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Editorial

The Key Ingredient to Staying Fit

Mohsin Masud Jan
Editor

If your resolution to exercise more is leaving you tired out, you might actually need to put your feet up. Research suggests that short rest periods are just as important as the exercise itself.

Taking it easy every now and thennot only allows the muscles to recover, it also makes the body fitter faster. Men and women who are simply trying to get a wee bit fitter couldbenefit from building periods of rest into their exercise program.

More often than not, when starting out on their fitness journeys, people tend to try to do too much too soon, with the old age fitness mantra of no pain no gain in mind. And all too often, this very plan of attack tends to backfire, wearing them out much sooner than expected. What people need to know, baby steps area rule of thumb when it comes to fitness. Attempting to accomplish too much, too soon will lead to a burnout, and that will stop any fitness achievements in their tracks.

Working out places a physical stress on the body, and prolonged stress ultimately leads to the production of cortisol, the stress hormone. And often people trying to get fit, try to workout day after day, without rest, which in turn leads to the stress levels on the body compounding, adding up over time and eventually leading to burnout, or in other instances, to injury.

Building in routinely fixed rest days into your exercise regime is one way to combat the physical stress exercise places on your body. Secondly, sleep, is of the utmost importance. Getting an adequate amount of shut-eye also aids in avoiding workout induced burnout.

When working out, always make it a rule to listen to your body. Your body will always tell you what it requires. On days when you're exhausted, completely and utterly spent, it is generally a wise idea to take a day off, even if your exercise regimen does not allow it, or if nothing else, change pace and take it easier on such days, your body and your mind will thank you for that later.

In conclusion, rest is one of the keys to recovery. To keep your fitness journey on its tracks without any stops, remember to pace yourself, to listen to your body and to rest when your body demands it.

Original Article

Psychopharmacological Activity on Nmri Mice

Effectiveness of Lawsonia Inermis for Psychopharmacological Activity on Staircase in Nmri Mice

Saima Ahmed[1], Aftab Saeed[2] and Muhammad Asadullah[3]

ABSTRACT

Objective: To evaluate the psychopharmacological activity of methanolic extract of Lawsonia inermis (Meli) in Albino mice.
Study Design: Observational study
Place and Duration of Study: This study was conducted at the Department of Pharmacology, Faculty of Pharmacy, Hamdard University, Karachi from January, 2014 to June, 2014.
Materials and Methods: The study was approved by the ethical review committee of the institute. Lawsonia inermis leaves were gathered from the botanical greenery enclosure of the Hamdard University premises their pharmacognostic details were authenticated from Eastern Medication Faculty of Hamdard University, Karachi. Albino mice (30-35g) of either sex were gotten from the creature place of Dr. HMI Institute of Pharmacy and Herbal Sciences, Hamdard University, Karachi. Psychopharmacological activity was studied by utilizing stair case test which is normally utilized as a part of rat for hostile to tension like conduct that is based comprises of setting local queasiness in an encased box with 5 steps.
Absolutely thirty six (N=36) were arbitrarily partitioned into six sets. For each of the model considered (n=6). The groups incorporate controls (vehicle) and standard medications (Diazepam, Buspirone 1mg/kg) and three groups of Meli (50, 100 and 200 mg/kg).
Results: Meli dosage of 100mg/kg drastically (P<0.05, 0.01) augmented the number of steps up in the Stair case with peak activity procured at the dosage of 100mg/kg (37.8±4.2) seconds compared to control (6.3±2.2 Seconds). The extract at dosage of 100mg/kg notably (P<0.05, 0.01) accelerated the number of steps up with peak effect at the dosage of 100mg/kg (37.8±4.2) compared to control (6.3±2.2 seconds). The impact at this measurement was not quite different that of Diazepam (41.8±3.4 seconds).
Conclusion: Meli has explored anxiolytic effect because it possesses one or a mix of Phytoconstituents in the concentrate.
Key Words: Lawsonia inermis, Anxiety, Psychopharmacological activity, Mice

Citation of article: Ahmed S, Saeed A, Asadullah M. Effectiveness of Lawsonia Inermis for Psychopharmacological Activity on Staircase in Nmri Mice. Med Forum 2016;27(11):2-4.

INTRODUCTION

Lawsonia inermis commonly known as Henna it is greatly fanned, deciduous, and glaborous, at some point spine scent bush or little tree with grayish chestnut bark, achieving a stature of 2.4-5 m. belongs to family Lythraceae. Henna, a customary item with religious affiliations, has been broadly utilized through the hundreds of years for medicinal and restorative purposes. Ethanopharmacoligical uses of Lawsonia inermis includes relieve unilateral, headache, ophthalmia, syphilitic, gynecological disorders, skin diseases and as antibacterial, antifungal, anti amoebiasis[1].

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Lawsonia inermis has been reported to possesses antioxidant, anticorrosion, anti-inflammatory, analogues, antipyretic, ant parasite, antimicrobial, antibacterial, ant tumbrel activity, cytotoxic, hypoglycemic, hepatoprotective, protein glycation inhibitory, Trypsin inhibitory, wound healing activities[2;3]. Its antidepressant activity is already reported by Priyona, et al who had worked on hydro-alcholic extract of this plant[4]. The literature also supported to have anti bacterial[5], ant-fungal[6], burn wound infections[7], anti-oxidant[8], immuno-modulater[9] and many others activates. In literature it is proposed that these CNS activities are due to the presence of phyto-chemical constituents 2 hydroxy naptho quinine (Lawsone), mannite, tannic acid, mucilage and Gallic acid[10].

MATERIALS AND METHODS

Plant collection and Authentication: The fresh plant leaves were harvested from Hamdard University Herbarium, Its pharmacognostic identification was

taken from Faculty Eastern Medicine, Hamdard University. The plant was dried under shade.

Extraction: The dried leaves were converted into fine powder of weight 1000g. Then it was soaked for three days into 01 Lit of 50% methanol. The 45.12g Meli was obtained by processing in rotary evaporator in Pharmacology Laboratory of Hamdard University.

Experimental analysis: The study was conducted on Albino mice weighting 30-35 gram irrespective of sex, these were collected from Dr. HMI Institute of Pharmacy & Herbal Sciences, Hamdard University Karachi. In order to exclude the bias all animals were treated according to standard protocols and standard diet for 15 days then they were entered in study procedures. Moreover the ethics for animal trial were followed as well.

Drugs and Chemicals: Test medicine was Meli and control drug was Diazepam (Hoffmanla Roche, Switzerland), Buspirone.

Experimental Design: All the animals were randomly allocated to one of six groups. Total animals were 36, 06 per each group. The control group was treated with standard drugs (Diazepam) Buspirone 1mg/kg) while the three groups were studied with different Meli dosage as 50, 100 and 200mg/kg.

Stair Case Test: The equipment comprises of five steps amidst the case (2.5 X 2.5 X 2.5) joined with each other. The box was made up of glass plastic covered with all the four sides. The apparatus consists of placing and experimentally native mouse in an enclosed stair case and observed for 5 minutes. A step will consider to the climb if they were would place all 4 paws on the step. The mice were medicated with vehicle control (1ml distilled water P.O), diazepam and Buspirone (1mg/kg I.P) and (Meli 50, 100 and 200mg/kg I.P). Following thirty minutes, creatures were kept in the light and dark box.

RESULTS

Student t test two tailed was applied as an analytical tool. The statistical findings revealed that Meli dose of 100 mg.kg has remarkable results as depicted by the p value as 0.05 and 0.01, The highest activity was seen at the dosage 100mg/kg (37.8 ± 4.2) seconds.

Table No.1:Stair Case (number of steps up)

Teatment	Dose mg /kg i.p	No. of steps up (seconds)
Control D/w	(1ml p.o.)	6.3 ± 2.2
Meli	50	31.6 ± 2.6
Meli	100	37.8 ± 4.2*
Meli	200	31.6 ± 5.6
Diazepam	1	41.8 ± 3.4*
Buspirone	1	31.5 ± 3.2*

While in control cases the results were appeared on 6.3 ± 2.2 (Table 1The results achieved was drastically different from diazepam as 41.8 ± 3.4 sec. Figure 1 displayed the findings of all results.

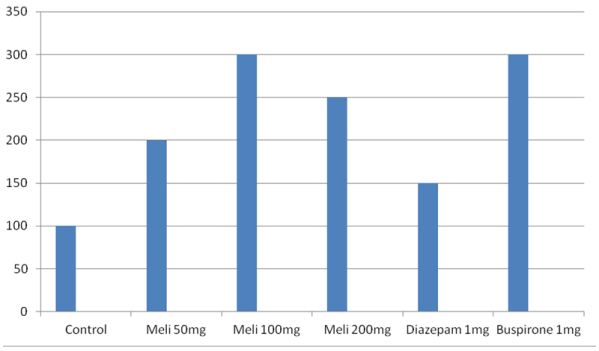

Figure No.1: Stair case activity (No. of steps up) Student t-test, P>0.005 (η=6)

DISCUSSION

In recent era the psycho pharmacist are facing a great trouble for prompt and efficacious treatment of anxiety disorders. The prevalance of anxiety is continuously raising and becomes an alarming problem. It is documented that roughly one quarter of individuals will encounter serious manifestations and debilitate of anxiety related problems as a result of uneasiness issue eventually amid their lifetime. The immediate and backhanded expenses to the wellbeing administration and economy are significant. In spite of the fact that persons who experience the psychopathologies of uneasiness issue are high buyers of a wide range of wellbeing administrations, just a minority get particular help[11,12]. The stair case test is in light of a methodology evasion clash to record the rearing when the mice rose and its hind legs and the number of steps descended and the numbers of climbing to each step was counted. The test was invented by crawly et al, who applied at in mice's and analyzed that psychopharmacological medicines enhanced the total steps of climbing in the stair case. Few studies reported that Later Lawsonia inermis have anti-depressant activities[4]. In 2014 the Meli antianxiolytic activity was reported by light and dark activity method[13]. However this is the first time that the psychopharmacological activity is confirmed by staircase method. In present study, Meli was tried for psychopharmacological effect by utilizing stair case test. The remarkable increment in the total steps up by Meli (100 mg/kg, ip) shows the confirmation of psychopharmacological effect which was identical to standard psychopharmacological medication Buspirone. This study outcomes are in concurrence with past studies led which proposed that Lawsonia inermis has tremendous results against nervousness and anxiety in mice utilizing behavior despair test in addition to elevated plus maze test separately. The psychopharmacological activity of Lawsonia inermis distinguished in this study may be because of the vicinity of one or a

mix of Phytoconstituents present in the concentrate, for example, alkaloids (anthraquinones), tannins (phloba-tannins), glycosides and flavonoids. Previous researchers proposed that Flavonoids have been indicated to have particular liking for the benzodiazepine tying site with a wide range of CNS impacts[14]. There is in any case, a requirement for standard bioassay guided fractionation is obliged to focus dynamic principles lies in Lawsonia inermis plant.

CONCLUSION

Based on the results revealed from this study it can be concluded that Lawsonia inermis shows Psychopharmacological activity in mice, subsequently this plant is conceivable new intense regular wellspring of hostile to anti-anxiety operators and could be helpful in treatment of nervousness issue. Be that as it may, research center examinations are obliged to disconnect, distinguish and describe the compound principle(s) in charge of the watched natural property of the concentrate and the exact instrument of activity.

