119 participants of this study 49 participants had controlled diabetes mellitus accounting for 41.2% of the group. 70 participants had uncontrolled diabetes mellitus representing 58.8% of the study group (Table 4).

Final Outcome: Subclinical hypothyroidism was identified in 32 of the study participants accounting for 26.9% of the group. The rest of the 87 participants (73.1%) did not have SCH (Table 5).

Table No.1: Age Distribution

Age of Patients (Years)	Frequency (n=119)	Percentage (%)
<55	57	47.9
>55	62	52.1

Mean age +S.D = 55.5 + 7.85

Table No.2: Duration of Diabetes Mellitus

Duration (Years)	Frequency (n=119)	Percentage (%)
<15	**80**	**67.2**
>15	**39**	**32.8**

Mean ± Standard Deviation = 13.80 ± 2.50

Table No.3: Mean HBA1C and mean thyroid stimulating hormon

	Mean	Standard deviation (+)
Hba1c (%)	8.02	1.46
Thyorid stimulationg hormone (µu/ml)	2.52	1.73

Table No.4: Status of diabetes mellitus

Diabetes Mellitus	Frequency (n=119)	Percentage (%)
Controlled	**49**	**41.2**
Uncontrolled	**70**	**58.8**

Table No.5: subclinical hypothyroidism (final outcome)

Subclinical Hypothyroidism	Frequency (n=119)	Percentage (%)
Yes	32	26.9
No	87	73.1

DISCUSSION

The current study reveals the prevalence of subclinical hypothyroidism in the patients suffering from proliferative diabetic retinopathy to be 26.9%.

In this study the mean age of the one hundred and nineteen participants was found out to be 55.75 ± 7.85 years. This observation is similar to the observations of Sato et al.[8]They in their of 108 patients suffering from proliferative diabetic retinopathy calculated the mean age to be 57.6 ± 11.8 years. The observation of this study was also comparable to the observation of Yang et al[9]who in their study found the mean age to be 59.94 ± 10.61. Observation of this study and the above studies reveal the average age of patients suffering from proliferative diabetic retinopathy to be in the mid to late 50's.

47.1% of the participants of this study were male. The male to female ratio was identified to be 1:1.12. This observation is in contrast to the observation of He and colleagues[10], who observed that 47.6% of their study patients were female. This contrast may be accounted by the comparatively larger sample size of their study which included 2099 participants. However, the female predominance of this study group is comparable to the similar observation of higher female ratio in patients as observed by Yang and associates.[11]

67.2% of the participants of this study had a history of diabetes mellitus of more than 15 years. The mean duration of diabetes in this study group was 13.80 ± 2.50 years. This observation is very similar to El-Bab and colleagues[12], who in their study of over six hundred patients found the mean duration of diabetes to be 13.35 ± 8.17 years. Similarly the observation of this study was also very much similar to the observation of Yang et al[9], who in their study found the mean duration of duration of diabetes mellitus to be 13.20 ± 7.04 years. Zavrelova and associates[13], in their study also stated that the average duration of diabetes in proliferative diabetic retinopathy patients of their study was 12.5 years. This relationship between duration of diabetes and proliferative diabetic retinopathy was also stated by Kim et al[14], who observed that 52.3% of the patients of proliferative diabetic retinopathy had a history of diabetes of more than 10 years. The observations of all these studies consolidate duration of diabetes as a risk factor for proliferative diabetic retinopathy.

The mean $HbA1_c$ value observed in this study was 8.02 ± 1.46%. El-Bab and colleagues[12] in their study observed a comparable value of $HbA1_c$that is 7.4 ± 1.4%. In other study this value was observed to be 7.5 ± 1.7 by Kim and associates.[14] Paine and colleagues[15]also observed a similar $HbA1_c$ 7.5 ± 1.2 %. Zavrelova and associates[13], however observed a slightly higher but still comparable value of 9.0 ± 1.8%. Sato et al[16], also observed a higher value of 9.4%. Yang and colleagues[9] also noted a mean $HbA1_c$ value of 9.16 ± 2.0%. These studies affirm that $HbA1_c$ is a risk factor for proliferative diabetic retinopathy, an observation affirmed by a study conducted in Tehran.[17]

The mean value of serum TSHof one hundred and nineteen participants was 2.52 ± 1.73 µU/ml. This value is similar to the observations of Yang and associates[9] who found an average value of 2.10 µU/ml. In another study by Yang JK et al[11], it was observed that the majority of the patients of their study had serum TSH levels between 2-4 µU/ml.

It was observed in this study that 58.8% that is 70 participants are uncontrolled diabetes mellitus. This is contrast to the observations of Javadi and colleagues[17], who reported in their study that 40.3% of their patients had uncontrolled diabetes. This contrast may be accounted by the different cultures leading to different life styles in addition to the difference in sample size of the two studies. Javadi and colleagues[17] in their study had 240 patients of diabetic retinopathy.

In this study subclinical hypothyroidism was identified in thirty two (26.9%) of the participants suffering from proliferative diabetic retinopathy. These observation is very similar albeit marginally lower to that reported by Yang and associates[9] who in their study observed this frequency to be 27.3%. The relationship between SCH and PDR was also demonstrated by Jin-Kui Yang[11] who observed that type 2 diabetics who had subclinical hypothyroidism had a significantly higher frequency of proliferative diabetic retinopathy.

CONCLUSION

Subclinical hypothyroidism is associated with the development of proliferative diabetic retinopathy in the patients suffering from type 2 diabetics. It is therefore suggested that type 2 diabetics should be screened for subclinical hypothyroidism so as to identify those at risk for development of proliferative diabetic retinopathy and take measures to prevent its onset.

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Original Article

Open Tibial Fractures

Outcome of AO External Fixator for Open Tibial Fractures

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ABSTRACT

Objectives: The purpose of the study was to evaluate the outcome of open tibial shaft fractures (Gustilo IIIA/B) with AO External Fixator & to document complications

Study Design: Perspective study

Place and Duration of Study: This study was conducted at DHQ teaching Hospital, Gujranwala& at Fazil Memorial Hospital, Gujranwala from November 2010 to November 2012

Material & Methods: 50 patients with open tibial shaft fractures were treated with AO External Fixator. Open fractures were classified according to Gustilo Anderson Criteria & wounds with IIIA & IIIB were selected. Outcome was determined by the rate of union, while nonunion, pin tract infection, pin loosening & osteomylitis were recorded as complications. The follow up period was 08 months.

Results: Out of fifty cases of open tibial shaft fractures, 38 (76%) were men & 12 (24%) were Ladies. Mean age was 35.2 (8-67), 22 (44%) had Gustilo IIIB wound while 28 (56%) had Gustilo IIIA injuries. Pin tract infection & pin loosening rate were 12% & 16% respectively. Nonunion was seen in 10% of the cases. In 41 (82%) of the cases fracture united and average union time was about 26.5 weeks. No case of osteomylitis seen.

Conclusion: External Fixator is simple & effective treatment for open tibial fractures.

Key Words: Open Tibial Fractures, External Fixator, Gustilo Anderson's Classification, Union

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INTRODUCTION

Open fractures of the lower limb are potentially devastating. The incidence of open long bone fracture is around 11.5 per 100,000 persons per year in United Kingdom[1]. Open fractures can be classified in many ways but the classification devised by Gustilo & Anderson is most common and is used worldwidely[2]. Nonunion & infection is quite common in tibial fractures owning to deficient blood supply & soft tissue coverage, so the treatment is controversial [3, 4]. Open tibial fractures are one of the commonest, complex & unexpected injuries in orthopedic practice[5]. Commonest causes of these fractures are road traffic accidents, firearm injuries, fall from height, fall of heavy objects & industrial injuries [6]. Now the blast injuries are emerging as one of the leading cause in certain areas of our country[7]. Treatments allow anatomical realignment, early mobilization which helps to get early pre-injury status[8].

Treatment includes bony fixation as well as soft tissue management[9]. Fixation can be external or internal. External fixation is preferred treatment in open fractures, although internal fixation with interlocking nail can be safely done, if patient is operated within golden period [10, 11]. External fixator can be applied for comminuted closed tibial fractures. Due to subcutaneous location of tibia, fixator is easy to apply[12]. There are certain problems with external fixation which has outweighed its popularity. These are pin tract infections, pin loosening & osteomylitis[13].

The aim of the study was to determine the outcome of AO external fixator in the treatment of open tibial shaft fractures in term of union & to document complications i.e. pin tract infection, pin loosening, osteomylitis & nonunion.

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MATERIALS AND METHODS

Study was conducted at DHQ teaching hospital, Gujranwala & at Fazil Memorial Hospital, Gujranwala between November 2010 to November 2012 (Two years). After taking informed consent, patients with Gustilo IIIA/IIIB were selected. Patients having other injuries or Gustilo IIIC fractures were excluded from the study. Demographic information including age, sex mode of injury i.e Road Traffic accident (RTA), fall from height (FH), fall of heavy object (FHO), Firm Arm injury (FAI), Blast (B) & industrial injuries (IND) were recorded.

All the information was recorded on a specified Proforma.