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

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Original Article

Evaluation of Changes in Serum Albumin Level During Different Stages of Pregnancy

Shahida Hassan Memon[1], Zainab Aslam Saeed Memon[2] and Khalida Naz Memon[3]

ABSTRACT

Objectives:1.To determine changes of serum albumin level during progression of pregnancy. 2. To assess hypoalbuminaemia as an early indicator of pregnancy induced hypertension.
Study Design: Comparative cross sectional study.
Place and Duration of Study: The study was conducted at Biochemistry department of Liaquat University of Medical and Health Sciences, Jamshoro with the collaboration of Gynecological and obstetric department of Liaquat University Hospital, Jamshoro/Hyderabad from 1.8.2008 to 31.7.2009.
Materials and Methods: One hundred & twenty pregnant women of different gestational stages were selected through convenient sampling. The women suffering from any systemic disease were excluded from the study. The data regarding subjects was collected on a prtested questionnaire.The blood samples were collected through sterilized disposable syringes from the anterior cubital vein by venipuncture & were transferred into test tube and allowed to clot and then centrifugeted & the readings were noted for each blood sample.Results were analyzed by SPSS version 14. Continuous predictor variable and its relationship to the outcome variable was examined to ensure its modeling as a linear term. where possible. The independent effect of each variable significantly associated with serum albumin level was assessed at significance level of P ~ .05. Students t- test was applied to compare levels of serum albumin in case and control subjects.
Results: The women of 25 years had highest percentage of 22%;the highest percent of 12% were in their 28th weeks of pregnancy. At the significant level of P= 0.05 Pearson's coefficient was -0.267 and p-value was 0.003. As the duration of pregnancy advanced, level of serum albumin decreased in our study subjects.
Conclusion: Appropriate measures should be taken to prevent fluctuation in serum albumin level which ultimately cause high maternal and neonatal mortality
Key Words: Albumin, Gestation, Pregnancy, Anthropology

Citation of article: Memon SH, Memon ZAS, Memon KN. Evaluation of Changes in Serum Albumin Level During Different Stages of Pregnancy. Med Forum 2016;27(11):5-8.

INTRODUCTION

Albumin is the most abundant protein in plasma, which accounts for about 55-60% of the total plasma protein. It is produced exclusively in liver. Half life of albumin is 20-25 days[1]. Albumin is decreased under many circumstances, such as renal disease, proteinuria, presence of stress or disease, malnutrition or Kwashiorkor[2]. In pregnancy, there is a fall of as much as 10 g/l, especially in the last trimester, due partly to increased requirements and partly to an increased plasma volume. There is a rapid return to normal levels after delivery[3]. The pregnant woman experiences physiological changes to support fetal growth and development. During the pregnancy serum estrogens and progesterone levels increase progressively and reach a maximum during the third trimester.

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These sex steroids have effects on metabolic, synthetic and excretory hepatic function. Pregnancy is associated with significant. growing fetus. There are veriety of continues physiological changes that the mother undergoes during pregnancy these occur with respect to the mothers blood compositions cardiovascular system, uteroplacental blood flow and metabolic changes[4]. renal blood flow. It also has important consequences for the interpretation of hematological indices in normal pregnanc[5]. Serum albumin level decreases during pregnancy while the concentration of most other maternal serum proteins of hepatic origin remains stable or increase[6]. Hypoalbuminaemia occurs before the early stage of toxemia of pregnancy[7].By undertaking this study we investigated the determinants associated with levels of serum albumin levels in pregnant women so that appropriate preventive measures can be recommended to avoid unwanted consequences occurring from hypoalbumenia and relevant discords.

MATERIALS AND METHODS

The comparative cross sectional study was conducted from 1.8.2008 to 31.7.2009 at Biochemistry department of Liaquat University of Medical and Health Sciences,

Jamshoro with the collaboration of Gynecological and obstetric department of Liaquat University Hospital, Jamshoro/Hyderabad.

Study population, sample size & sampling technique: The study subjects were pregnant women of different gestational stages as case subjects and non-pregnant healthy women with same age and socio-economic status as controls as per inclusion criteria.Ninty pregnant women were selected as case subjects and thirty non-pregnant women were selected as controls. The sampling technique was convenient sampling.

Inclusion criteria: Pregnant primi gravida (1st Pregnancy) upto 45 years of age with no apparent illness were selected as study subjects.

Exclusion criteria: Both cases and controls were excluded if they were having history of diabetes mellitus, hypertension, liver diseases , renal diseases, hyper & hypo thyroidism, smoking.

Sample collection procedure: The data regarding subjects was collected on a protested questionnaire. The blood samples were collected through sterilized disposable syringes from the anterior cubital vein by venipuncture & were transferred into test tube and allowed to clot and then centrifugeted & the readings were noted for each blood sample.

Data analysis: Results were analyzed by SPSS version 14. Demographic and anthropometric values and serum assay of albumin were compared across stages of gestation. Data are expressed as percentages for categorical variables (e.g., dietary habits, socioeconomic conditions, education) and means and standard deviations for continuous variables (e.g., age, serum albumin levels). Continuous predictor variable and its relationship to the outcome variable was examined to ensure its modeling as a linear term where possible. The independent effects of each variable significantly associated with serum albumin level was assessed at significance level of P ~ .05. Students t -test was applied to compare levels of serum albumin in case and control subjects.

RESULTS

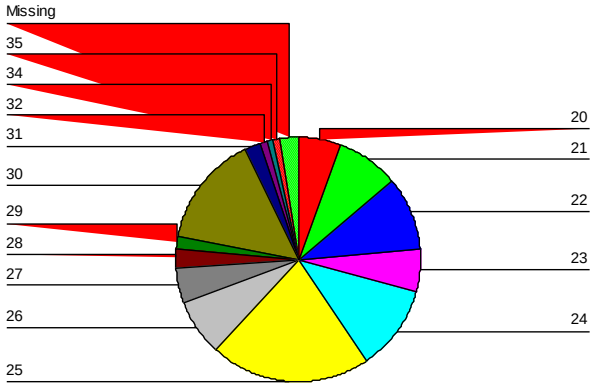

Figure No.1: Age distribution

The women of 25 years had highest percentage of 22%;the highest percent of 12% were in their 28th weeks of pregnancy. At the significant level of P= 0.05 Pearson's coefficient was -0.267 and p-value was 0.003. As the duration of pregnancy advanced, level of serum albumin decreased in our study subjects.

Table No.1: Frequency and percentage of serum Albumin level

Serum albumin	Frequency	Percent	Valid Percent	Cumulative Percent
3.20	1	.8	.8	.8
4.00	1	.8	.8	1.7
4.10	1	.8	.8	2.5
4.20	2	1.7	1.7	4.2
4.30	5	4.2	4.2	8.3
4.50	4	3.3	3.3	11.7
4.60	6	5.0	5.0	16.7
4.70	9	7.5	7.5	24.2
4.80	10	8.3	8.3	32.5
4.90	6	5.0	5.0	37.5
5.00	19	15.8	15.8	53.3
5.10	4	3.3	3.3	56.7
5.20	4	3.3	3.3	60.0
5.30	8	6.7	6.7	66.7
5.40	5	4.2	4.2	70.8
5.50	3	2.5	2.5	73.3
5.60	5	4.2	4.2	77.5
5.70	10	8.3	8.3	85.8
5.80	10	8.3	8.3	94.2
6.00	2	1.7	1.7	99.2
6.30	1	.8	.8	100.0
Total	120	100.0	100.0	

Table No.2: Gestational Age

Gestational age	Frequency	Percent	Valid Percent	Cumulative Percent
0	30	25.0	25.0	25.0
8	14	11.7	11.7	36.7
9	2	1.7	1.7	38.3
10	3	2.5	2.5	40.8
12	7	5.8	5.8	46.7
14	3	2.5	2.5	49.2
16	1	.8	.8	50.0
18	1	.8	.8	50.8
20	4	3.3	3.3	54.2
21	2	1.7	1.7	55.8
22	5	4.2	4.2	60.0
24	8	6.7	6.7	66.7
25	1	.8	.8	67.5
28	12	10.0	10.0	77.5
29	3	2.5	2.5	80.0
30	4	3.3	3.3	83.3
32	8	6.7	6.7	90.0
33	2	1.7	1.7	91.7
34	4	3.3	3.3	95.0
35	2	1.7	1.7	96.7
36	4	3.3	3.3	100.0
Total	120	100.0	100.0	

Table No.3: Dietary Habits.

	Frequency	Percent	Valid Percent	Cumulative Percent
Good	16	13.3	13.3	13.3
Average	85	70.8	70.8	84.2
Poor	19	15.8	15.8	100.0
Total	120	100.0	100.0	

Table No. 4: Distribution of Trimester

	Frequency	Percent	Valid Percent	Cumulative Percent
First	30	25.0	25.0	50.0
Second	30	25.0	25.0	75.0
Third	30	25.0	25.0	100.0
Total	120	100.0	100.0	

Table No. 5: T-Test Statistics

	Test Value	Df	Sig.(2-tailed)
S.Albumin	106.365	119	.000
Gestational Period	14.324	119	.000

DISCUSSION

The results obtained from this study are in accordance with similar studies carried out by various researchers. In our study, correlation of serum albumin level with gestational period has a negative correlation. By applying Pearson co-relation co-efficient for association of serum albumin level with period of gestation, the value of Pearson's correlation coefficient was -.139 with P=0.002. This shows a strong negative correlation between level of serum albumin and period of gestation .Same observation has been claimed by Kraua[8] Bet al [8]in their study which shows a negative correlation of level serum albumin with increasing period of gestation.

In this study decrease in level of serum albumin in pregnant women was significantly proved by comparing the level of serum albumin level with non pregnant control group. This association of decrease in level of albumin in pregnant women was analyzed by applying T- test for comparing case and control groups. In this study, at significant level of P =0.05 and confidence level 95% , we found that P value was less than 0.05 , hence providing evidence that decrease in serum albumin is very much significant in pregnancy

Changes in level of serum albumin during pregnancy have been well documented in number of studies [9].These changes in level of serum albumin have been attributed to many factors. In a study decrease in level of serum albumin during pregnancy has found to be caused by harmonic changes which occurs during pregnanacy[10].Estrogen and Progesterone increase progressively during whole period of gestation These hormones reach maximum at third trimester[11]. Most of the metabolic and biochemical changes are attributed to these harmonic changes. Liver function is also effected which itself bring about changes which are manifested in number of biochemical, physiological and metabolic changes.

Other than harmonic changes, one of significant change is heamodilution during pregnancy, which is itself a cause of decrease in level of different plasma proteins, especially serum albumin which is the most abundant plasma protein. Because of heamodilution, serum albumin level decreases during all three semesters of pregnancy[12]. This study is in accordance to our results where we found a negative correlation of serum albumin and period of gestation .

Mather JE et all [13]have studied relation of level of albumin with alpha –fetoprotein and it was hypothesized that serum albumin level decreases as alpha – fetoprotein decreases.

Ma Donald[14]has described changes in total proteins during pregnancy. It was concluded in this study that serum albumin level in decreases throughout period of gestation.

The age of the participants was analyzed by descriptive statistics. It was found that 3.5 percent were in age group of 20 years, the women of 25 years had highest percentage of 22% while the age group of 29,32,34and 35 years were found to be at lowest percent of 1.1%. .The mean age was 25.3 years in 0case group with standard deviation of 3.57. It was 25.28 in both case and control groups with standard deviation of 3.38.

The ring of age in both case and control groups were 15 years, minimum age was 20 years ,maximum age was 35 years ,mean age was 25.28 years and standard deviation was 3.38 years.

Walker et all[15] in his investigation about level of hemocystine during normal pregnancy found that Homocysteine levels were directly correlated with albumin levels, which decreased during pregnancy.

T. Lind [16]et all in their study about level of zinc and magnesium during pregnancy has observed that both elements decrease during pregnancy which is a normal physiological adaptive mechanism during pregnancy .this hypothesis can be applied to serum albumin level which also decrease during pregnancy due to normal physiological adaptive mechanism for providing conducive environment for the fetal growth.

In this study we analyzed the impact of dietary habits on level of serum albumin in pregnant women. It was found that 13% of women were taking good diet .Percentage of women taking average diet were 69% and 15.5 % of women were taking poor diet.

While comparing association of dietary habits with level of albumin ,it was found that mean serum albumin level of women taking good diet was 5.3 gm/dl., women taking average diet was found to be having mean albumin level of 4.96 mg/dl and women who were taking poor diet had mean albumin level of 5.26s mg /dl.These observation are at par with study carried out by which shows that dietary habits or

supplementation trace elements have no major impact on level of these elements during pregnancy.

In a study[17]plasma concentration of total protein, albumin, immunoglobulins IgG, IgA and IgM and urinary protein were assayed in 250 pregnant Nigerian women and compared with 250 healthy pregnant women who served as controls. The mean values of plasma total proteins, albumin, IgG and IgA were found significantly lowered ($P<0.05$).the results of this study is in accordance with our study which also shows a significant change in level of pregnant women in comparison to control group.

CONCLUSION

This study has provided us the evidence that during pregnancy level of albumin is decreased in comparison to control group. This change in level of serum albumin is dependant on various factors as period of gestation, dietary habits, education and age. Impact of various factors cause changes in level of serum albumin which is related with outcome of pregnancy. Therefore appropriate measures should be taken to prevent fluctuation in serum albumin level which ultimately cause high maternal and neonatal mortality.

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

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Original Article

Lithotripsy

Comparison of Mean Operative Time in Patients Undergoing Ho:YAG Laser Lithotripsy and Pneumatic Lithotripsy in Ureterorenoscopy for Ureteric Calculus

Muhammad Asghar[1], Muhammad Ameen[2] and Arshad Mahmood[2]

ABSTRACT

Objectives: To compare the mean operative time in patients undergoing Ho:YAG laser lithotripsy and pneumatic lithotripsy for ureteric stones.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Armed Forces Institute of Urology, Rawalpindi from August 2015 to 12 February 2016.

Materials and Methods: The study included 60 patients requiring ureteroscopic lithotripsy for treatment of ureteric calculi. Patients were divided into Ho:YAG lithotripsy group (30) and pneumatic lithotripsy group (30). The operative time in minutes was calculated in all patients from initial cystoscopy till ending of ureteroscopy after the stone fragmentation into small particles. All the information was recorded on a specially designed questionnaire.

Results: The mean age and SD of all patients was 36.90±12.11. The male to female ratio was 49:11. The baseline demographic variables; mean age, gender, side of stone and location of stone were found similar between the two groups ($p>0.05$). The type of intra-ureteral lithotripsy was found a significant predictor of mean operative time taken for the procedure. The average operative time taken for Pneumatic lithotripsy procedure increased by 9.13 minutes as compared to the Ho: YAG laser lithotripsy procedure ($R^2=0.33$, $p<0.001$). The mean operative time was not found significantly different between males and females; age groups, sides of stones and different locations of stones, as a whole, as well as in both groups separately ($p>0.05$).

Conclusion: It is speculated that the Ho:YAG laser lithotripsy is a better procedure compared to the Pneumatic lithotripsy, in terms of the operative time required for the procedure.

Key Words: Laser Lithotripsy, Pneumatic lithotripsy, Operative time, ureteric calculi.

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INTRODUCTION

Urolithiasis is the process of forming stones in the kidney, bladder and/or urethra and is one of the commonest urological diseases known since ancient times.[1] The worldwide prevalence of renal stones is between 2 and 20%.[2] Pakistan is part of the Afro-Asian stone forming belt, where the prevalence of calculi ranges from 4% to 20%.[3] The incidence of urolithiasis is increasing globally, with racial, gender and geographic variation in its occurrence.[4] The lifetime risk of having urolithiasis is higher in the Middle East (20–25%) and western countries (10–15%) and is less common in Asian and Africans population.[5]

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The disease occurs more frequently in white populations, and the occurrence rate is two to three times higher in men than in women.[6] Ureteral calculi usually present with acute flank pain and hematuria. The rate of spontaneous resolution and passage of ureteric stones differs according to the stone size. About 80% of the stones smaller than 4mm pass out spontaneously, while only 21% of stones larger than 6mm pass out spontaneously.[7]

The literature has reported that urolithiasis as a multi-factorial recurrent disease, distributed worldwide in urban, rural, non-industrialized and industrialized regions with diverse chemical compositions of analyzed stones in context to various etiological and risk factors, which include "Intrinsic factors" like age, gender and race of patients, "Anatomic and genetic characteristic" and "Extrinsic factors" like geographic preferences, climate, the lifestyle patterns as well as the dietary habits.[8]

Although the pathogenesis of stone diseases has not been fully understood, the systematic metabolic evaluation, medical treatments of causal conditions and modifications in diet and lifestyle are effective in decreasing the incidence and recurrence of stone

disease.[9] Urinary stones can be classified according to the size of stone, location of stone, X-ray characteristics, aetiology of formation, composition, and risk of recurrence.[10]

Calculus composition depends upon the underlying cause that leads to their precipitation. Because of this reason it is particularly significant to know accurately which kind of stone is present, in order to consider the best treatment, and to guide about prognosis and preventive measures.[11]

There has been a revolutionary change in the treatment of urolithiasis with the advent of minimally invasive endoscopic techniques.[12] These new modalities for urolithiasis treatment include Laparoscopic lithotomy, Ureteroscopic lithotripsy, Shock wave lithotripsy (SWL), and percutaneous nephrolithotomy. Nowadays with the help of small caliber ureteroscopes and advance in intraureteral lithotripsy has resulted in higher rates of successful and safe endoscopic treatment of ureteral calculi.[13] Keeping in view the high success rate of ureteroscopic lithotripsy, open ureterolithotomy is not considered as a valid option in most of the cases in a well equipped endourological centre.[13] There are currently a number of devices for intracorporeal lithotripsy, which include electrohydraulic, ultrasonic, pneumatic and laser lithotripters.[14] Technological advances and progress has been made in terms of evolution of lithotripsy techniques such as holmium: yttrium-aluminium-garnet (Ho: YAG) laser lithotripsy (LL) and pneumatic lithotripsy (PL), which have improved the success rates and decreased the complication.[15]

There are a large number of patients presenting to us with ureteric stones requiring ureteroscopic lithotripsy. We have much experience regarding the use of both pneumatic lithotripsy and Ho: YAG laser lithotripsy for treating the ureteric calculi. The literature so far in our country and internationally shows variable results regarding the efficacy of Ho: YAG laser lithotripsy and pneumatic lithotripsy in terms of operative time, stone fragmentation rate and early stone free rate. The aim of this study was to determine mean operative time in patients undergoing Ho: YAG laser lithotripsy and Pneumatic lithotripsy in the setting of Armed Forces Institute of Urology, Rawalpindi, Pakistan. It can help to anticipate and manage operative list in a better way according to the time slots available in the operation theatre.

MATERIALS AND METHODS

This was a Comparative Cross-sectional study conducted at Armed Forces Institute of Urology, Rawalpindi, within a period of six months (from 12 Aug 2015 to 12 Feb 2016)

Sample Selection: Patients who were aged between 18 to 60 years of both gender, patients having ureteric stones requiring ureteroscopic intervention, patients having ureteral stone located in the proximal, middle or lower ureter, which has not passed in 3 weeks and patients having the hydronephrosis stone size less than 1.5 cm were included in the study. Whereas, patients having uncorrected bleeding disorders (having deranged values of PT/APTT/I.N.R, platelets <50,000/ml), patients having skeletal abnormalities making the procedure technically difficult, Serum creatinine level >1.5 mg/dL, solitary kidney, ureteral tumor or stricture, patients who have undergone prior ureteroscopy or ureteral surgery and patients having congenital anomalies of urogenital system were excluded from the study.

Sample size was calculated by using the WHO calculator. At 5% level of significance and power of test as 80%, the sample size calculated was 60 patients (30 patients in each group). The data was collected by using Non-probability consecutive sampling technique.

Data Collection Procedure: Before starting the data collection procedure, first of all permission was taken from the concerned authorities and ethical committee of Armed Forces Institute of Urology, Rawalpindi. Informed consent was taken from all patients by giving them the written informed consent form and they were asked to sign it.

All patients diagnosed to have ureteric stones requiring ureteroscopic lithotripsy for treatment after detailed history and physical examination were underwent lab investigations including CBC, serum creatinine and imaging consisting of ultrasound and x-ray of kidney, ureter and bladder. An IVU (Intravenous urogram) or a CT urogram was performed in selected cases. Patients were divided randomly into two groups. The patients undergoing Ho: YAG lithotripsy were included in group I. The patients undergoing pneumatic lithotripsy were included in group II. All surgeries were performed by consultant urologist and were assisted by the principal investigator. The complete diagnosis, stone characteristics and history of previous surgery were recorded for all patients. The operative time in minutes was calculated in all patients from initial cystoscopy till ending of ureteroscopy after the stone fragmentation into small particles (less than 2mm fragments). All the information was recorded by researcher on a specially designed questionnaire.

Data Analysis: All the data was analyzed using SPSS version 16.0. An Independent Samples t-test was used to compare the mean age of patients in Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group. To compare the other demographic and clinical characteristics of patients (including gender, side of stone and location of stones) in Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group, the Chi-Square test for Independence was used.

The null hypothesis of this study was tested by using, the Independent Samples t-test to compare the mean operative time among Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group.

The Independent Samples t-test was also used to compare mean operative time between Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group for different age groups, gender, sides of stones and locations of stones.

The Multiple Linear Regression Analysis was done to measure the association between the types of intra-ureteral lithotripsy technique and average operative time taken for the procedure. The possible confounders, age, gender, side of stone and location of stone were controlled by including them in the model.

The P-value <0.05 was considered as showing statistically significant results for all statistical tests.

RESULTS

A total number of 60 patients were included in this study; 30 (50%) in Ho: YAG laser lithotripsy group and 30 (50%) in Pneumatic lithotripsy group. The total male patients were 49 (81.7%), while the female patients were 11 (18.3%). The mean age (in years) ± SD of all patients was 36.90 ± 12.11. The minimum age of patients was 18 years and maximum age was 60 years. The mean age ± SD of Ho: YAG Laser lithotripsy group was 35.00 ± 12.59 and the mean age ± SD of Pneumatic lithotripsy group was 38.80 ± 11.51.

Comparison of Demographic and Clinical Data: The demographic and clinical profile i.e., Gender, side of stone and the location of stone between the Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group was compared by using Chi-Square test for Independence, and the age between the two groups was compared by using Independent-Samples t-test, which revealed that the two groups are more or less similar and statistically no significant difference was observed between Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group in terms of age, gender, side of stone and the location of stone (Table 1)..

Table No.1: Statistical Significance of Demographic and Clinical Data

Patient Characteristics	Ho: YAG laser Lithotripsy Group	Pneumatic Lithotripsy Group	p-value	Significance
Mean Age ± SD	35.00 ± 12.59	38.80 ± 11.51	0.207*	Insignificant
Gender: Male Female	23 (76.7%) 7 (23.3%)	26 (86.7%) 4 (13.3%)	0.317**	Insignificant
Side of Stone: Right Left	15 (50%) 15 (50%)	15 (50%) 15 (50%)	1.00**	Insignificant
Stone Location Proximal Ureter Mid Ureter Lower Ureter	 13 (43.3%) 9 (30%) 8 (26.7%)	 12 (40%) 8 (26.7%) 10 (33.3%)	0.852**	Insignificant

* Independent-Samples t-test ** Chi-Square test for Independence

Table No. 2. Independent Samples t-test for comparison of mean operative time between two groups

	Type of Intra-ureteral Lithotripsy	Mean ± SD	95% C.I		t-value (df)	p-value
			Lower Bound	Upper Bound		
Operative Time (in minutes)	Ho: YAG laser Lithotripsy	25.48 ± 6.99	22.87	28.09	-5.00 (58)	< 0.001
	Pneumatic Lithotripsy	34.83 ± 7.47	32.04	37.62		

Table No.3: Stratification between Ho: YAG laser lithotripsy and Pneumatic lithotripsy groups with respect to mean operative time in males and females, age groups, sides of stones and different locations of stones

Patients' Characteristics		Ho: YAG laser Lithotripsy Group		Pneumatic Lithotripsy Group		p-value*
		N	Mean Operative Time (in minutes) ± SD	N	Mean Operative Time (in minutes) ± SD	
Gender	Male	23	26.61 ± 7.22	26	35.00 ± 7.83	<0.001
	Female	7	21.79 ± 4.97	4	33.75 ± 5.14	0.004
Age Groups	18 – 23	5	25.30 ± 11.0	2	35.25 ± 14.5	0.36
	24 – 29	8	23.87 ± 6.49	5	34.50 ± 9.23	0.03
	30 – 35	5	26.70 ± 10.0	7	38.21 ± 8.18	0.053
	36 – 41	3	25.00 ± 4.50	5	32.70 ± 5.07	0.07
	42 – 47	3	25.83 ± 0.76	3	38.17 ± 3.21	0.003
	48 – 53	2	27.00 ± 4.95	4	29.25 ± 6.50	0.69
	54 – 60	4	25.48 ± 6.99	4	34.88 ± 7.19	0.15
Side of Stone	Right	15	23.67 ± 7.59	15	35.23 ± 7.11	<0.001
	Left	15	27.30 ± 6.05	15	34.43 ± 8.05	0.01
Stone Location	Proximal	13	24.35 ± 5.65	12	34.25 ± 8.02	0.002
	Mid	9	27.78 ± 9.77	8	34.63 ± 7.26	0.13
	Lower	8	24.75 ± 5.41	10	35.70 ± 7.68	0.004

* Independent Samples t-test

Hypothesis Testing: An Independent-Samples t-test revealed that there was a statistically significant difference between the Ho:YAG laser Lithotripsy group (Mean=25.48, SD=6.99) and Pneumatic Lithotripsy group (Mean=34.83, SD=7.47); t(58) = -5.00, p<0.001, two-tailed) in terms of the operative time in minutes. The magnitude of differences in the means (mean difference= -9.35, 95% CI of the difference: 13.09 to 5.61) was very large η^2=0.301 (according to Cohen's criteria, 1988).