All patients were admitted through emergency where clinical evaluation done, wound washed & limb

splinted. Necessary laboratory & radiological investigations were carried out. Tetanus prophylaxis, analgesia & I/V antibiotics were given. Patients were operated within 24 hours of presentation. Fractures were fixed with AO external fixator & wound debrided . Post operatively check X-rays were obtained, daily dressing done, range of motion started & IV antibiotics given for three days. Patient discharged at third post operative day. Discharge instructions were given including daily dressing, care of pin site, range of motion at knee and ankle & walking with support. Flow up plan was every 2nd week till two months & then bimonthly. Radiographs were obtained at first day, first month & then on every follow up. On every visit patients were examined for union & complications i.e pin tract infection, pin loosening, nonunion & osteomylitis. Union was defined as bridging callus crossing three of the four cortices on both AP & lateral radiographs with no pain on pressure or weight bearing. Pin site/tract infection was determined by clinical signs of local erythema, swelling, tenderness, fever, pus discharge or positive bacterial culture. Pin loosening was documented when there was new onset of pain at pin site along with clinical and / or radiographic loosening (radiolucent line along the schanz entry). Nonunion was defined as an absence of bridging callus across a fracture site for expected time (last follow up in our study). Osteomylitis was defined as clinical signs of fever, swelling, reddness, pus discharge along with radiological evidence of sequestrum at fracture site or schanz entry site.

Data was entered & analyzed by SPSS version 10

RESULTS

Out of fifty patients, 38(76%) were male & 12(24%) were female (figure 2). Youngest patient was of 8 years old & oldest person was 67 years old.

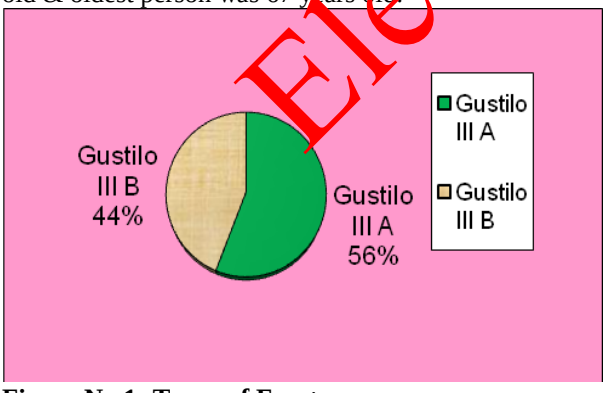

Figure No.1: Types of Fractures

Average age was 35.2 years (8-67). Road traffic accidents were the leading cause in our study with thirty two 32 (64%) Cases. Other injuries include firearm injuries (FAI) 8 (16%), fall from height 5 (10%), Fall of heavy object 2 (4%) while 3 (6%) cases were industrial injuries (figure 3). Pin tract infection was in 6 cases, 12% & pin loosening was in eight patients, 16%. All pin loosening occurred after three months. Nonunion was seen in 5 subjects (10%) & no case of osteomylitis seen. 22 patient had Gustilo IIIB injuries while 28 patients had Gustilo IIIA injuries (figure 1). Union achieved in 82% of the cases while 8% of the cases developed malunion.

Table No.1: Gustilo and Anderson classification[2,14]

Gustilo Grade	Definition
I	Open fracture, clean wound <1 cm in length
II	Open fracture, wound > 1 cm but < 10 cm in length without extensive soft-tissue damage, flaps, avulsions.
III	Open fracture with extensive soft-tissue laceration (>10 cm) damage, or an open segmental fracture. This type also includes open fractures caused by firearm injuries, fractures requiring vascular repair, or fractures that have been open for 8 hours prior to treatment.
IIIA	Type III fracture with adequate periosteal coverage of the fractured bone despite the extensive soft- tissue laceration or damage
IIIB	Type III fracture with extensive soft-tissue loss and periosteal stripping and bone damage, Usually associated with massive contamination. Will often need further soft-tissue coverage procedure (i.e free or rotational flap)
IIIC	Type III fracture associated with an arterial injury requiring repair, irrespective of degree of soft-tissue injury.

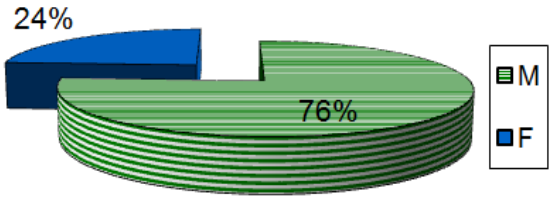

Figure No.2: Gender Distribution

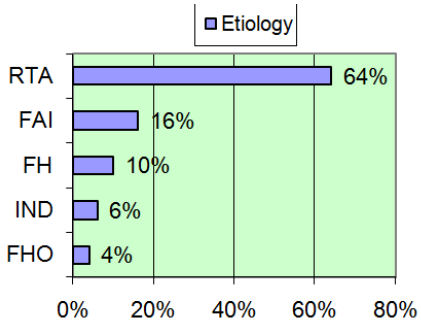

Figure No.3: Etiology

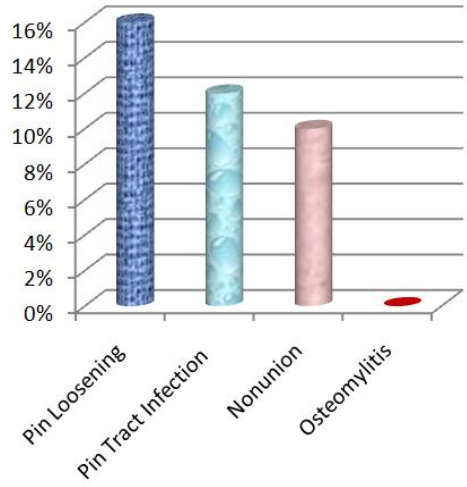

Figure No.4: Complications

DISCUSSION

Our study showed 76% of the male involvement which other studies also have proved (fig 2) [14,15,16,17]. Operative treatment of the tibial shaft fractures usually leads to healing without any consequences on life & working ability[12]. The most common methods used in treating tibial shaft fractures are intramedullary nail, AO plates & external Fixator[18].

The external fixator in open tibial fractures not only solves the problem of managing soft tissue injuries but also provide a reasonable fixation for bone to heal. With AO fixator it is possible to adhere to safe & effective fixation techniques, avoid damage to vital structures, have access to wound & adjust the fixator so that it is biomechanically compatible with fractures[19]. Mean age in our study was 35.2 years which was quite comparable with other studies. All these studies have shown that these injuries occur in younger age group[20,21,22,23]. Mean time of fracture healing in our study was 26.5 weeks. Tucker et al[24] and schaztker[25] in separate studies reported union time of 25.6 weeks and 21.9 weeks respectively. Similarly Wheelwright, Court-Brown [26] and Adrover et al[27] reported a union time of 27.5 weeks & 26 weeks respectively. The union & nonunion rate in our study was 82% & 10% respectively. Kaftandziev[28] in his study produced union in 71.1% while Bratislav stojkovic [29] reported a union rate of 83.68% in his 49 patients.

In our study pin site/ tract infection rate was 12% & pin loosening was 16% (fig4). In a study by Parameswarma AD et al infection rate was 11.2% in 285 fractures. The incidence of Pin tract infection for the unilateral fixator group and the hybrid fixator group were not significant different[29, 30.] In another study average age of union was 21 weeks, Infection was 8%, nonunion was 11%, these results were produced in 1438 subjects by song k et al[31]. Shalamon J et al in his study proved that most of the Pin tract infection are mild and can be treated by local or systemic antibiotics. Loosening did not require a change of method of stabilization[32].

CONCLUSION

External fixator is simple& effective mean of treating open tibial fractures.

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Original Article

Congenital Heart Diseases

Frequency of Congenital Heart Diseases in Neonatology Section of a Tertiary Care Hospital Peshawar

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ABSTRACT

Objectives: To determine the frequency of common congenital heart diseases (CHD) in children presenting to Pediatrics Department of Lady Reading Hospital, Peshawar.

Study Design: Cross sectional descriptive study

Place and Duration of Study: This study was conducted in the Pediatrics & Neonatology Department of Lady Reading hospital Peshawar, from 14th July 2010 to 14th July 2011.

Materials and Methods: A total of 481 patients, using 3.1% propotion of ASD in cases with CHD, 95% Confidence interval, 1.55% margin of error, under WHO software formula for simple size determination. Children from 0-18 years of age clinically diagnosed cases with their echocardio-graphy which was also suggestive of CHD were included in this study. Postoperative cases of CHD as they require different kind of management plan and Confirmed cases of CHD were excluded.

Results: Patients with acyanotic CHD were 416 (86.48%) and with cyanotic CHD were 65 (13.52%). Cases of ventricular septal defect(VSD) were 190(39.5%) and amongst them 120 (63.16%) were males and 70 (36.8%) were females. Cases of atrial septal defect (ASD) were 146 (30.35%) and amongst them 63(43.15%) were males and 83(56.84%) were female. Thus, there was a female preponderance of ASD patients as compared to VSD. As for patent ductus arteriosus (PDA) there were 80 (16.63%) cases and of transposition of great arteries (TGA) were 30(6.23%). Whereas cases of tetrology of fallot (TOF) were 35(7.27%) .

Conclusion: Congenital heart defects (CHD) are among the most common birth defects and are the leading cause of birth defect-related deaths. VSD is the commonest acyanotic CHD whereas TOF is the commonest cyanotic heart disease.