Among both genders, in age groups 24 – 29, 36 – 41, 42 – 47, among patients having stones on right and left side of ureter, and among patients having stones at proximal and lower location, the mean operative time was found significantly different between Ho:YAG laser lithotripsy groups and Pneumatic lithotripsy group, p < 0.05 (Table 3).

Multiple Linear Regression Analysis: The Multiple Linear Regression was calculated to predict the mean operative time taken for the intra-ureteral lithotripsy of patients based on the type of intra-ureteral lithotripsy technique used, patients' age, gender, laterality of stones and location of stones. The type of intra-ureteral lithotripsy technique was coded as 1 = Ho: YAG laser Lithotripsy, 2 = Pneumatic Lithotripsy; gender was coded as 1 = Male, 2 = Female; Stone location was coded as 1 = Proximal, 2 = Mid and 3 = Lower; Side of Stone was coded as 1 = Right and 2 = Left side. The age of patients was measured in years.

A significant regression equation was found (F (5, 54) = 5.410, p<0.001), with an R^2 of 0.334. The type of intra-ureteral lithotripsy technique was found a significant predictor of mean operative time taken for the procedure. The average operative time taken for Pneumatic lithotripsy procedure increased by 9.13 minutes as compared to the Ho: YAG laser lithotripsy procedure, after controlling for all other variables of the model. However, the age, gender of patients, side of stone and location of stone were not found as significant predictors of operative time taken for the procedure (Table 4)

Table No.4: Multiple Linear Regression analysis of factors associated with the mean operative time taken for the intra-ureteral lithotripsy procedure

Independent Variables	B	S.E	t	p-value
Type of Intra-ureteral lithotripsy	9.13	1.93	4.72	0.000
Age of Patient	-0.035	0.08	-0.42	0.674
Gender of Patient	-3.33	2.52	-1.32	0.191
Stone Location	0.16	1.17	0.14	0.893
Side of Stone	1.44	1.94	0.74	0.462

DISCUSSION

A large population of world is suffering from ureteric stones and kidney stones, which are formed due to the deposition of phosphates, calcium, and oxalates.[1] Indications of surgical intervention include failure of conservative treatment, intractable pain, urosepsis, solitary obstructed kidney, and patient's choice.[1] Urologic armamentarium for the treatment of ureteral calculi consists of ureteroscopic lithotripsy, extracorporeal shock wave lithotripsy (ESWL), open ureterolithotomy and laparoscopic ureterolithotomy. The choice of treatment depends upon stone location, size of stone, availability of endourological facilities and patient's preference.[16] For intracorporeal lithotripsy, electrohydraulic, pneumatic, and laser lithotriptors can be used. Currently, laser and pneumatic lithotriptors are most frequently used, and acceptable methods in the endoscopic management of ureteral stones.[17] Over the last decade, lasers have been increasingly used for intracorporial lithotripsy.[18]

This study revealed that there was a significant difference in mean operative time of Ho: YAG laser lithotripsy technique and Pneumatic lithotripsy technique. The less mean operative time was observed with Ho: YAG laser lithotripsy compared to the Pneumatic lithotripsy technique in which the mean operative time was greater. With the possibility that a similar beneficial effect might be achieved with Ho: YAG laser lithotripsy, a number of national and international studies were carried out with variable results.

The results of this study are coherent with the results of a study conducted by Yin et al[19], Demir et al[20], and Linjin et al[21] in which the Holmium: YAG laser lithotripsy showed significant benefits compared to the pneumatic lithotripsy in terms of mean operative time, with p values <0.05. However, there were several similar studies in which the results were contradictory to the results of this study. The results of a study conducted by Tipu et al[22], Degirmenci et al[15] and Razzaghi et al[17], were contradictory with the current study, which revealed that the mean operative time in Laser Lithotripsy group was significantly greater as compared to the Pneumatic Lithotripsy group with p-values <0.05.[22]

In contrary to the results of this study in which there was a significant difference observed between the Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group in terms of mean operative time, the study carried out by Akdeniz et al[23] and Feng et al[24] revealed no statistically significant difference between Ho: YAG Laser lithotripsy group and Pneumatic lithotripsy group in terms of mean operative time, with p value >0.05.

In the current study, the baseline demographic and clinical characteristics of all patients including the mean age, gender, side of stone (right or left) and location of stone (Proximal ureter/mid ureter/lower ureter) were found similar and no statistically significant difference was observed between Ho: YAG laser lithotripsy group and Pneumatic lithotripsy group in terms of all these characteristics.

Similar to the findings of this study, the studies of Tipu et al[22], Degirmenci et al[15] and Linjin et al[21], Razzaghi et al[17] and Akdeniz et al[23] revealed that the baseline demographics of patients and the stone characteristics were similar in both Ho:YAG laser lithotripsy group and Pneumatic lithotripsy group.

In the current study, the overall mean operative time in minutes and SD in patients having stone in proximal ureter was 29.10 ± 8.42, in mid ureter was 31.00 ± 9.12 and in the lower ureter was 30.83 ± 8.64, with p-value 0.728, which shows that the mean operative time was

not statistically significantly different among different locations of the stone.

In patients having proximal and lower ureteric stones, the mean operative time was significantly different between Ho: YAG laser lithotripsy and Pneumatic lithotripsy groups ($p<0.05$). However, the mean operative time was not significantly different between Ho: YAG laser lithotripsy and Pneumatic lithotripsy groups in patients having mid ureteric stones ($p>0.05$). In the study of Khoder et al, the mean operative time for Ho: YAG laser lithotripsy for proximal ureteric stones was 81.3 ± 4.5 min and for distal ureteric stones was 65.7 ± 3.8 min, which was significantly different between the two groups, with p value = 0.017.[25]

CONCLUSION

In conclusion of this study, it is speculated that the Ho: YAG laser lithotripsy is a better procedure as compared to the Pneumatic lithotripsy, in terms of the operative time required for the procedure. Hence, it is recommended that the Ho: YAG laser lithotripsy procedure should be adapted when there is a long list of patients requiring ureteroscopic lithotripsy, in order to manage the operative list in a better way according to the time slots available in the operation theatre.

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

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Original Article

Post Operative Care Satisfaction

Level of Satisfaction in Post-Operative Patients in Surgical Wards of Bahawal Victoria Hospital (BVH), Bahawalpur

Arbab Anwer[1], Amna Faiz[2] and Somia Khan[2]

ABSTRACT

Objective: To determine the factors that affect patient satisfaction and to explore the aspects of care provided by the doctors in surgical wards of Bahawal Victoria Hospital in order to improve the overall satisfaction level of the patients.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at Bahawal Victoria Hospital, Bahawalpur was from March 2016 to June 2016.

Materials and Methods: A sample of 100 patients by convenient sampling technique was taken from surgical wards (S1, S2, S3, and S4) of Bahawal Victoria Hospital, Bahawalpur. Of 100 participants, 57 were males and 43 were females. Data was analyzed by using software SPSS 15.0 Demographic table frequencies and percentages were constructed.

Results: A total of 100 subjects were interviewed. Among them, 24% were highly satisfied, 75% of the subjects were moderately satisfied, and only 1% was not satisfied. A total of 93% of the patients gave positive response about ease of admission into the ward. In domain of Physical Examination, overall 86% people were fully satisfied and 14% were not satisfied.

Conclusion: Most of the patients were satisfied regarding ease of admission in the ward, behavior of doctors & nursing staff and their availability during any distress. Domains of sanitary conditions and food availability as well as its quality & hygiene need further attention.

Key Words: Patients; Satisfaction; Post-Operative; Surgical Wards

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INTRODUCTION

Patients have a legitimate and important role as evaluators of healthcare. Obtaining feedback from patients about the quality of healthcare is a powerful way to develop more patient-centered approaches to healthcare delivery by the doctors.[1]

Measurement of patient's satisfaction is expected to play an increasingly important role in the growing push towards accountability among health care providers.[2]

Patient's satisfaction as a quality improvement tool for the health care provider has been very well established; our health problems are numerous given the fact that health expenditure by the state is amongst the lowest in the world.[3]

Patient satisfaction is a critical health care outcome indicator and should be given focus by the hospital administrators. From a management perspective, patient satisfaction with health care is important for several reasons: First, satisfied patients are more likely to maintain a consistent relationship with the healthcare provider. Second, by identifying sources of patient's dissatisfaction, an organization can address system weaknesses, thus improving its risk management. Third, satisfied patients are more likely to follow specific medical regimens and treatment plans. Lastly, patient satisfaction adds important information on system performance, thus contributing to the organization's total quality management.[4]

Patient's satisfaction is a degree to which the individual regards the health care services, products or the manners in which it is delivered by the provider as useful, effective or beneficial.

The definition of patients satisfaction suggested by the Wagner et al, continues to evolve. The dimensions of patient satisfaction include: Art of care, Technical quality of care, Accessibility, Convenience, Finances, Physical environment, Availabilities, Continuity of care, Efficacy and Outcome of care.

However, a working definition is the degree to which the patients' desires, expectations, goals and /or preferences are met by the health care provider and/or services.[5]

Pakistan is a low income country with rapidly growing population of 180.71 million during the year 2011-2012. Literacy remains much higher in urban areas than

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in rural areas and much higher for men than for women. Study in Pakistani population in England shows that the most dissatisfaction was with the care received from the nurses in hospital, and with information given about the treatment and conditions.

Perceptions of service quality ultimately affect customer satisfaction. People tend to be satisfied when their perception of service that they received matches their expectations. When the service falls short of expectations, they intend to be dissatisfied. Patient's reports of their hospital experiences can serve a pivotal role in the development of action plans for the improvement of services.[6]

MATERIALS AND METHODS

An observational descriptive cross-sectional type of study was carried out at BVH BWP. The duration of study was from March 2016 to June 2016. A sample of 100 patients by convenient sampling technique was taken from surgical wards (S1, S2, S3, and S4) of Bahawal Victoria Hospital, Bahawalpur. Of 100 participants, 57 were males and 43 were females.

A pre-coded questionnaire was administered in a face to face interview approach by researchers. Questionnaires were divided among researchers. Questionnaire had questions about patient's ease in getting admission in hospital, satisfaction level of patient regarding behavior of doctors and staff with patient, informational care, post-operative management, medications and general services. Patient's consent was taken beforehand.

Only postoperative patients were interviewed. There were no age or sex criteria. Those who were unwilling to participate were not interviewed. Data was analyzed by using software SPSS 15.0 Demographic table and bar charts were constructed.

RESULTS

A total of 100 subjects were interviewed. Among them, 24% were highly satisfied: 13% were males and 11% were females. 75% of the subjects were moderately satisfied: 43% were males and 32% were females. Only 1% was not satisfied.

A total of 93% of the patients gave positive response about ease of admission into the ward. In the domain of staff's behavior, 96% patients considered doctors polite with them.77% patients confirmed that nurses were kind in their behavior while 18% patients said they were 'somewhat polite'. Only 5% of the respondents did not find them polite. Upon call, availability of the staff satisfied 88% of the patients and somewhat satisfied only 8% of the patients.

In domain of Physical Examination, overall 86% people were fully satisfied and 14% were not satisfied. Regarding maintenance of privacy 82% people were well satisfied while 9% were somewhat satisfied and 9% were not satisfied. Regarding maintenance of comfort, 90% of the patients were satisfied completely, 5% were somewhat satisfied and another 5% were unsatisfied.

Regarding participation in decisions related to treatment, 71% of the patients were satisfied whereas 22% patients said that doctor did not bother their participation in this regard and only 7% were somewhat satisfied.