Key Word: Congenital Heart Diseases, Echocardiography, VSD

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INTRODUCTION

Congenital heart disease is a structural abnormality of the heart or intra thoracic vessels that is present since birth and is potentially of functional significance[1]. Congenital heart disease (CHD) is the leading cause of birth defects, and accounts for more deaths in the first year of life than any other condition when infectious etiologies are excluded. In Early studies of the incidence of CHD, as summarized by Hoffman [2] produced low incidences of about 4 to 5 per 1,000 live births. But this figure has been rising steadily until recently when incidences of 5 to 8/1,000 live births or higher have been reported in the literature.[3]

In Pakistan each year 12000 children are born with congenital heart disease. Almost 90% of these either die or are diagnosed so late that even surgery is ineffectual.[4]

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Another retrospective study was conducted by Aman W, in order to find out the frequency of various congenital heart diseases (CHD) in patients less than 12 years of age. Conclusion was that majority of the congenital cardiac anomalies in patients less than 12 years of age are acyanotic. VSD and ASD are the major acyanotic and TOF is the major cyanotic congenital heart disease.[5] In a recent local study at the National Institute of Cardiovascular disease (NICVD), Karachi, showed that congenital heart disease was reported with the frequency of 2(0.5%) and 4(0.8%) in two data sets.[6]

European countries covering 3.3 million births during the period 2000 to 2005 showed that the average total prevalence of CHD was 8.0 per 1000 births, and live birth prevalence was 7.2 per 1000 births, varying between countries. The total prevalence of nonchromosomal CHD was 7.0 per 1000 births, of which 3.6% were perinatal deaths, 20% prenatally diagnosed severe nonchromosomal CHD (i.e., excluding ventricular septal defects, atrial septal defects, and pulmonary valve stenosis) occurred in 2.0

per 1000 births, of which 8.1% were perinatal death.[7] In one English health region, reported prevalence of cardiovascular malformations was 6.5 per 1000 live births.[8,9] In a population-based study of all Danish live births from 1977 to 2005, the prevalence of CHD was 10.3 per 1000 live births.[10] The highest prevalence for CHD was observed in a population-based study from Taiwan with a prevalence of 13.1 per 1000 live births between 2000 and 2006.[11]

Keeping in view the mortality and morbidity from congenital heart defects in pediatric patients the aim of my study is to determine the frequency of common congenital heart diseases in a tertiary care hospital.

MATERIALS AND METHODS

This cross sectional descriptive study was conducted in the department of Pediatrics & Neonatology, Lady Reading hospital, Peshawar from 14th July 2010 to 14th July 2011.

A total of 481 patients, using 3.1% propotion of ASD in cases with CHD, 95% Confidence interval, 1.55% margin of error, under WHO software formula for sample size determination.

Inclusion criteria were all Children from 0-18 years ,clinically diagnosed cases with their echocar-digraphy was also suggestive of CHD. Exclusion Criteria were all Postoperative cases of CHD as they require different kind management plan and Confirmed cases of CHD.

After approval from the hospital ethical committee, data was collected from all clinically diagnosed patients suspected for having CHD.

Patients fulfilling the inclusion criteria were enrolled in the study and an informed consent was taken from parents & relatives of the patients for further evaluation. All the children were sent to the Cardiology Department of the institute for echocardiography which was done by echocari-graphist (Cardiologist) to confirm the CHD.

After the echo report frequency of common CHD i.e. ventricular septal defect(VSD), Atrial septal defects (ASD), Patent ductus arteriosus (PDA): Tetrology of Fallot (TOF), Transposition of great arteries (TGA), amongst these children was determined. Echocardiography was performed by the same Cardiologist for all patients.

All the data was entered and analyzed by SPSS version 16. Percentages and frequencies were determined for the common CHD i.e. ventricular septal defect(VSD), Atrial septal defects (ASD), Patent ductus arteriosus (PDA) , Tetrology of Fallot (TOF), and Transposition of great arteries (TGA). Mean and standard deviation were calculated for quantitative variables like age.

RESULTS

Frequency of both cyanotic and acyanotic CHD, and male to female ratio as well as age distribution of specific diseases is analyzed as below:

Patients with acyanotic CHD were n=416 (86.48%) (Table 1). Patients with cyanotic CHD were n=65 (13.35%) (Table 2).

Table No.1: Frequency of Acynotic CHD (N=481)

CHD	No. of cases(percentages)
Acynotic CHD	**416(86.48%)**
i.VSD	190(39.5%)
ii.ASD	146(30.35%)
iii.PDA	80(16.63%)
Total	**481(100%)**

Table No.2: Frequency of Cynotic CHD (N=481)

CHD	No. of cases(percentages)
Cyanotic CHD	65(13.5%)
i.TGA	30(6.23%)
ii.TOF	35(7.27%)
Total	**481(100%)**

Table No.3: Age distribution of CHD (N=481)

CHD	Mean Age (yrs) ± Std. Deviation	
	Males	Females
VSD (n=190)	3.8yrs± 4.37	4.8yrs±4.637
ASD (n=146)	5.61yrs±4.65	4.48yrs±3.97
PDA (n=80)	2.07yrs±3.15	3.2051±3.438
TOF(n=35)	1.44yrs±1.47	2.313±1.68
TGA (n=30)	3.91yrs±3.88	3.58yrs±4.32

Table No.4: Sex wise distribution of Acyanotic CHD (N=481)

Acyanotic CHD	Males		Females	
	No. of cases	%age	No. of cases	%age
i.VSD n=190	120	63.16%	70	36.84%
ii. ASD n=146	63	43.15%	83	56.8%
ii.PDA n=80	41	51.25%	39	48.75%

Table No.5: Sex wise distribution of Cyanotic CHD (N=481)

Cyanotic CHD	Males		Females	
	No. of cases	%age	No. of cases	%age
i.TOF (n=35)	19	54.28%	16	45.71%
ii.TGA (n=30)	18	60%	12	40%

Mean age of patients with ASD in males was 5.61±4.65yrs and in females it was 4.48±3.97 yrs. Mean age of male patients with PDA was 2.07±3.15 yrs and in females it was 3.025±3.438

yrs. As for age distribution in cases with VSD, mean age was 3.8±4.37 yrs amongst males and 4.8±4.637 yrs amongst females. Mean age of male patients with TOF was 1.44±1.47 yrs and in females it was 2.312 ±1.68 yrs (Table 3).

Cases of VSD were n=190(39.5%) and amongst them n=120(63.16%) were males and n=70(36.8%) were females. Cases of ASD were n=146 (30.35%) and amongst them n=63 (43.15%) were males and n=83(56.84%) were female. Thus, there was a female preponderance in patients with ASD as compared to VSD. As for PDA there were n=80(16.63%) cases and amongst them n=41(51.25%) were males and n=39(48.75%) were females. Cases of TGA were n=30(6.23%) and amongst them n=18(60%) were males and n=12(40%) were females. Whereas cases of TOF were n=35(7.27%) and amongst them n=19(54.28%) were males and n=16(45.7%) were females (Table 4).

DISCUSSION

Incidence of CHD is underestimated in developing countries due to home deliveries and early discharge of mothers along with their neonates from hospitals without proper neonatal examination pertinent to cardiovascular system by a qualified and experienced personal due to financial constrains and cultural religious issues. If the problems are recognized at an earlier age, the chances of long term complications are less and the outcome is better. In my study Acynotic congenital heart constitutes the major bulk with nearly 86% of patients falling in this category. This can be compared to a study conducted by Aman W[5] in which also acyanotic CHD was present in 80% of patients.

Among the acyanotic variety VSD is the most common variant with nearly 39.5% of patient having this congenital heart disease. This can be compared to a study by Masood M[12] in which frequency of VSD was 38.3%. VSD is commoner in males (63.16%) as compared to female (36.84%). This can be compared to a study conducted by khan I[13] in which 75% patients were male and 25% were female.

ASD is the second most common variant of acyanotic variety in my study with nearly 30.35% of patient having this congenital heart disease. This can be compared to a study by Sadiq M[14] in which frequency of ASD was 13.2% making it the second most common variant after VSD.

It was found in my study that ASD is commoner in females (56.84%) as compared to males (43.15%). This can be compared to a study conducted by Sharmin SL[15] in which also ASD was found to be commonest in females. It was found in my study that the frequency of TOF in male patients was 54.28% and in female it was 45.71%. This can be compared to a study conducted by Aman W[5] in which TOF was found in 65.1% of male patients and 34.9% amongst females.

Transposition of great vessels is another variety of cyanotic CHD. In my study 6.23% of patients had this variety of CHD. This can be compared to a study by Sharmin SL[15] in which frequency of TGA was 0.9%, and is relatively uncommon as compared to other CHD.

It was found in my study that the frequency of TOF in male patients was 60% and in female it was 40%. This can be compared to a study conducted by Sharmin SL[15], however in their study TGA was found commonly in of female patients as compared to males.

CONCLUSION

It was concluded from my study that congenital heart diseases poses a major challenge to clinicians regarding early diagnosis and proper referrals of paediatric population suffering from CHD particularly neonates. VSD constitutes major form of acyanotic variety and TOF is the main cyanotic variety of CHD in my study.

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Original Article

Peritonsillar Abscess

Satisfaction of Patients with Peritonsillar Abscess with Permucosal Needle Aspiration Versus Incision & Drainage

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ABSTRACT

Objective: To assess the efficacy and safety of Permucosal Needle Aspiration of Peritonsillar abscess with the Incision & Drainage.
Study Design: Prospective, descriptive study
Place and Duration of Study: This study was conducted at Benazir Bhutto Shaheed Teaching Hospital, Abbottabad from July 2011 to June 2014.
Materials and Methods: This study was conducted on 62 patients, suffering from Peritonsillar Abscess. Patients were divided into 02 groups , group A, patients who were treated by Needle aspiration and group B, patients who were treated initially by incision & drainage. Patients were assessed for relief of pain, hospital stay, complications of the procedure, recurrence of the disease and success rate of the procedure.
Results: Of the 62 patients, 38 (61.29%) were male and 24 (38.70%) were female. The age range was from 08 years to 57 years. Duration of symptoms prior to hospital admission was 06 days. The return to semi solid food was 02 days in group A an d to solid food 04 days. Where as in group B 88 % return to semisolid in 02 days and to solid in 04 days. 75% the patients in group A were pain free after 05 days as compared to 78 % in group B. The hospital stay was 3-9 days in group A and 4 -10 days in group B patients. The over all success rate was 90 % in group A and 93 % in group B.
Conclusion: This study indicates that most patients with peritonsillar abscess can be treated successfully and safely by per mucosal needle aspiration.
Key Words: Peritonsillar Abscess, Needle Aspiration, Incision & Drainage

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INTRODUCTION

Peritonsillar abscess is the most common deep infection of the head & neck .It is most common in persons 20- 40 years of age. Young children are seldom affected, unless they are immune compromised[1]. It is most common in November to December and April to May, conciditing with the highest incidence of streptococcal pharyngitis and tonsillitis[2]. An average ENT department treats 29 cases of peritonsilar abscess per year in UK[3]

The infection affects male and female equally. Evidence shows that chronic tonsillitis or multiple trials of oral antibiotics for acute tonsillitis may predispose persons to the development of Peritonsillar abscess[4]

The most common organisms associated with Peritonsillar abscess are Aerobic (streptococcus Pyogens, Staph. Aureus, Haemophilus influenza, Neisseria species) and Aerobic (Fuso bacterium, Peptostreptococcus, Prevotella and Bacteriods).