In domain of Informational care, overall 45% of patients were completely satisfied. 50% were moderately satisfied and only 5% were not satisfied at all. Amongst them all, 88% of patients were completely informed about their illness before surgery whereas 10% patients were not satisfied in this case. Regarding explanation of investigations, 82% were highly satisfied, 4% were somewhat satisfied and 14% were not satisfied at all.

Regarding counseling of surgical procedure, 69% of the patients were satisfied, 10% patients were somewhat satisfied and only 21% were left unsatisfied. Regarding duration of surgery, 40% patients said that they were told beforehand whereas 50% patients stated that they were not told about it and only 10% were somewhat told. Regarding counseling for anesthesia, 63% patients were satisfied, 7% patients were somewhat satisfied and 30% were not informed. 29% patients were informed about surgical complications, 13% were somewhat informed and 58% were not informed. Regarding explanation of surgical consequences, 31% were satisfied, 16% were moderately satisfied and 53% were not satisfied at all. A handsome majority of 67% of the patients were not informed of their expected duration of stay in the ward whereas 23% were informed and 10% were somewhat informed. Explanation of post-operative precautions satisfied 60% of the patients while it did not satisfy 25% of the patients. Another 15% mentioned that somewhat precautions were told. Regarding informed consent, all of the patients were satisfied.

In the field of post-operative management; overall 83% people were fully satisfied and 17% were not satisfied. Amongst them 82% were fully satisfied, 15% were somewhat satisfied and a minority of 3% patients were not satisfied from their dressing. As regards the pain management; 77% of the patients were fully satisfied, 17% were somewhat satisfied and 6% were not satisfied at all.

In the discipline of medication, overall 14% people were fully satisfied and 38% were not satisfied. Amongst them 80% of the patients were not told about side effects of their medication, 12% were informed well enough while only 8% were not clearly aware of it. 53% of the patients said that their doctor hadn't told them of their medicines' purpose while 39% patients confirmed that their doctor had explained them the same. Rest of the 8% were somewhat told. Treatment seemed affordable to 69% and unaffordable to 15% of

the patients, it was somewhat affordable for the rest of the 21%.

In the domain of general services, overall 62% people were fully satisfied and 38% were not satisfied. Amongst them 90% of patients were satisfied with the cleanliness of their ward, 8% were somewhat satisfied and 2% were not satisfied at all. Cleanliness of washrooms satisfied 60% of the patients, 21% were somewhat satisfied and 19% were not satisfied at all. 68% patients confirmed that their bed sheet was properly changed while 32% patients did not agree to it. Regarding the comfort ability of bed, 92% of the patients were satisfied, 5% were somewhat satisfied and another 3% were not satisfied at all. 70% respondents were satisfied with the temperature of the ward, 16% were somewhat satisfied and 14% were not satisfied. Food facility was availed by mere 15% of the patients. Rest of the 85% of patients were not availing this offer.

Table No.1:

		N	Percentage
Gender	Male Female	57 43	57 % 43 %
Age	<20 21-40 41-60 61-80 81-100	14 41 36 7 2	14 % 41 % 36 % 7 % 2 %
Marital Status	Single Married Divorced Widows	23 75 0 2	23 % 75 % 0 % 2 %
Educational of the respondent	Illiterate Under-Matric Under-Graduate Graduate Post-Graduate	56 27 13 3 1	56 % 27 % 13 % 3 % 1 %
Estimated Income	<10000 10000 to < 20000 20000 to < 30000 >30000	60 29 5 6	60 % 29 % 5 % 6 %
History of Previous Admission	Yes No	34 66	34 % 66 %
Mode of Referral	Emergency Outdoor Private	62 24 14	62 % 24 % 14 %

DISCUSSION

The results of our research reveal that most of the patients being treated in BVH are highly satisfied with most of the domains at service delivering to them. Most of the patients included in our study offered good level of satisfaction with the behavior of the hospital staff. 93% of our patients were satisfied with procedure of admission into the ward and 96% responded that doctors were polite to them. These findings are in consistence with the survey conducted Castle Craig Hospital of United Kingdom, which stated that above 90% patients were satisfied with the attitude of hospital staff, including with doctors and nurses.[7] Similarly, attitude of staff' and 'availability of staff' also are consistent with the result of a study conducted in India,88% of our patients are satisfied with the availability of staff and 98.4% patients in India were satisfied with the promptness of service.[8] Both results show high level at patient satisfaction.

It is therefore just to say that our hospital is at par with the United Kingdom. Indian Hospitals in patient satisfaction levels in domain of behavior of the staff. Prevalence of religious and good moral values in the society might be responsible for increasing sense of responsibility among our doctors and nurses. Religion regards the service of mankind, a highly favorable activity and this might be the single most reason behind the empathy doctors of BVH have towards their patients .These results also reflects that training of our doctors is in accordance with the principles of Behavioral Sciences.

Patients when enquired about their consent and privacy during their physical examination, most of them were satisfied both with the comfort and with privacy during examination but when compared with a study conducted in Karachi[9] in which almost 100% of patients were satisfied with the ease of physical examination, we have 9% of patients dissatisfied with privacy and another 5% dissatisfied with comfort during physical examination. BVH is a government hospital with limited resources and very large number of patients receiving service on a daily basis. Furthermore, doctor to population ratio in our country generally and Bahawalpur specifically is less. Infrastructure and construction of our hospitals is also not perfect. These factors discomfort and breach of privacy during physical examination. Another important perspective is being a teaching hospital, many patients have to be examined, even operated on in front of trainee students. This also contributes towards patient dissatisfaction. So, this score is at least understandable. These are the factors due to which ours scores in this domain are in slight contradiction with an Indian Hospital as well in which almost 100% patients were found to be satisfied with ease of location during doctor consultation.

In BVH, the domain of Informational Care is however, somewhat ignored by the staff and the results are in stark contrast when compared with those of Castle Craig Hospital in United Kingdom, the categories of participation in decision making, explanation of investigation, information about duration of surgery, explanation of surgical procedure, counseling for

anesthesia and expected duration of stay in ward all afforded handsome numbers of dissatisfied patients. The domain of International Care to the patients in accordance with the principles of Behavioral Sciences needs to be attended to in BVH. The results are suggestive of lack of training of staff to be, at least in past, responsible for patient's dissatisfaction. Low doctor to population ratio is another important player in this regard. In BVH OPD, one doctor usually has to attend to hundreds of patients daily and the time constraints with the patient. So, this problem requires attention from the doctors as well as healthcare policy makers and higher authorities.

When we compare the response of our patients about their satisfaction in the domains of medication and post-operative management with a study conducted in Ayub Medical College Pakistan, the results are quite similar, although the specifics vary.[10] 80% patients in BVH were not told about side effects of medicines prescribed to them and 69% patients in AyubMedical College complained the same. Again time constraints come into play here. Literacy rate in Pakistan is not very high compared to the western countries patients. Awareness is also only now building to some extent. The doctors thus feel little or no need to waste their time explaining medicines to the patients which is a difficult task particularly given our circumstances.

Both in BVH and Ayub Medical College, a good number of patients maintained they were not told about the purpose of their medication and their disease satisfactorily. This is also due to the very similar reasons described above. This however clearly contradicts with above 90% patients satisfied with explanations of doctors in Castle Craig Hospital UK.[11] High literacy rates (approaching 100%), media awareness, better understanding of illnesses and diseases, high doctor to population ratio are some of factors that come into play in this regard.

Pain managements and staff availability during post-operative pain however is commendable in BVH with 94% satisfied. This is also consistent with that in Ayub Medical College where 88.8% patients were satisfied.[12]

Patients receiving healthcare services in BVH were mostly satisfied with the general services provided by the hospital. Patients responded satisfactorily about the cleanliness of wards, temperature, living conditions and overall service. However, 19% patients were not satisfied with the cleanliness of washroom and as can be expected a good 85% patients did not avail food facility in the hospital. These findings however are consistent with study conducted in Ayub Medical College Pakistan revealing very similar results.

When, however, compared with Castle Craig Hospital, UK these scores are significantly low with 77% patients satisfied with the food and above 80% with the cleanness factors accounting for this have roots in the crowdedness of our hospitals and very limited resources.[13] The available resources are directed towards the very basic services and extras like cleanliness and food certainly take a back seat with the further development of the country's healthcare infrastructures, we can however hope for these condition to become better.

CONCLUSION

Most of the patients were satisfied regarding ease of admission in the ward, behavior of doctors & nursing staff and their availability during any distress, maintenance of their privacy and comfort during physical examination, participation in decision making, informed consent, post-operative care, informational care & general services provided to them. Domains of sanitary conditions and food availability as well as its quality & hygiene need further attention.

Recommendations: Health care staff should be trained for patients' care according to the principles of Behavioral sciences. Sanitary conditions should be improved. Workshops & seminars should be conducted for health care professionals to make them learn basic principles of health care. Bedding conditions of the patients should be improved. Food facility with good quality and hygiene should be made available to all patients.

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

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Original Article

Chronic Liver Diseases

Beyond the Liver ! Extra Hepatic Manifestations: Assessment of Frequency and Risk Factors among Hepatitis B & C related Chronic Liver Diseases

Abu Talib, Gohar Ali Baloch, Haris Alvi, Iftekhar Haider Naqvi and Khalid Mahmood

ABSTRACT

Objectives: The study aimed to determine the frequency and risk factors for Extra Hepatic Manifestations among patients with Hepatitis B and C related Chronic Liver Diseases.

Study Design: Cross Sectional Study

Place and Duration of Study: This Study is conducted at the Department of Medicine (Both indoor & outdoor patients) of Civil Hospital, Karachi from 2012 to 2016.

Materials and Methods: In this study of 548 patients, who were positive for HBV or HCV, fulfill the selection criteria and were suffering from Chronic Hepatitis, Cirrhosis or HCC were examined for Extra Hepatic Manifestations clinically and if required appropriate tests were done to confirm the diagnosis & finding. Frequency and risk factors were determined for extra hepatic manifestations. Test of statistical significance were applied where p value of <0.05 was considered to be statistically significant cut-off.

Results: Majority of patients 432 (78.8%) were HCV Positive and 116 (21.2%) were found to be HBV positive. Overall frequency of extra hepatic manifestations was found to be 54.7 %. Patients with chronic hepatitis C and B. The Extra Hepatic Manifestations of 60.6 % in HCV and 32.8% in HBV respectively. Diabetes Mellitus (DM) is the most common extra hepatic manifestation found in both, chronic HCV (19.0%) and chronic HBV patients (5.2%) whereas hypertension is the second commonest extra hepatic manifestation among HBV patients (12.1%). Disease duration > 5 years, age> 45 years, Viral PCR, Raised ALT and Hepatocellular Carcinoma associated with chronic HCV and HBV were found to be significant risk factors for extra hepatic manifestations.

Conclusion: Extra Hepatic Manifestations are more common in HCV associated liver diseases than HBV. Diabetes and hypertension are the main extra hepatic manifestation among HBV & HCV positive patient. Disease duration > 5 years, age> 45 years, Viral PCR, Raised ALT and HCC associated with chronic HCV and HBV were found to be significant risk factors for Extra Hepatic Manifestation.

Key Words: Extra Hepatic Manifestations, Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Hepatocellular Carcinoma

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INTRODUCTION

The most important causes of liver diseases, especially in the developing countries is viral related (HBV and HCV).[1] HBV and HCV have chronically infected over 350 and 185 million people respectively, [2] mainly from third world countries.[3] Hepatitis C is responsible for cirrhosis in 70 – 80 % of cases followed by hepatitis B in 15 % of cases.

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Several extra hepatic manifestations (EHM) aredescribed in the course of hepatitis B & C virus infection. 40 – 74% HBV or HCV infected patients may develop at least one extra hepatic manifestation at some stage in their course of illnes.[4] Diabetes Mellitus, hypertension, dermal manifestations[5], various glomerulonephropathies, cryoglobulinemia[6], thyroid diseases,[7]vasculitis, lymphoproliferative disorders, neuropathies and cardiomyopathies etc are frequently reported.

EHM sometimes may be the preceding clinical symptom in chronic HCV and HBV patients even before manifestation of Liver Disease. The extra hepatic tissues, which contain viruses (HBV and HCV) serve as asource for persistent infection and its reactivation. Various viral proteins expressed during replication of HBV & HCV in extra hepatic tissue itself responsible for EHM. The autoimmunity with accumulation of circulating immune complexes is the

pathogenesis of these infections. Apart from hepatic tropism HCV has also showly mphotropism, which explains many of the EHM.[8] There are various risk factors like advance age, longer duration of disease, age and gender have been described for EHM among chronic HCV and HBV infected patients.