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Peritonsillar abscess in the absence of tonsils is rare.
Peritonsillar abscess is mildly contagious. The infection spreads from person to person through salvia and nasal discharge. The recurrence rate is 10-15%.

The clinical features are progressive worsening of sore throat, often localized to one side , otlagia, dysarthria and high grade fever. In addition many patients will have a thickened , muffled voice , often described a s having a " Hot potato " quality.

A distinguishing feature on physical examination, is the inferior medial displacement of the affected tonsil with a contra lateral deviation of the uvula. Trismus, edema of the palatine tonsils, purulent exudates on tonsils and cervical lymphadenopathy are also present.

A thorough history and physical examination can often determine a diagnosis of Peritonsillar abscess , but radiological tests may be helpful in differentiating Peritonsillar abscess from other diseases. Ultra-sonography is the easiest and most useful tool[5]

The use of CT scan may also be helpful in identifying an abscess formation. [6]

The differential diagnosis include Peritonsillar cellulitis, Tonsillar abscess, Glandular fever, Cervical adenitis, Dental infection, Salivary gland infection, mastoid infection, Aneurysm of internal carotid artery and Neoplasm (Lymphoma, Leukemia).

Peritonsillar abscess is almost always unilateral but occasionally can be bilateral.[7]

The treatment of Peritonsillar abscess requires both the selection of appropriate antibiotics and the best procedure to remove the abscess material. The choice of antibiotics depends both on the gram stain and culture of the fluid obtained from the abscess cavity.

The use of steroids has been controversial. The addition of a single dose of dexamethasone to parenteral antibiotics has been found to significantly lessens the variables of hours hospitalized, throat pain , fever and trismus.

Three main surgical procedures are available for the treatment of Peritonsillar abscess, Needle aspiration, Incision & Drainage, and immediate tonsillectomy.

Controversy remains over the necessity of I/D and Needle aspiration . Most experts agree that immediate tonsillectomy is not required for treatment of Peritonsillar abscess. Tonsillectomy should be performed 3-6 months after Peritonsillar abscess in patients who have recurrent tonsillitis or Peritonsillar abscess.

The aim of this study is to compare the safety and efficacy of Per mucosal Needle aspiration with that of incision drainage of Peritonsillar abscess.

MATERIALS AND METHODS

A randomized , prospective , clinical study , in which 62 patients were evaluated, between 08 to 57 years of age. There were 38 male and 24 female patients.. The study was conducted at Benazir Bhutto Shaheed teaching Hospital Abbottabad, from July 2011 to June 2014.

All patients were clinically diagnosed for Peritonsillar abscess. A printed Performa was used for each patient to record age, sex, presenting complaints and the clinical findings and the treatment outcome.

All patients were divided into two groups. Patients in Group A were treated as Needle aspiration and patients in group B were treated by Incision & Drainage under local anesthesia. Both procedures were performed in OT under aseptic technique.

The patient's subjective complaint regarding post-procedure pain, oral intake and hospital stay were recorded.

RESULTS

A total of 62 patients were studied. Out of which 38 (61.29%) were male and 24 (38.70%) were female, with a mean age of 32.4 years (range 08 - 57 years) (Figure 1).

The average duration of symptoms prior to presentation was 06 days, with 84 % treated with antibiotics prior to presentation. All patients were admitted to hospital for intra- venous antibiotic, analgesics and intra-venous fluid.

The initial success rate was 90 % (29 out of 32) with needle aspiration and 93% (30 out of 32) with I/D.

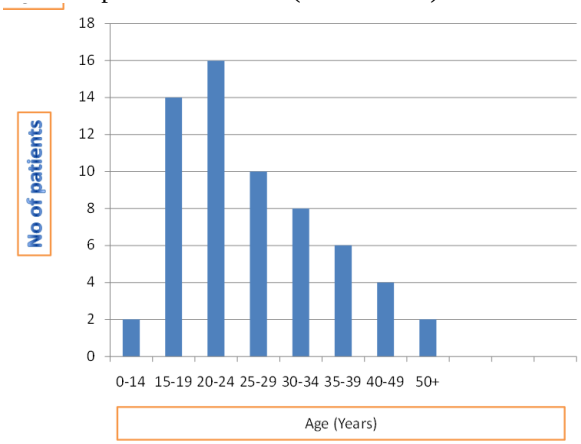

Figure No.1:

Figure No.2:

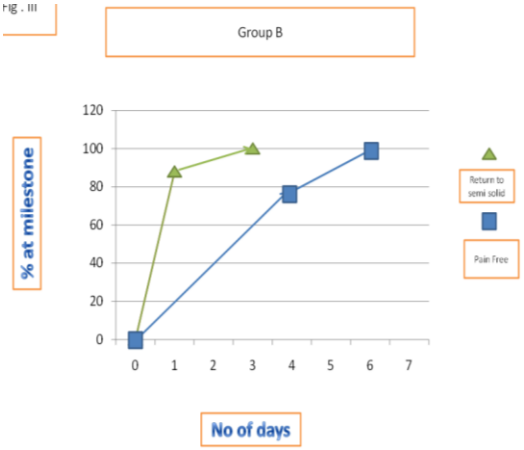

Figure No.3:

The aspiration was repeated in 02 patients as there were no improvement in first 24 hours.

In group A, 87% reported a return to semisolid food within 02 days, and solid food within 04 days. (Figure ***2***).

75% reported in this group no pain by 05 days. 88% in group B, reported a return to semisolid food within 02 days and solid food in 04 days.

78% of patients in this group, reported no pain by day 5 (Figure ***3***).

The hospital stay was 3-9 days for group A, and 4-10 days for group B patients.

DISCUSSION

Peritonsillar abscess is one of the most commonly occurring infection of the Head & neck in adults and children.

The reported incidence of Peritonsillar abscess varies in the current literature ,but recent review suggests that it affects approximately 30% in every population of 100,000, and 40,000 new cases are reported every year.[8] The condition usually presents unilaterally and affects any age group from 10 to 60 years , but is most common in the age group of 20 to 40 years.[9]. Peritonsillar abscess can be a life threatening disease and may lead to significant complications without treatment. Death can occur through rupture into the airway, dissection into the carotid artery, or regional spread of infection leading to sepsis.

Three main surgical procedures are available to treat Peritonsillar abscess , Needle aspiration, Incision & drainage and immediate tonsillectomy. An abscess tonsillectomy is the treatment of choice in Europe and USA, but it is contraindicated in Japan.[10]. The risk of bleeding following abscess tonsillectomy seems higher (13%), than reported in elective cases.[11]

In this study the author compared the results of incision & drainage and needle aspiration of Peritonsillar abscess.

Needle aspiration can be carried out in children as young as 07 years, especially if conscious sedation is used.

In a study by Stringer et al, No significant difference was observed between the two groups in duration of symptoms or initial treatment failure.[12]

Mahraj et al reported similar (87% in needle aspiration , and 90% in I/D group) results.[13]

This study indicates that most patients with Peritonsillar abscess can successfully and safely be treated by per mucosal needle aspiration.

CONCLUSION

This study indicates that Peritonsillar abscess can be successfully and safely be treated with per mucosal needle aspiration.

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Original Article

Typhoid Perforation

Role of Primary Closure in the Management of Early Cases of Typhoid Intestinal Perforation, in Our Set Up

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ABSTRACT

Objective: To see the benefits of primary closure in typhoid intestinal perforation in early cases, regarding morbidity and mortality in KPK.

Study Design: Prospective study

Duration and Place of Study: study was performed at teaching hospital of KMU-IMS, Kohat from March 2006 to March 2014.

Material and Method: In this prospective study, we included 76 cases of single perforation of less than 24 hours in terminal ileum in typhoid fever patients, these patients had primary closure in 2 layers. Data was collected on a structured proforma. Patients' data included demography, clinical features, investigation post-operative complications, hospital stay and follow up.

Results: 76 cases were included in the study over 8 years. Mean age was 24 ±10.2 years with m:f ratio of 1:2.6. In 100 % cases pain abdomen, fever, tenderness in either right iliac fossa or generalized in the abdomen were observed. Widal test, Typhidot and blood culture was positive in 51 ,54 and 58 out of 76 patients in same order.

Wound sepsis was a common post-operative complication 12/76(15%) other post-operative complications were pulmonary infection, abdominal dehiscence, intra peritoneal abscesses and Intestinal haemorrhage. Mean duration of hospital stay was 13.34 ±4.20 days. Mortality was 1.3%

Conclusion: Two layer primary closure is an effective procedure having good results. Both morbidity and mortality are low and associated with reasonable length of hospital admission.