Pakistan is a country with a huge burden of viral related (HCV & HBV) where data on extra hepatic manifestations is scanty. Thus study is designed to

- Determine frequency of extra hepatic manifestations among chronic HCV and HBV patients
- Assessment of various risk factors for extra hepatic manifestation among chronic HCV and HBV patients

MATERIALS AND METHODS

This was a retrospective cross sectional study conducted in the department of medicine, Civil Hospital, Karachi. Sample size was calculated by open api software version 3 taking 50% of a variable and 95% confidence level and 5% confidence limit. Total sample size was required to be 406 patients. However, 548 confirmed cases of chronic hepatitis B and C were retrospectively screened. Chronic hepatitis, Cirrhosis or HCC were confirmed on biochemical, clinical, sonologically and even with histopathological basis wherever required.

Data was analyzed by SPSS Version 16 where appropriate test of statistical significance were applied.

Inclusion Criteria: All patients positive for HBV & HCV.

Exclusion Criteria: All Patients of Acute Viral Hepatitis with B & C.

RESULTS

Out of 548 patients, 432 (78.8%) were chronic HCV and 116 (21.2%) were chronic HBV. 352 patients (64.23%) were male and 196 (35.77%) were female. Age distribution of patients is mentioned in Table 01. Demographic profiles of both HCV and HBV related chronic hepatitis have shown in Table 02.

Table No.1: Age Distribution of Patients

Years	No.	%age
18 to 30	92	16.79
31 to 45	208	37.96
46 to 60	188	34.31
61 & above	60	10.95

(Average Age: 44 Years) n= 548

EHM were revealed in 300 (54.7 %) patients. 262 (60.6 %) patients with chronic HCV had different extra hepatic manifestations. 38 (32.8%) patients with chronic HBV had EHM. Various EHM among both chronic HBV and HCV are highlighted in Table 03. 88 (16.1%) patients had DM as an EHM in both chronic HCV and HBV. 14 (12.1%) patients with chronic HBV hepatitis had HTN is the second most commonest EHM. The risk factors for EHM in chronic HCV patients were age > 45 years (odd ratio = 1.69, p = 0.008), disease duration > 5 years (odd ratio = 1.54, p = 0.03) and Hepatocellular carcinoma (odd ratio = 1.55, p = 0.036), Viral PCR (odd ratio = 1.97, p = 0.001), Raised ALT Level (odd ratio = 1.17, p = 0.031)as shown in Table 04. The risk factors for EHM in chronic HCB patients were disease duration > 5 years (odd ratio = 2.41, p = 0.032) and HCC (odd ratio = 2.28, p = .039), Viral PCR (odd ratio = 0.332, p = 0.015), Raised ALT Level (odd ratio = 4.47, p = 0.002) as shown in Table 05.

Table No.2: Demographic profile of chronic (HBV & HCV) patients with Extra Hepatic Manifestation (EHM)

Demographic parameter n= 548		Number of patients	Frequency
Chronic HCC Related Demographics N=432 (78.8%)			
Age:	>45	248	57.4%
	<45	184	42.5%
Gender	Male	255	59.0%
	Female	177	41.0 %
EHM		262	60.6%
Chronic HBV Related Demographics N=116 (21.2%)			
Age	>45	70	60.3%
	<45	46	39.65%
Gender	Male	73	62.93%
	Female	43	37.0%
EHM		38	32.8%

Table No.3: Extra Hepatic Manifestations among Chronic HBV and HCV

Manifestations	HBV +ive n=116 (21.2%)		HCV +ive n=432 (78.8%)		Total n=548	
	No.	%	No.	%	No.	%
DM	06	5.2	82	19.0	88	16.1
HTN	14	12.1	42	9.7	56	10.2
Lichen Planus	02	1.7	38	8.8	40	7.3
Renal Diseases	06	5.2	10	2.3	16	2.9
Cryoglobulinemia	00	00	06	1.4	06	1.1
Hypothyroidism	00	00	10	2.3	10	1.8
Hyperthyroidism	00	00	06	1.4	06	1.1
Thyroiditis	00	00	02	0.5	02	0.4
RA	00	00	06	1.4	06	1.1
CMP	00	00	16	3.7	16	2.9
Lymphoprolif-erative Disorder	00	00	04	0.9	04	0.7
Sensory Neuropathy	00	00	10	2.3	10	1.8
Purpura	02	1.7	14	3.2	16	2.9
Sialadenitis	08	6.9	16	3.7	24	4.4
Total	38	32.8	262	60.6	300	54.7

Table No.4: Risk factors for Extra Hepatic Manifestations (EHM) among Chronic HCV patients (Univariate Analysis)

Variables		EHM n=432		Odd ratio CI (95%)	Relative RiskCI (95%)	p-Value
		No.	%			
Age	>45 248	152	61.29	1.69 (1.12-2.53)	1.26 (1.05-1.53)	0.008*
	<45 184	89	43.36			
Gender	Male 255	140	54.9	1.31 (0.88-1.97)	1.14 (0.94-1.39)	0.17
	Female 177	85	48.02			
Duration of Disease	> 5 years 272	138	50.7	1.54 (1.02-2.34)	1.268 (1.01-1.61)	0.03*
	< 5 years 160	64	40			
HCC	With HCC 159	89	55.97	1.55 (1.02-2.34)	1.24 (1.01-1.50)	0.036*
	Without HCC 273	123	45.05			
HCV RNA	Detectable 260	151	58.05	1.97 (1.30-2.97)	1.47 (0.14-1.75)	0.001*
	Undetectable 172	71	41.27			
ALT Level	Raised 281	201	71.5	1.61 (1.03-2.49)	1.17 (1.01-1.35)	0.031*
	Normal 151	92	60.92			

*** Statistically Significant**

Table No.5: Risk factors for Extra Hepatic Manifestations (EHM) among Chronic HBV patients (Univariate Analysis)

Variables		EHM n=116		Odd ratio CI (95%)	Relative RiskCI (95%)	p-Value
		No.	%			
Age	>45 70	42	19.44	1.78 (0.78-4.08)	1.31 (0.89-1.99)	0.18
	<45 46	21	45			
Gender	Male 73	35	30.17	0.72 (0.31-1.66)	0.859 (0.59-1.29)	0.41
	Female 43	24	55.81			
Duration of Disease	> 5 years 76	45	59.21	2.41 (1.02-5.7)	1.57 (1.01-2.26)	0.032*
	< 5 years 40	15	37.5			
HCC	With HCC 51	30	58.8	2.28 (1.01-5.19)	1.52 (1.00-2.28)	0.039*
	Without HCC 65	25	38.46			
HBV DNA	Detectable 80	43	53.7	0.332 (0.12-0.88)	0.69 (0.51-0.95)	0.015*
	Undetectable 36	28	77.7			
ALT Level	Raised 90	56	66.2	4.47 (1.56-13.28)	2.31 (1.24-5.19)	0.002*
	Normal 26	19	73.33			

*** Statistically Significant**

DISCUSSION

Patients with chronic HBV & HCV infections had more Diabetes mellitus (DM) than in the general population.[9, 10] HCV independent to underlying liver disease is now considered as a well established risk factor for DM. Earlier studies reported strong association of DM with advanced liver fibrosis among HCV patients.[11, 12] DM is prevalent in cirrhotics where 25% were due to underlying HCV and 19% had alcoholic liver disease. This fact is paralleled to our results (19%). In patients having chronic HCV infections with diabetes, the causative factor is increase insulin resistance rather than presence pancreatic anti-islet antibodies.

Hypertension in these infections has been observed to prevail in around 10% to 12.5% while0.1% to 25% of the sufferers have some variant of glomerulonephritis.[13,14] Brzosko and colleagues while depicting HBV connection in the pathogenesis of glomerulonephritis documented an incidence of 34.6% in diverse forms of glomerular disease.[15] HBV and HCV infections are linked tovarious types of glomerulonephritis, where apparently membranous glomerulonephritis (MGN) being the commonest entity.[16] This particular study derived the frequency of glomerular diseases to be 2.3% to 5.2% in HCV and HBV infection respectively. HBV and HCV allied MGN, by and large presents as Nephrotic syndrome having proteinuria, chronic renal failure. The asymptomatic cases imperatively present with hypertension.[17,18]

immunoglobulins precipitation (reversible) in a cold environment has been linked to HBV and HCV. Cryoglobulins are classified into three types where; type II (Monoclonal IgM and Polyclonal IgG) and type III (Polyclonal IgM and Monoclonal IgG) are known to cause essential cryoglobulinemia present in chronic HBV and HCV infection. Cryoglobulinemia is prevalent in approximately 0-15% of cases.[19,20] This study observed purpuraseconded by arthralgia in 1.4% of patients associated with chronic HCV infection, as commonest presenting features.

The frequency of lichen planus in chronic HBV and HCV infections were 1.7% to 8.8% respectively.[21]An earlier study reported a high prevalence of oral lichen in patients with HBsAgpositivity.[22] Lichen planus typically involves the oral mucosa, tongue, and skin.

These are papular lesions that resemble lichen. In lichen epidermis may be normal, hypertrophic, or atrophic. The deeper basal layer of skin shows vesicles due to degeneration or liquefaction.[23]

The direct link of thyroid diseases with HCV infection is imprecise. Hypothyroidism (2.3%) is more common than hyperthyroidism (1.4%) in patients with HCV infection.[24, 25] Pampana A, et al have reported in their study 13% HCV patients had hypothyroidism where thyroid antibodies were found in 25% patients.[26, 27]

HCV may initiate plaque formation and increases the risk of atherosclerosis as evidenced in an earlier study.[28] HCV with active viral replication increases the risk of carotid atherosclerosis in some part of the world.[29]The pro-atherogenic cytokines in HCV have been liked with plaque instability, suggestits role for increase risk of cerebrovascular diseases. Recently patients with HCV or having co infection (HCV-HIV) validated the connection between carotid atherosclerosis and HCV infection.[30]The 3.7% cardiovascular disease in this study correlated with HCV infection.

Rheumatological manifestations have also been described in chronic HCV infection where 74% of patients had arthralgia or arthritis. Fatigue (1.4%) is the frequently reportedproblem with fibromyalgia in some caseshave been reported.[31]Cryoglobulinemia and polyarteritisnodosahave been described in vasculitis associated with HCV. 20-50% of HCV infected patients had shown various auto antibodies in their serum likeantinuclear antibodies (ANA), RF, cryoglobulins, anticardiolipin antibodies,, anti-smooth muscle, anti-liver kidney microsomal antibodies (Anti LKML) and anti-thyroid peroxidase. [32-34]

Non-Hodgkin lymphoma (NHL) is a frequently reported association with HCV infection. Clonal expansion of B lymphocyte along with environmental and genetic events with chronic HCV has been proposed mechanism of NHL.[36] Programed cell death (apoptosis) of lymphocyte infected with HCV which leads to over expression of the bcl2 oncogene, with anadditional mutation (myc oncogene) is an another explanation of NLH.[37, 38]

Advance liver fibrosis and old age was found to be significant in earlier reported study among chronic HCV patients.[39] This study has shown advance age, longer duration of disease, raised ALT, Viral PCR and associated hepatocellular carcinoma as significant risk factors for EHM among chronic HCV patients. Longer duration of disease, raised ALT, Viral PCR and hepatocellular carcinoma was found to significant risk factors for EHM among chronic HBV patients.Cacoub P et al in their study contrasted with our study where above risk factors were found to be in significant for EHM among chronic HBV patients. [40]

CONCLUSION

Extra hepatic manifestations are more common in HCV associated liver diseases than HBV. DM & HTN are the main EHM reported in our study among HBV & HCV positive patients. Disease duration > 5 years, age> 45 years, Viral PCR, Raised ALTand HCC associated with chronic HCV and HBV was found to be significant risk factors for Extra Hepatic Manifestation.

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

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Original Article

Coronary Artery Disease

A Comparative Study of QT Dispersion for Coronary Artery Disease in Cardiac Stress Test by Transesophageal Atrial Pacing

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ABSTRACT

Objective: To compare the QT dispersion for coronary artery disease in cardiac stress test by transesophageal atrial pacing in patients with coronary heart disease.

Study Design: Comparative study.

Place and Duration of Study: This study was conducted at the Cardiology Department, Mayo Hospital, Lahore, Punjab Institute of Cardiology and Umar Cardiac Center, Lahore from January 2015 to August 2015.

Materials and Methods: Fifty consecutive inpatients underwent cardiac stress testing (CST) by TEAP firstly, and then accepted selective coronary arteriography (SCA). These patients were suspected to have coronary heart disease (CHD), 28 were positive (CAD) and 22 were negative, normal coronary group (NCA), as control group. Measurements of QTd in two groups before and after CST were analyzed in and between groups.

Results: QTd was high in CAD than NCA group at baseline or every stages after CST (P<O.05, 0.01); QTd instantly and 2mm after CST was significantly greater than before CST in CAD group, but QTd 4mm and 6mm after CST dropped by the baseline . In NCA group, there were no differences of QTd measurements to be observed before and every stage after CST. Measurement of QTd immediately or 2mm after CST (~ 6Oms: positive) with the sensitivity (80.5%), specificity (90.4%), positive predictive value (91. 5%), negative predictive value (81.O %) and accuracy (85.5%).

Conclusion: Patients with CAD have greater QTd than normal subjects; and QTd increased further in CAD during CST by TEAP, whereas, NCA group with no significant change.

Key Words: Coronary artery disease, QT depression, cardiac stress testing, transesophageal atrial pacing

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INTRODUCTION

Campbell[1] in 1985 first proposed the QT dispersion (QTd) concept refers to the standard 12 lead ECG QT interval on the biggest stage (QTmax) and minimum QT interval (QTmin); the difference between the dispersion of myocardial repolarization extent..[2] QTd was firstly suggested to measure spatial dispersion of ventricular recovery times. Later it was publicized that QTd does not directly respond the dispersion of salvage times, its upshots mainly from deviations in the T loop morphology and the error of QT measurement. The dedication of both automatic and manual measurement of QTd is low, and significantly lower than that of the QT interval.[3]

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QTd is amplified in cardiac patients, also compared with healthy subjects and predictive value of QTD were stated, these values were mostly overlapping in both healthy subjects, cardiac patients and in patients with and without hostile result. Disorders such as long QT syndrome[4], hypertrophic cardiomyopathy,[5] acute myocardial infarction,[6] and congestive heart failure, presented to cause an increase in QTd, the risk of severe arrhythmias and unexpected death.[7] QTd was also measured in patients with CAD. Studies performed with arterial pacing[8,9] or exercise stress test (EST) also.[10] It is reported that acute ischemia caused significant increase In QTd. Few other studies have also shown that QTd in patients with CHD increased significantly[2], it also increased acute myocardial ischemia.[11] Which indicates, QTd as a delicate indicator. Treadmill exercise test is a clinical diagnosis of CHD. An important means of TEAP cardiac stress test, treadmill exercise test works as a supplement, especially for the elderly, infirm, and disabled patients stocks.[12] However, the sensitivity of both techniques are limited, women exercise test false positive rate [13] False negative rate of the latter, thus affecting the accuracy of diagnosis. Research revealed that[4,13] the sensitivity and accuracy of the test can be improved by plate movement test, when combined with indicators of

changes in QTd, but on TEAP cardiac stress test, QTd index has the same effect, at home or out of home rarely reported. It is thought that the QT dispersion (QTd, QTcd) is related with the uneven repolarization of myocardiocytes of ventricle, reflecting the unstable electricity of heart. The increase of QT dispersion is considered to be closely associated with malignant arrthymia post-myocardio-infarction and sudden death. This study was planned and performed to compare the QT dispersion for coronary artery disease in cardiac stress test by transesophageal atrial pacing. This study also focused on the diagnostic value of QT dispersion for CAD in TEAP heart stress test.

MATERIALS AND METHODS

Fifty consecutive OPD patients underwent CST by TEAP firstly, and then SCA. These patients were suspected to have CHD, out of which 28 were positive (CAD) and 22 were negative (NCA group), as control group. Measurements of QTd in two groups before and after CST were analyzed among groups. Patient with acute 'myocardial infarction, cardiac functional class III or IV, persistent atrial fibrillation, atrial flutter, II degree above degree atrioventricular block and Left or right branch block Cambodia were excluded from the study. At first TEAP cardiac stress test, then SCA was performed. According to coronary angiography patients were divided into two groups CAD and NCA. Esophageal electrode were inserted through the nose to the esophagus and Lead ECG performed, P waves were positive and negative in two phases also amplitude provided maximum with fixed electrode and test pacing thresholds. Then higher threshold was adjusted to 2V, the heart rate was above 5-10 beats / min began at pacing. Positive criteria: stimulation after termination was R-wave-based, ST-segment based on the original horizontal or down-sloping. Secondly coronary angiography was performed by using Seldinger femoral artery retrograde by Judkins method[15], respectively; patients underwent selective left and right coronary angiography. Projection position: conventional LAO, Team O, and different angles of head position and / or foot position, if necessary, appropriate adjustments were made based on imaging findings projection angle in order to fully reveal the lesion segments. Coronary angiography positive standard: At least one major coronary artery or its major branches, twenty-three, 50% luminal diameter stenosis. All subjects were measured, load test before and after, each period of ST segment depression level and each period QTmax, QTmin. This was done through formula (QT = QTmax-QT min), measurement does not know the results of coronary angiography.

Statistical analysis: Descriptive and inferential statistics were applied. Measurement data were expressed as mean ± standard deviation (mean±SD). The average number of groups was compared using two sample t-tests, each group before and after, the each period was compared using analysis of variance ANOVA, pair-wise comparisons using q test (Newman-Keuls method). For statistical inference chi-square test was applied. The data was analyzed using statistical package for social sciences (SPSS) version 16.P value <O.05 for the difference was statistically significant.

RESULTS

A standards-compliant inductees the general cases. Total of 54 cases, but there were three cases; In the process of doing load test, because they cannot tolerate being forced to cease stimulation test Experience with one case occurred during the load test is terminated angina trial, so the actual data was available for analysis in 50 cases. Coronary angiography showed: positive (CHD group) 28 cases, of which three lesions in 8 cases, double vessel disease in six cases, Single vessel disease, 14 cases: negative (i.e. NCA) 22 cases, two groups of age, six females and 16 males, esophagus electrode depth (ESO depth) and other general information was compared. There was no significant difference (P> 0.05), Table 1.

Table No.1: Two groups of age, gender, BSO depth comparison of general information

Category	n	Gender	Age	ESO depth	Pacing voltage	Expected Heart rate
		(M/F)	(old)	(cm)	(V)	(Beats/Min)
CAD	28	19/9	56.8 + 11.5	37.0 + 4.5	18.0 + 6.4	140 + 9.0
NCA	22	16/6	54.5 + 10.4	38 + 5.6	19.0 + 6.8	142 + 10.5

Table No.2: groups load test before and after comparison between groups QTd

Category	N	Before the test	After the test			
			0 min	2 min	4 min	6 min
CAD	28	55.5 ± 11.4	71.5 ± 11.0	69.5 ± 12.5	57.5 ± 9.0	56.0 ± 10.6
NCA	22	39.0 ± 10.5	43.0 ± 10.0	41.0 ± 10.5	42.5 ± 9.8	40.0 ± 8.5
p value		<0.05	<0.01	<0.01	<0.05	<0.05

* testing before and after (4min, 6min) Compare P <O. 01

Table No.3: Coronary involvement count relations with QTd.

Load test	three lesions	Double Vessel disease	Single vessel disease
	n=8	n=6	n=14
Before the test	57.0 + 13.0	55.0 + 11.0	53.5 + 10.0
After the test			
0 min	72.5 + 12.5*	70.0 + 11.0*	68.0 + 10.5*
2 min	70.0 + 13.8*	67.0 + 10.6*	64.0 + 11.5*
4 min	58.5 + 9.0	55.0 + 10.0	53.6 + 10.8
6 min	57.6 + 10.0	56.0 + 11.2	54.3 + 9.6

* Compared with the pre-test, P all <0.01

Table No.4: two load test results, QTd Comparison of changes.

Category	n	Load test		After the test QTd	
		Positive	Negative	> 60ms	< 60ms
CAD	28	14(50%)	14(50%)	24(85.7%)	4(14.3%)
NCG	22	5(22.7%)	17(77.3%)	2(9.0)	20(81%)

*Note: chi-square value= 6.90, P-value < 0.01

Table No.5: ST load test > O.1 mv standards and QTd > 60ms

Diagnostic criteria	Sensitivity	Specify	PPV	NPV	Accuracy
ST standard	50.00%	77.30%	75.00%	53.80%	61.90%
QTD standard	85.70%	81%	95.50%	85.00%	90.50%
P value	0.0114	0.3377	0.1409	0.0314	0.0041

In CHD patients with NCA, load test before and after in groups of QTd was determined. Comparison of CHD load test, before and after in each period of QTd was greater in CAD group, CHD load test after O min and 2 min of QTd were greater than before the test and also 4 min and 6 min after the test, but the difference was not statistically significant. Also no significant difference reported in NCA group load test before and after in each period. (Table 2)

There was also no significant difference (P> 0.05) in between vessel disease, weather before or after each load test session; however subgroups stimulate end load test at 0 min and 2 min were significantly improved, compared with the pre-test. (Table 3)

The two load test results, QTd Comparison of changes were calculated in each category, total number of patients with coronary angiography, results were shown in Table 4.

Criteria to determine the load test results, the sensitivity, specificity, positive predictive measured value, negative predictive value, and accuracy were better to varying degrees, including sensitive emotional, negative predictive value, accuracy and compares the standard ST load test > O.1mv. The difference was significant. (Table 5)

DISCUSSION

Refers to the 12-lead ECG, the difference between the largest QT and the shortest QT interval reflects regional myocardial repolarization dispersion degree.[1,2] Myocardial depolarization lasted for a very short, corresponds to the action potential of myocardial cells in phase 0, approximately 1ms, so QT interval period mainly affected by the repolarization process. Highamd et al[14] proved monophasic action potential (MAP) short duration (APD) and the surface ECG through research. As interval is closely related to the formation of QTd also provoked the addition of myocardial repolarization is sequence and characteristics are often related.

Later, Day et al[9] study revealed that increased QTd and intraventricular conduction delay and excitement abnormalities. Regional myocardial ischemia inevitably affects the board department of myocardial repolarization process, thus affecting the QT interval and QT. Later a large number of studies showed significant increase in QTd myocardial ischemia.[15,16] In this study, the crown vein angiography is the gold standard for the diagnosis of CHD, the measurement of esophageal pacing stress test before and after CHD, QTd were higher than normal group (p value < 0.05 ~ 0.01), results in line with the reported nausea. Another study showed coronary acute myocardial ischemia, QTd further increased CHD myocardial ischemia sensitive indicators of stress test.[11,17]

The study also found that after the success of coronary thrombolysis and PTCA immediately after (the first time, the second time after expansion) QTd or QTcd was with a significant decline.[18,19] TEAP cardiac stress test Inspected by rapid pacing increased cardiac load induced myocardial ischemia, ST Ischemic depression, thus supporting the diagnosis of CHD cases. In this study CHD load test immediately after (O min), 2min of QTd significantly increased compared with pre-test (p all <0.01), 4 min, 6 min to recover to baseline (p> 0.05), But still higher than NCA group, indicating that the increase in myocardial ischemia is the QTd unique result, and with the load lifted, relieve myocardial ischemia. QTd down to resting levels; while NCA

group, since the coronary reserve function well, resting or loads are not induced myocardial ischemia, so load test before and after each period of QTd did not change significantly (P all> 0.05), which is in line with the relevant literature. [20]