Key Words: Perforated Tleum, Primary Closure, Complication of typhoid

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INTRODUCTION

Typhoid fever is an infectious disease in tropical countries. It is caused by species of Salmonella. In fact it is one of most common febrile illness in developing countries[1].Salmonella species affects payer's patches in 2nd period of bacteraemia. These diseased payer's patches in terminal ileum may perforate and then adopt a horrible shape. Intestinal content with mixed bacterial flora is leaked into the peritoneal cavity. These bacteria, through stomata on the under surface of diaphragm have easy access to the circulation. Incidence of perforation may be up to9- 39 percent[2,3]. Here it is associated with peritonitis, septicaemia and death. Mortality is reduced when operated[4] and then conservative approach[5]. Even with surgical operation mortality varies. A number of procedures are tried to reduce the dreadful outcome. Primary closure[6], primary closure with excision of margins, ileotransverse colon anastomosis, excision of disease segment with anastomosis[7,8] and temporary ileostomy[,9,10].

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Primary closure and temporary ileostomy are commonly practised. Ileostomy has low mortality. But primary closure if tried judiciously, can give equally good results. Important factor is time since perforation.

Primary closure is a relatively simple procedure and it does not need 2nd surgery for its closure, but inflammation affected softening of the diseased gut i.e. friability may lead to reperforation and enter ocutaneous fistula. Ileostomy in typhoid perforation with inflamed soft gut has so many advantages, it diverts the infected faecal matter, relieves pressure on repair done. Therefore reduces the failure of repair. But there are disadvantages as well , 2nd surgery is mandatory in closing the ileostomy hence increases overall hospital stay, it can be associated with complications of ileostomy like, skin problems, prolapse of ileostomy and retraction of ileostomy [11].

In our country much work has been designed and performed on management of this condition, as it a common problem in our set up, with variable results. Primary closure if done in early case where the gut condition is good and patient's haemodynamic condition is stable, may be an appropriate procedure[11]and it seems that doing ileostomy randomly in all cases without selection probably is an over treatment.

Keeping in view the merits of primary closure in highly selected cases this study was performed with the objective to determine the efficacy of the procedure under mentioned conditions, with reference to morbidity and mortality in KPK.

MATERIALS AND METHODS

This prospective study, approved by the ethical committee included 76 cases, during a period 8 years from March2006 to March2014.In DHQ teaching hospital of KMU-IMS Kohat. Convenient sampling technique was used for collection of cases. Clinical picture of peritonitis with prior history of fever, body aches and other toxic symptoms were considered as typhoid intestinal perforation. Confirmation by abdominal radiographs showing pneumo peritoneum was done. Other investigations were widal, typhidot, blood culture and biopsy of the margin of perforation in intestine to exclude tuberculosis. Single perforation in ileum and period of less than 24hours since perforation were included in study.

More than 24 hours old since perforation, multiple perforations in intestine, friable gut and re perforations were excluded.

Fluoroquinolone and metronidazole were started as preoperative antibiotic and continued in the post-operative. period. Crystalloids were given for rehydration. Through a midline incision abdomen was opened. Perforation in ileum was closed in two layers with polyglyctin 2/0(vicryle) after debridement of the margin of perforation. Judicious debridement of the peritoneal surfaces, thorough lavage with normal saline was done and peritoneum mopped to dry with gauze. A peritoneal drain was left for 72 hours

Post-operative analgesia was given and vitals were monitored. Patients were kept nil per oral for 72 hours or one day more. They were advised to taken liquid andsemi-solid diet for 14 post-operative days. At discharge it was ensured that these patients were afebrile.

Data was collected on pre-designed proforma with name of patient, demography, symptoms and signs, findings, investigation, complications and duration of stay in hospital. Data was analysed and recorded. Patients were followed for 8weeks in outpatient department.

RESULTS

76 cases of typhoid perforation were selected on criteria already determined. Age range was 4-58 years.47 patients presented in 2nd and 3rd decades. Mean age of presentation was 24 ±10.32 years. Details in table1. Male was the predominant gender. There were 54 male and 21 female with the ratio of 1:2.6

Clinical feature are given in table.2,76 out of 76 patients had fever. Pain abdomen was also found in 100% cases. Tenderness either generalizedor in right iliac fossa was there in 76/76 patients..

Widal test was positive in 51/76 (67%). while blood culture and typhi dot were positive in54/76 (71%) and 58 /76 (76%) cases respectively.

Wound sepsis was the most frequent complication. It occurred in 12/76(15.7%) cases. This was followed by pulmonary infection, abdominal dehiscence, intra peritoneal residual abscesses table-3.

There was no case of re perforation or entero-cutaneous fistula recorded in the study

Hospital stay for majority, 50/76 (65.7%),of these patients was 7-14 day. 21% had a hospital stay of more than 3 weeks mentioned in table-4 with an average stay of 13.34 $^{+}_{-}$ 4.20 days.

Mortality: one patient (1.3%) died, his preoperative septicaemia continued and he could not come out of shock.

Table No.1: Age distribution of 76 cases typhoid perforation

1	Age in years	Number of patients	Percentage
2	0-10	7	9.2
3	10-20	22	28.9
4	20-30	27	35.5
5	30-40	10	13.1
6	40-50	8	10.5
7	50+	2	2.6

Mean age= 24 ±10.32 years

Table No.2: Clinical features in 76 patient of typhoid intestinal perforation

Fever	76	100
Pain abdomen	76	100
Low blood pressure systolic below 90mm hg	50	65.7
Tender abdomen	76	100
Distended abdomen		80
Sluggish bowl sounds		90
Dehydrated	76	100

Table No.3: Post-operative Complications in 76 patient of typhoid intestinal perforation

S.No	Complications	No. of patients	Percentage
1	Wound sepsis	12	15.7
2	Pulmonary infection	17	3.5
3	Abdominal dehiscence	2	2.7
4	More than24 hours Post-operative septicaemia	2	2.7
5	Intestinal haemorrhage	1	1.3
6	Mortality	1	1.3
7	Intra peritoneal abscesses	2	2.6
8	Reperforation	0	0
9	Mortality	1	1.3

Table No.4 Duration of Hospital Stay

S. No	Days	Number of patients	Percentage
1	0-7	10	13.1
2	7-14	50	65.7
3	14-21	12	15.7
4	21+	4	5.2

Mean hospital stay 13.34±4.20

DISCUSSION

Typhoid intestinal perforation, a complication of typhoid fever is basically a combination of typhoid fever, peritonitis due to perforation in the gut and systemic complications at clinical presentation. Diagnosis of enteric fever is done clinically in developing countries[1]we used fever body aches toxic symptoms, pain abdomen, either generalized abdominal tenderness or tenderness in right iliac fossa and sluggish bowl sound as clinical criterion in our patients. Widal test, blood culture, typhidot, pneumo peritoneum were used as confirmatory diagnosis like similar studies[5].

Mean age of presentation was 24 ±10.32years, maximum number of patients presented in 2nd and 3rd decades of their lives males were the predominant gender[12,13]with 3:2 ratio[14,15]in our study there were 21 female and 55male patients.

A number of treatment strategies practised in history. High mortality is associated with conservative treatment. Conservative treatment is based on the idea that repair of gut in septic conditions is unjustified[5], later surgical procedures like primary closure, temporary ileostomy and resection of disease segment of terminal ileum were tried in hope of better outcome. Primary closure and ileostomy were studied widely with various technical modifications. Like primary closure with wide excision of margins, debridement and closure, single layer, two layers closure and Loop ileostomy are worth mentioning. Suitability of any one procedure is based on post-operative morbidity and mortality. Which mainly depends, apart from other factors on duration between perforation and surgery on one hand and peritoneal contamination and friability during surgery at the other.

Ileostomy is suitable in a sense that it is effective, with comparatively short post-operative hospital stay in the first phase.[11] But it is associated with troublesome peri-ileostomyerosion of skin. Furthermore it needs yet another surgery for ileostomy closure and for that matter another hospital stay equal to average hospitalization period of primary closure in the present study. So in case where conditions are favourable like short perforation –operation interval, comparatively good perforation margins and single perforation primary closure in two layers with peritoneal toilet are parts of ample treatment. It seems from the study that reperforation is rare.

The preoperative preparation is an important factor in management, as most of the patients were dehydrated, toxic looking and in early stages of sepsis. They were managed by prompt resuscitation by giving intra venous fluid, decompression of gut and using urinary catheter for measuring urinary output. Combination of Flour oquinolone and metronidazole was given to combat both aerobic and anaerobic infection. Delay in initiation of process of resuscitation leads to continued faecal soiling of peritoneum, and irreversible deterioration causing high mortality. Mean Hospital stay was 13.34±4.20 days ranging from 3-28 days. This seems a bit longer as compare to study on ileostomy for the same problem (mean of 7.53±4.9 days)[11].But considering 2nd admission for closure of ileostomy this is relatively short stay on the aggregate are correlates well with prevailing literature for similar study[15,16]

Double closure of typhoid perforation in the ileum, in cases who present early, is an effective procedure as postoperative complications are low. The morbidity rate was 48.6% which is lower than other surveys[16,17] wound sepsis (15.7%) was the most common complication followed by pulmonary infection (3.5%). All patients of Wound sepsis in our study were managed according to principles of surgery. Patients with pulmonary infection were treated with antibiotic and chest physiotherapy. Reason for low rate of complications may be the fact that these are highly selective case very much in the beginning of the pathogenesis of the disease process.

Mortality was 1 (1.3%) in the study. Mortality widely variable in literature ranging from 5-62%[18]

Probable explanation might be the selection criteria of the cases in study. Worth mentioning is very short interval between perforation and operation.

CONCLUSION

In early cases, presenting within 24 hour, Primary closure in two layers, isa satisfactory treatment in term of post-operative morbidity, mortality and tolerability by patients.

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Original Article

Psycho-social Stress

Common Psycho-social Stressors and Stressful Life Events in Conversion Disorders Subjects of KPK Pakistan

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ABSTRACT

Objective: Evaluating the frequency of major Psycho-social stressors and stressful life events in conversion disorders subjects of Khyber Pakhtun khwa, Pakistan.

Study Design: A descriptive study

Place and Duration of Study: This study was conducted in the King Abdullah teaching hospital Mansehra from September 2013 to September 2014.

Materials and Methods: The sample size consists of total 112 patients with 87 in-patient and 25 out- patients (74 females and 38 males) with conversion disorder. Interviews were conducted with open and close ended questions and results were analyzed from the questionnaire. The Social Readjustment Rating Scale (SRRS) and presumptive stressful life events scale (PSLES) were administered during the interview to evaluate the major psycho-social stressors and life events in past 12 month.

Results: we identified fifteen (15) different Psycho-social stressors and stressful life events in conversion disorders, in all subjects at least one stressor being clearly identified. Among the patients there were (46.7 %) social and family stressors, (18%) work, (10%) broken marriage and love affairs, (7%) health, (6.3%) Berveament, (6%) Finance, marital and sexual (3%), (2%) health, and (1%) legal.

Conclusion: we conclude that all patients that were included in our sample size were having at least one psycho-social stressor and stressful life event. Female patients prevails more compared to male patients.

Key Words: Hysteria, Conversion Disorders, Psycho-Social Stressors, Stressful Life Events

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INTRODUCTION

Conversion disorders were known by the term 'hysteria' or hysterical conditions and was mostly tied to females, but the concept has been changed after finding its instance in male subjects though the proportion varies among the two genders, the fact is that its occurrence is observed higher in females[1]. Conversion Disorder or hysterical conditions develops due to emotional stress that is governed by environmental, social and life events stressor in life[1].

Freud introduced the term Conversion for a hypothetical mechanism by which psycho-social stress or a life event converts into physical symptoms[2]. In the diagnostic and statistical manual of mental disorders of the American Psychiatric Association, 4th edition (DSM-IV-TR), conversion disorders are included in somatoform disorders category[3]. The international classification of diseases 10th revision (ICD-10) put conversion disorder as a dissociative disorder under the classification category of F44 (somatoform disorders, stress-related & neurotic) [4].

The conversion disorder is an apparent neurological functioning, or physical symptoms showings a medical condition. In both classification systems DSM-V and ICD-10 symptoms are to be differentiated from other medical conditions. DSM-V classification enlists four subcategories of conversion disorder: motor, seizures, mixed and sensory. Classically, the symptoms include motor and sensory problems include blindness, swallowing difficulties and non-epileptic seizures[5,6,7].

Studies have shown a female dominance in conversion disorder[8,9]. Studies show that conversion disorder is more prevalent in adolescents and young adults [10,11].In a study females were more prone to develop conversion disorder at ages less than 35 years[11].

Stressful life events can impair the sense of control in the patient causing a marked incapacitation and psycho-social stress [12]. In a previous study finance was a minor stressor[13]. Conversion disorders in female were being reported with problems related to family and finance[11].

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MATERIALS AND METHODS

Participants: The study was conducted at King Abdullah teaching hospital Mansehra and its allied centers. The study included 112 patients from in and out- patient departments of psychiatry through purposive convenient sampling technique.

Instruments: The Social Readjustment Rating Scale (SRRS) [14] and Presumptive Stressful Life Events Scale (PSLES) were administered during interview to evaluate the major psycho-social stressors and stressful life events in past 12 months. Social readjustment life scale was developed by Holmes-Rahe to measure the effect of life changes. In the scale the stressors were developed according to the severity of impact on life. Patients of conversion disorders were diagnosed as per criteria of DSM-V [15].

Procedure: The participants were approached in the above mentioned places and briefed about the study, informed consent was taken, DSM-V criteria was applied on them in an interview format. The participants who fulfilled the criteria were administered Social Readjustment Rating Scale (SRRS) and Presumptive Stressful Life Events Scales (PSLES). After the collection of the data, scales were scored and data was entered in SPSS to draw descriptive statistics

RESULTS

Majority of the patients were in the age range of 15–40 years, with a mean age of 22 years.

Table No.1: Descriptive statistics of the demographic details of the participants

	Characteristics	Percentage (%)
Demographics value (Sample size = 112)	**Gender**	
	Females (n=74)	66.1%
	Male (n=38)	33.9%
	Age Distribution	
	15-20 (n=18)	16.5%
	20-25 (n=35)	31.2%
	25-30 (n=36)	32%
	30-35 (n=14)	12.2%
	35-40 (n=09)	8%
	Locality	
	Urban (n=50)	44.7%
	Rural (n=62)	55.3%
	Financial Condition	
	Low (n=32)	28.5%
	Middle (n=50)	44.6%
	High (n=30)	26.7%
	Education	
	Educated (n=75)	66.9%
	Illiterate (n=37)	33.1%
	Occupation	
	Employed (n=28)	25%
	Unemployed (n=35)	31.2%
	At home (house wife) (n=19)	16.9%
	Student (n=30)	26.7%

Total sample size was 112 Out of which 78 patient (66.07%) were females and 38 (33.92%) were male. 28 (25%) were employed and 35 (31.2%) were unemployed, 19 (16.9%) of them were house wives and 30 (26.7%) were students (table 1).75 (66.9%) of the participants were educated and 37 (33.1%) were uneducated. 28.5% patients were from low income families, 44% from medium income families, and 26% of the patients were from high income families.

Every participant reported at least one stressor. 46.7% of the conversion disorder patients had social and family related problems while 18% reported problems in Marital and sexual life. Other reported stressors were related to Work, Education, Finance, Legal domain, Courtship, Cohabitation and bereavement (table 2).

Table No.2: Descriptive statistics of the stressors

Sr No	Stressors (major and sub stressors)	Sub stressor % age	Total %age
1.	Social and family Conflict with in laws Family conflict Lack of son Birth of daughter	 15.68% 14% 13% 4.67%	46.7%
2.	Marital and sexual Issueless marriage Marital life problems	 11% 07%	18%
3.	Courtship and cohabitation (broken marriage/ love affairs problems		10%
4.	Education (failure in exams)		7%
5.	Bereavement Death of spouse/ child/wife Death of a friend / close one	 4.3% 2%	6.3%
6.	Finance		06%
7.	Work Conflict on work / finances		03%
8.	Health Illness/ disease of self or close one		02%
9.	Legal (Detention in jail of self or close one)		1%

DISCUSSION

Our study findings show that conversion disorders with psycho-social stressors prevail both in male and female but frequency is higher in females. The condition is usually augmented by psycho-social stressors and life event stress. Psychological Stress has been the cause of concern from a long time; Stressful life events can impair the sense of control in the patient causing a marked incapacitation and psycho-social stress [12]. Our study reported a higher prevalence of female subjects affected from conversion disorders in contrast to male patients; same finding has been reported by some other studies [8,9,12]. Evaluating the significant findings of our study like age, gender, marital status, education and socio-economic status in other studies we concluded that conversion disorder can appear at any age but

different studies show it is more prevalent in adolescents and young adults [10,11].

In our study there has been presence of depressive and Anxiety symptoms in hysterical condition subjects, same condition has been reported from another study[16,17]. In our study both gender scored mix result on the scales for anxiety and depression. To some extent they got benefits from treatment for anxiety and depression. Another study reported almost same results[17].

In our finding social and family (46.7%) stressor was higher as compared with others. Previous research confirmed these findings[13]. The social and family stressors that we identified and were evaluated are conflict with in laws (15%), lack of a son (13%), family conflict (14%), and birth of daughters (4.6%). Findings of the study showed that finance had been the major problem of 6% people but in a previous study finance was a minor stressor [13].

There have been hurdles with classification continue to slow down novel finding and research in this area. The area of hysterical or conversion condition in psychiatric distribution rely on its assumed psychological process and so depends on clinicians' decision which are hard to validate [18]. This hypothetical presumption has led to raise a question about the importance of differentiation of conversion with factitious disorders [19, 20].

We identified mainly 15 different pycho-social and life event stressors that mostly prevail in the Khyber Pakhtun Khwa region, in our previous study we were able to identify ten stressors at that time but in this study we identified certain new stressors that had not been reported before for example issueless marriage, birth of daughter, lack of son[9].

CONCLUSION

The findings concluded that pycho-social stressors and stressful life events are found in a large proportion of our conversion disorder patients. Identifying these stressors is very crucial for proper and complete management of these patients. Extensive exploratory research is still required to explore all the possible reason behind conversion disorders.

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Original Article

Torso-trauma

Pattern of Torso-trauma in Road Traffic Accidents in KSA

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ABSTRACT

Objectives: To study the pattern and severity of abdominal injuries due to road traffic accidents (RTA) in KSA.
Study Design: Retrospective descriptive.
Place and Duration of Study: This study was conducted in the Department of Surgery, King Fahad Hospital Al-baha, Kingdom of Saudi Arabia during one year from 2012 to 2013.
Materials and Methods: This is retrospective study of all patients admitted with torso- trauma in Department of Surgery KFH Al-Baha from the period of Aug. 2012 to Aug. 2013.
Results: In the 01 year period, 2520 patients were admitted following an RTA. Out of these, 537 were admitted due to torso trauma.120 patients were admitted in **SICU**, 280 in intermediate dependency unit while remaining 137 admitted in surgical ward.
27 patient died due to torso trauma with multiple injuries. 3 patients died of pure liver trauma while 2 patients died of splenic injury.
Conclusion: Lot of burden over the hospital because of RTA related injuries. There was very severe and fatal injuries faced because of accidents happened in youth and male preponderance.
Key Words: RTA, Torso-trauma, Pattern of injuries,

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INTRODUCTION

Highest incidence of road traffic fatalities in the age group of 21-50 years in our study is in general agreement with the studies done by other researchers, with a male predominance of the victims.[1,2]
The Kingdom of Saudi Arabia (KSA) has experienced a rapid economic growth since the oil boom in 1973 resulting in an enormous increase in the motorization rate(vehicle per 1000 population) associated with rapidly expanding road construction. The number of registered vehicles has increased from 144,768 in 1970 to 5,861,614 in 1994, a forty-fold increase in 24 years[3]. As a result, traffic accidents have become a serious problem faced by the country. During the period from 1971 to 1994, the numbers of traffic accidents injuries, and fatalities have increased by 30 times.[4]
Road traffic accidents (RTA) is most disastrous public health problem and it is the leading cause of death and disability in Kingdom of Saudi Arabia.[5] Less than 2% of the drivers involved in accidents in Kingdom of Saudi Arabia are using seatbelts compared to 62% and 90% in USA and Canada, respectively[6]. Road traffic accidents are second most common cause of disability in the developing world.[7]
In our study 2520 persons were admitted in the Accident and Emergency Department of KFH Al- Baha involves in a RTA from Aug.2012 to Aug. 2013. In the same period, 107 persons were received dead following a RTA. As General Surgeons we were directly involved in the management of patients with abdominal trauma. This group of patients was the focus of our study.

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MATERIALS AND METHODS

The retrospective descriptive study was carried out in the patients admitted to the King Fahad Hospital (KFH) AL-BAHA, surgical department with documented thoraco abdominal injury with or without other associated injuries following RTA in the period from Aug., 2012 to Aug.,2013. The data collected included: patient demographics, physiological status on admission, definitive anatomic injury diagnosis, length of stay in SICU Intermediate dependency unit and surgical wards and patient outcome. Assessment of physiological status on admission was carried out using the Revised Trauma Score[4]. The Abbreviated Injury Scale (AIS), 1990 edition was used to classify the injuries and the injury severity score (ISS) was calculated for every patient[8,9].

RESULTS

During the period of one year a total 2520 poly trauma patients were brought to the hospital emergency after met RTA,2034(87.71%) were male and 486(19.28%) were female. Male to female ratio was 4.15. Out of which 537 (21.31%) patients were admitted to the

General Surgery department because of sustaining torso trauma. Out of 537, 417(77.65%) patients were male while 120 (22.34%) were female with male to female ratio 3.47:1. 120 (22.34%) managed in SICU, 280(52.4%) admitted in intermediate dependency unit while 137(25.51%) kept in general ward. The mean age was 37.4 years. Thoracic injuries were often found other than abdominal injury in our study which is also seen in similar other study groups.[10,11]

Table No.1: Age distribution

Groups	No	%age
Less than 10 years	13	2.24%
11-20 years	27	5.02%
21-30 years	81	15.08%
31-40 years	182	33.9%
41-50 years	143	26.62%
51-60 years	57	10.61%
61-70 years	23	4.28%
71 and above	11	2.04%

Table No.2: Incidence of injury to the Intra-abdominal structures;

Abdominal structure/organ	No.	percent
Liver	63	11.73%
Spleen	56	10.42%
Kidney	26	4.84%
Small intestine	18	3.35%
Large intestine	11	2.04%
Retroperitoneal hematoma	38	7.07%
Urethra	7	1.89%
Diaphragm	5	0.9%
Urinary bladder	8	1.49%
Perineum	3	0.55%

Table No.3: Incidence of injury to other body regions associated with abdominal injury:

Body region	**No.**	**Percent**
Head and neck	123	22.90%
Chest	231	43.01%
Upper extremity	187	34.82%
Lower extremity	203	37.8%
Pelvis	53	9.8%
Spine	34	6.33%

Table No.4: Causes of mortality among RTA cases: Total patients expired: 31,
Mortality rate: 31/537= 5.8%

Cause of mortality	**No. of patients expired**	**Mortality rate**
Head trauma	9	1.67%
Chest trauma	12	2.23%
Liver trauma	5	0.93%
Spleen	3	0.56%
Retroperitoneal hematoma	2	0.37%

Majority of RTA victims were between 30 years to 50 years of age which contributed 78% of the patients. The patients of extreme age group were less victimized. Liver and splenic injury was the most common intra-abdominal pathology involved in mortality of these patient followed by retro-peritoneal hematoma. Regarding torso-trauma other than abdominal injuries the most common involved region causing death was chest injury followed by head . Upper extremity was relatively less involved as compare to lower limb.

DISCUSSION

The Kingdom of Saudi Arabia is a developing country and has experienced a rapid economic growth resulting in an enormous increase in the motorization rate (vehicle per 1000 population) associated with rapidly expanding road construction. As a result, traffic accidents have become a serious problem faced by the country.

Al-Baha province being the biggest province of the Kingdom of Saudi Arabia and King Fahad Hospital(KFH) Al-baha is tertiary referral & biggest hospital of Al-Baha region which has been very busy hospital for all types of diseases and especially for RTA associated trauma with peak inflow of patients during summer vacation because this is a mountain region and vacation spot for the people all over the Kingdom and because of very pleasant climate people used to come for summer vacation and also in Ramadan. This results in a lot of congestion of traffic on the roads and increased number of accidents. Before no such study was carried out on thoraco abdominal trauma following road traffic accidents. In Kingdom of Saudi Arabia the condition of roads is much better than in Pakistan and motor vehicles are very high speed and tend to be latest more over there is trend for very high speed driving among the public resulting in very extensive injuries happened in RTA. Five to eight fractures in a single patient after met RTA was not an unusual in our hospital. In modern day civilian trauma centers, thoracic injury directly accounts for 20-25% of deaths[14,15], and thoracic injury or its complications are a contributing factor in a further 25% of trauma deaths[16,17]. Out of the 537 patients withtorso trauma,31(5.77%) patients died. Only 10(1.86%) deaths could be attributed to abdominal trauma alone. In 5 (0.93%) patients, haemorrhage from the liver trauma was the cause of death and only 3(0.55%) died due to splenic bleeding. Incidence and mortality rate of liver injury is more as compare to spleen which in accordance to literature[18]. There was contrast finding in a study from India in which kidney was the most common injured organ among intra abdominal organ.

Other abdominal injuries did not contribute to mortality. Another important cause of death was retro peritoneal hematoma with associated pelvicinjury and fracture causing death in 2(0.37%) patients. Jha et al[12]

report an increased incidence of injuries in the pedestrian group while two wheeler occupants are reported to be the commoner victims of RTA in the neighbouring city of Mangalore[19,20]. however this is a contrast finding in Saudi society where pedestrian and two wheeler are rarely involved because most of people are accustomed to drive four wheel motor cars, more over to walk along the road side is not a usual habit. This is because KSA is deserted area with scattered population and very prosperous country and people are in habit of over using motor vehicle.

CONCLUSION

The hospitals of KSA are overburdened because of RTA related torso- trauma. There used to be very severe, extensive and fatal injuries happened mainly because of over speed accidents mostly in youth with male preponderance.

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Original Article

Relationship of Chromium Toxicity with Diabetes Mellitus and Chronic Renal Failure

Chromium Toxicity with DM & CRF

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ABSTRACT

Objective: To assess the association between diabetes mellitus and chronic renal failure with toxic effects of chromium on the onset of the Chronic Kidney disease.

Study Design: A prospective cross sectional study**.**

Place and Duration of Study: This study was carried out at the Jinnah Post graduate Medical Centre and Kidney Centre Karachi during December 2012 to December 2013.

Materials and Methods: The present study was conducted on a total of 150 patients (age > 40 years) divided into three groups. Patients in Group I included 50 patients with diabetes mellitus type 2 whereas Group II included 50 patients with diabetes mellitus associated with chronic renal failure (CRF) and Group III consisted of 50 healthy controls.

Results: Results showed that levels of fasting blood sugar and HbA1c in both group I and group II were significantly high where as it was lower in controls. Serum urea (125.2 ± 32.49) and creatinine (7.3 ± 1.41) levels in patients with DM with CRF were significantly high as compared to patients with DM only and control group. The Creatinine clearance (55.1 ± 9.61) in patients with DM with CRF was decreased in comparison with DM patients and control group. Serum chromium levels were significantly high in patients with DM with CRF and in patients with DM.

Conclusion: Serum chromium level showed significant correlation with glycemic index when the two groups including DM patients and patients with DM accompanied with CRF were compared with the controls, while correlation with renal failure was significant only in group II patients.

Key Words: Diabetes, Serum chromium, Chronic renal failure, Creatinine

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INTRODUCTION

Worldwide the disease burden created by chronic kidney disease (CKD) is a main concern to the health professionals. According to National Kidney Foundation guidelines of the US population, CKD is affecting about 20 million adults. Out of these individuals 40% are having moderate to severe involvement of kidney (Weiner DE et al 2004)[1]. The most serious consequences of untreated CKD include hypertension, cardiovascular vascular disease and end stage renal disease which leads to dialysis and kidney transplantation, thus resulting in decreased quality of life, increased health-care cost, and premature death. There is evidence that these outcomes of CKD can be prevented or delayed, with timely diagnosis and treatment (Flessner et al 2009)[2].

Chronic kidney disease (CKD) is the major health problem which causes circulatory imbalance like hyperkalemia, metabolic acidosis, neurological complications and thus increases the risk of mortality. The frequency of CKD is rising with the corresponding increase in the world population and it is widely accepted that even with the use of newer technology and detection methods for the early diagnosis of CKD; the mortality rate is still very high. (Xue et al 2006)[3].

Association of chronic kidney disease (CKD) with other disease conditions including diabetes mellitus, hypertension and infections is well documented. Also the industrial exposure with heavy metals and extremes of temperature are related with CKD (Soderland et al 2010)[4]. The well-known factors for CKD are comprised of diabetes mellitus, hypertension, and metabolic syndrome (Ryu et al. 2009)[5]. Diabetes mellitus (DM) and chronic kidney disease (CKD) are common co-morbidities in heart failure with poor outcomes (Ekundayo et al 2009)[6]. Diabetes and hypertension are among the chronic diseases that affect the largest number of individuals and lead to severe complications (Poljičanin et al 2010)[7]. American Diabetes Association (ADA) in 2002 has entitled essential hypertension as one of the major contributing factor in the

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etiopathogenesis of type 2 diabetes mellitus (Tugrul et al 2009)[8].

The international agency for Research on Cancer categorizes chromium as carcinogenic to human. The adverse effects of chromium have also been reported that include growth depression, damage to kidney and liver and cancer (Frisbie et al 2002)[9]. Chromium is known to cause adverse effects on the health and causes cellular damages to the tissues of lungs, kidneys, liver, and other vital organs (Permenter et al 2011)[10].

This study aims at identifying the main risk factors that lead to the onset of CKD in Karachi, Pakistan and to assess the association between chronic diseases such as diabetes mellitus and toxic effects of heavy metals on the onset of the CKD.

MATERIALS AND METHODS

This is a prospective cross sectional study which included patients divided three in groups. Patients in Group I included 50 patients (age > 40 years) with diabetes mellitus type 2 whereas Group II included 50 patients (age > 40 years) with diabetes mellitus associated with chronic renal failure (CRF) and Group III consisted of 50 healthy controls (age > 40 years). Population with exposure to heavy water pollution by the toxic metals was selected for the study.

Informed written consent was taken from all patients and detailed history and examination was carried out. Exclusion criteria included Patients suffering from any other endocrine disease, liver disease, alcoholic liver disease pregnant female and females using oral contraceptive pills. Patient's blood was collected for Plasma glucose level, Direct Enzymatic Hemoglobin A1c (HbA1c) to assess the glycemic index of all the three groups. Renal function was tested by checking the serum urea level, Creatinine concentration and Creatinine clearance (Owiredu et al, 2013)[11]. Serum chromium level was also monitored in all the groups. The data was analyzed statistically on SPSS (Statistical Packages of Social Sciences) version 16. Mean ± SD was used for the different study parameters. The p-value <0.05 was considered significant.

RESULTS

A total of 150 blood samples from three groups of patients of different ages and genders were examined in this study.

Results showed that levels of fasting blood sugar (197.4 ± 51.93) and HbA1c (8.3 ± 1.69) in group II consisting of diabetic patients with chronic renal failure (CRF) were almost similar to group I patients with Type II diabetes. Thus no significant difference was observed in patients of group I in comparison with group II. However Fasting blood sugar and HbA1c in both diabetic patients (Group I) and Type II diabetic with CRF patients (Group II) were significantly high (p<0.01) as compared to controls (Group III) as shown in Table 1.

The results showed that levels of serum urea (125.2 ± 32.49) and creatinine (7.3 ± 1.41) in group II patients (Diabetes with CRF) were significantly high (p<0.01) as compared to group I (Diabetes) and group III (Controls) patients. However Creatinine clearance (55.1 ± 9.61) in group II patients (Diabetes with CRF) were significantly less (p<0.01) as compared to group I (Diabetes) and group III (Controls) patients. Serum chromium levels were significantly high (p<0.01) (11.5 ± 4.06) group II patients (Diabetes with CRF) and (11.4 ± 3.82) in group I patients (Diabetes) as compared to controls (group III) as shown in Table 2.

Table No. 1: Comparison of glycemic index in patients with Diabetes, Diabetes with CRF and controls

Glycemic index	(Group I) Diabetes (n=50)	(Group II) Diabetes with CRF (n=50)	(Group III) Controls (n=50)	p-Value
Fasting Blood Sugar (mg/dl)	201.4 ± 58.50 *	197.4 ± 51.93 *	100.8 ± 15.47	0.001
HbA1c (%)	8.4 ± 1.84 *	8.3 ± 1.69 *	5.5 ± 0.94	0.001

* As compared to controls p<0.01

Table No.2: Comparison of renal function in patients with Diabetes, Diabetes with CRF and controls

Renal function and serum chromium levels	(Group I) Diabetes (n=50)	(Group II) Diabetes with CRF (n=50)	(Group III) Controls (n=50)	p-Value
Urea (mg%)	**23.4 ± 9.32**	**125.2 ± 32.49****	**22.3 ± 8.49**	**0.001**
Creatinine (mg%)	**1.05 ± 0.24**	**7.3 ± 1.41****	**1.12 ± 0.23**	**0.001**
Creatinine Clearance (ml/min)	**111.9 ± 14.59**	**55.1 ± 9.61****	**108.8 ± 14.36**	**0.001**
Chromium (ug/dl)	**2.13 ± 0.82 ***	**2.22 ± 0.83 ***	**1.5 ± 1.07**	**0.001**

* As compared to controls p<0.01.
**As compared to Type II diabetic p<0.01

Table No.3: Correlation between Chromium, glycemic index and renal parameters in groups.

		FBS	HbA1c	Urea	Creat-inine	Creatinine clearance
Chromium (Pearson Correlation)	Control & DM	.385**	.363**	-.017	.030	.025
	Control & DM with CRF	.306**	.271**	.428**	.434**	-.432**

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 3 shows the correlation of serum chromium level with glycemic index (FBS, HBA1c) and renal

parameters (Urea, Creatinine and Creatinine clearance) in group I (Diabetes) and group II (Diabetes with CRF) patients. Analysis have shown that chromium has significant correlation with glycemic index ($p<0.01$) in both in group I (Diabetes) and group II (Diabetes with CRF) patients with controls, while correlation with renal failure was significant ($p<0.01$) only in group II (Diabetes with CRF) patients.

DISCUSSION

The results of this study showed that patients with diabetes and chronic renal failure in certain zones of the city particularly industrial areas had very high serum levels of chromium. Also the most of the patients were asymptomatic. These findings are also supported by Hwang et al (2001)[12] indicating that chromium is a tremendously toxic metal usually found in industrial place of work. As it is extensively used for stainless steel production, chrome plating, and pigments Chronic toxic levels of the chromium could be the possible cause of chronic renal failure but the scope of the present study does not indicate the possible role of chromium in the etiopathogenesis of CRF.

The serum chromium levels in our study were significantly higher when compared between patients with diabetics and diabetes with CRF patients to that of control group. Zadrazil (2011)[13] has also reported that kidney ailment is often caused by chromium exposure. The adverse effects of chromium toxic metal include growth depression, kidney damage and liver cancer which have been reported throughout world**.** In contrast to our findings Balk et al (2007)[14] have reported favourable outcome in patients with diabetes when treated with chromium supplementation. Most (about 97%) of the patients with diabetes associated with chronic renal failure had chromium levels above the levels recommended by W.H.O.

The findings of the present study do not support the correlation between CRF and chromium accumulation. If CRF patients are exposed to chronic exposure to chromium then one of the etiologic agent of CRF could be chromium, however the source of exposure to chromium remains uncertain. In contrast to our findings many researchers have reported mixed etiopathogenesis of CRF, with and without prior exposure to chromium. The main aim of this study was to determine the number of patients with CRF of unknown etiology is exposed to high levels of chromium leading to chronic kidney disease. Thus the results are concluded as chromium poisoning may be one of the pronounced risk factor for CRF.

CONCLUSION

Serum chromium level has significant correlation with glycemic index when the two groups including DM patients and patients with DM accompanied with CRF were compared with the controls, while correlation with renal failure was significant only in group II patients.

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Guidelines & Instructions

Guidelines and Instructions to Authors

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TITLE OF THE ARTICLE; Accurate, Effective and Represent the main message of Article.

ABSTRACT

In Original Article, It should consist of the following seven subheadings: **Objective, Study Design, Place and Duration of study, Materials & Methods, Results, Conclusion & Key Words** and should not more than 250 Words.

The second part consists of Introduction, Materials and Methods, Results, Discussion, Conclusion and References

References should be entered in text Vancouver Style in ascending order and in shape of numbers & superscript (e.g. [1,2,3,4])

INTRODUCTION

The start of the introduction should be Relevant. Reasons and Importance of the study should be clear. Give only strictly pertinent References and do not include data or conclusions from the work being reported.

MATERIALS & METHODS

The Population taken for the study should be uniform and Sample selection criteria should be reliable. Inclusion & Exclusion criteria should be clearly specified.

RESULTS

Present yours results in a logical sequence in the Text, Tables, Illustrations, figures and Graphs.

DISCUSSION

Emphasize the new and important aspects of the study and conclusions that follow from them.

CONCLUSION

In this link write the goals of the study.

RECOMMENDATIONS

When appropriate may be included.

ACKNOWLEDGMENTS

List of all contributors who do not meet the criteria for Authorship, such as a person who provided purely technical help, writing assistance or department chair who provided only general support. Financial & Material support should be acknowledged.

REFERENCES

It should be in the **Vancouver style**. References should be numbered in the order in which they are cited in the text. At the end of the article, the full list of references should give the names and initials of all the authors. **(if the authors are more than 6, then et al should be followed after the 6th name).** Vancouver Style should be used like' The healing of tissues by C02 laser. Br J Surg 1971;58:222-5.

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