We also study the degree of CAD and the relationship between QTd. D. Wang et al [21] reported that QTd count with coronary involvement related to three> double vessel> single, which can be considered QTd, which reflect the degree of coronary artery involvement. In our study, our results regardless of load test, before or after, QTd did not show the amount due to coronary involvement count and appear to have a statistically significant difference, and whether the sample is too small for the number of cases, pending further study. We also examine QTd in TEAP load test of significance. Treadmill exercise test is commonly used in clinical diagnosis of CHD one of the methods, but the elderly, infirm, limb disabled patients unable to complete test: The TEAP cardiac stress test for CAD diagnosis regardless of age, physical condition impact exercise test can be used as supplementary examination.[12] But the research TEAP has its own unique clinical price value. However, the limited sensitivity of these two methods, women in particular false positive exercise test with high currency.[13,4] The latter high false negative, indicating that the traditional criteria for the diagnosis of myocardial ischemia ST has its limitations.. To solve this problem, Stoletnity et al[15] have examined the QT dispersion in exercise test to diagnose CAD, and coronary angiography results were compared with analysis of trials found that exercise, after exercise test true positive group QTd were significantly higher false positive and true negative group : In terms of QTd > 60ms to predict significant coronary artery disease, the sensitivity, specificity was significantly improved, so that QT dispersion index could be used as a sensitive exercise test results and specific supplementary indicators, the domestic a similar report.[22] In this study, the results of coronary angiography as the standard analysis TEAP cardiac stress test the sensitivity of the diagnosis of coronary heart disease (50.0%) and negative predictive value (53.8%), accuracy (6 1.9%) are relatively low, and low in previous reports (respectively 74%, 86.7%, 85%). Analysis of the causes and the methods used in addition to the results criteria, patient selection and other aspects of differences, some may be inherent in the trial, such as its load was less than treadmill exercise test, coupled with the traditional criteria for the diagnosis of myocardial ST limitations of ischemia, which may lower the sensitivity, false negative rate will be higher. Recent studies have shown[23] exercise test failed to induce vacancy bloody changes in the ST segment, coronary angiography showed coronary stenosis, which also significantly increased QTd after exercise, further explanation of QTd than ST standard more sensitive diagnosis of myocardial ischemia. Our results show that immediately after the load test terms of time or 2min QTd > 60ms, as the standard diagnostic CHD, the sensitivity (85.70%, P = 0.0114), negative predictive value (85.0%, P = 0.0314) and accuracy (90.5%, P = 0.0041) and ST Down > O.1 mV standard comparison the difference was statistically significant. TEAP cardiac stress test showed that QTd indexes can indeed improve the test for coronary artery myocardial ischemia diagnostic sensitivity, reduce the false-negative, and thus improve accuracy. QTd load test in diagnosis of CHD as an effective indicator of myocardial ischemia. Be noted that, despite the use 9F esophageal electrode, there are still three cases because they cannot tolerate the termination of the esophagus electrical stimulation test, how to further reduce the pacing threshold, improve patient compliance is worth studying. In addition, the evaluation of the diagnostic test, the sample size of this study is limited, the future still need to carry out more in-depth studies and for observation of a large series.[24,25]

CONCLUSION

QTd in patients with CHD than those with normal coronary artery; But it affected coronary angiographic findings counts irrelevant. TEAP cardiac stress test; CHD group immediately after the test and 2min step increase of QTd Beng → step increased. The NCA group showed no change. ST only down > 1mv criteria to determine TEAP cardiac stress test results in the diagnosis of CHD sensitivity and negative predictive value and accuracy is low. TEAP cardiac stress test, the combination of QT dispersion analysis, initial indications are that the test can improve the sensitivity of diagnosis of CAD, reducing false negatives, and thus improve accuracy. QTd as TEAP cardiac stress test in the diagnosis of CHD valid indicator of myocardial ischemia.

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

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Original Article

Assessment of Common Cancers

Assessment of Prevalence of the Most Common Cancers at a Tertiary Care Hospital in Al Ahsa, Kingdom of Saudi Arabia

Ashok Kumar[1], Abdul Latif Al Arifi[2] and Bhawani Shanker[3]

ABSTRACT

Objective: To assess the prevalence of most common cancers.
Study Design: Observational / analytic study.
Place and Duration of Study: This study was conducted at King Fahd Hospital (KFH), Al Ahsa, Kingdom of Saudi Arabia (KSA) from January 2015 to December 2015.
Materials and Methods: This study was conducted among 200 cancer patients, visited KFH, Al Ahsa. Total 200 patients were included in the study. Adult patients of age 15 to 85 years were included. The data was analyzed using SPSS 16.
Results: Among total 200 cancer patients, males accounted for 108 (54%) and females for 92 (46%). Age of the male patients at presentation was 45 to 85 (mean 65) years and age of the female patients was 49 to 83 (mean 66) years. Only 2 cases of Osteosarcoma were found in young age males (21 to 23 years), and only 2 cases of breast cancer were found in young age females (32 to 34 years).
Among males, the most frequent malignancies were colorectal carcinoma, lymphoma, leukemia, lung cancer, prostate cancer, urolithial cancer and other cancers (mesothelial, pancreas, stomach and osteosarcoma), respectively. Among females, the most frequent malignancies were breast cancer, thyroid cancer, colorectal carcinoma, lymphoma, leukemia, renal cell carcinoma and other cancers (gall bladder, pancreas, ovary and uterus), respectively.
Conclusion: Among males, colorectal carcinoma, lymphoma, leukemia, lung cancer and prostate cancer were the most common cancers. Among females, breast cancer, thyroid cancer, colorectal carcinoma, lymphoma and leukemia were the most common cancers. Our results alarm to initiate the cancer control programs to decrease the cancer incidence in our region.
Key Words: Common cancers, prevalence, King Fahd Hospital.

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INTRODUCTION

The leading cause of death in the world is cancer, affecting humans in countries of diverse levels of wealth and industrial development. The incidence of cancer in all countries, including high and low income countries, is estimated to rise yearly by 3-4%. The major increase, around 60%, will occur in developing countries as there are limited healthcare facilities and late diagnosis due to unawareness[1]. In the western world, the main risk factors for cancer are nutritional patterns and smoking. Whereas, in some developing countries, such as in South Asia and Africa, the smoking risk factor is growing[2].

For instance, recent prevalence of smoking between adult men in the West, counting the United States also, is about 20%, compared with that to Greece, Jordan, Indonesia and China, it is more than 60%[2]. Moreover, the tendencies of physical inactivity and consumption of saturated fat and calorie-dense food in various western countries are growing, while in less developed countries, malnutrition and poverty are still the main issues. These factors lead to obesity and sedentary life style[3,4]. The influences of these unhealthy lifestyles have the impact on the development of various cancers, which have been already described[5-7]. These days, cancers, such as, of colon, breast and lung are frequently diagnosed in less developed countries and their rates are on the rise, which were once considered rare diseases and they related more to the western world[8]. Along with the growing tendencies, the upcoming cancer burden in the developing countries is expected to be infuriated by the expected rise in aging and life expectancy of the population[9]. In developed countries the proportion of cases is expected to increase to more than 60% by 2030, which was 56% in 2008[10]. It is also expected that cancer will exceed cardiovascular diseases as the leading cause of death worldwide in upcoming years[11].

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Since the early 1970s, KSA has been experiencing extraordinary economic development. This is having an intense effect on water and air quality, lifestyle, nutrition and consumption patterns plus work-related environments. These alterations are considered to have changed the patterns of exposure to ecological cancer risk factors. Concurrently, the widespread obtainability of modern medical services and growing community awareness of cancer has facilitated with the early detection and reliable diagnosis of cancer in many parts of KSA[12]. But still, there is a need for the survey on the prevalence of various cancers in our and other regions of KSA. Being an enormous country of 2,240,000 square kilometers with areas of variable, topographic, climatic and social backgrounds from one place to another, the prevalence of different types of cancers may differ considerably. This offers a distinctive occasion to study the tendencies in frequency of various cancer types over time that may be anticipated to accompany fast financial and social alteration[13].

Our current study is aimed at assessing the prevalence of most common cancers in our region, which will help the common and health related people to know the prevalence of most common cancers in our region and to make awareness to avoid the risk factors and to undergo the early detection of cancer through various screening and routine checkup.

MATERIALS AND METHODS

Total 200 patients (both males and females), suffering from various cancers, i.e., colorectal, breast, lung, blood, thyroid and bone, etc., were included in the study. Adult patients of age 15 to 85 years were included in the study. Medical records of these patients were retrieved from KFH, Al Ahsa. The patients, who were diagnosed through histopathological reports were analysed for their prevalence. The study was conducted retrospectively from January 2105 to December 2015. The data were analysed by using SPSS 16.

RESULTS

Total 200 patients suffering from various cancers were included in the study. Males accounted for 108 (54%) and females for 92 (46%). The mean age of the male patients at presentation was 65 years (45 to 85 years), and for females 66 years (49 to 83 years). Only 2 cases of Osteosarcoma were found in young males (21 to 23 years), and 2 cases of breast cancer in young females (32 to 34 years).

Among males, the most frequent malignancies were colorectal carcinoma, lymphoma, leukemia, lung cancer, prostate cancer, urolithial cancer and other cancers (mesothelial, pancreas, stomach and osteosarcoma), respectively (figure 1).

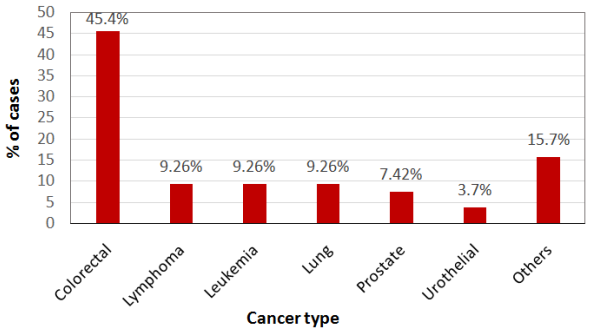

Figure No.1: Percentage of various cancers among male cancer patients.

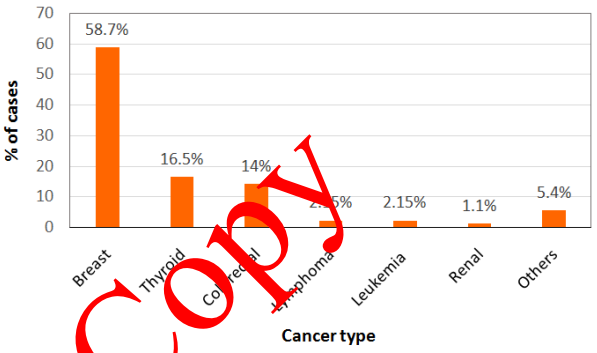

Figure No.2: Percentage of various cancers among female cancer patients

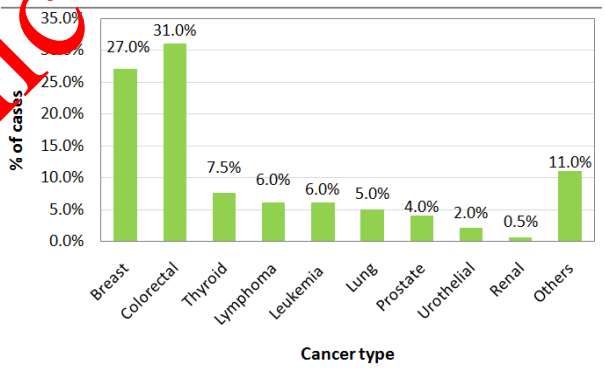

Figure No.3: Percentage of various cancers among all (male & female) cancer patients.

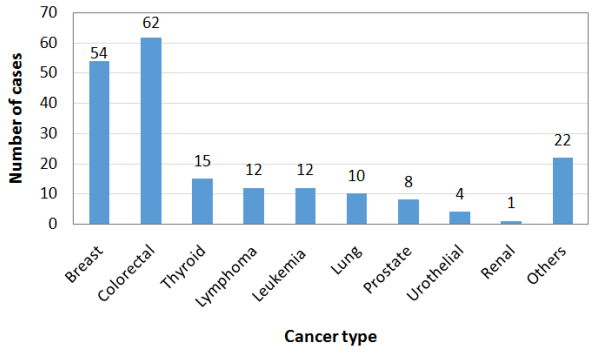

Figure No.4: Total number of various cancers among 200 cancer patients

Among females, the most frequent malignancies were breast cancer, thyroid cancer, colorectal carcinoma, lymphoma, leukemia, renal cell carcinoma and other cancers (gall bladder, pancreas, ovary and uterus), respectively (figure 2).

Taking all the cases of cancers together, irrespective of gender, colorectal cancer, breast cancer, thyroid cancer, lymphoma and leukemia were the most common malignancies (figure 3 and 4).

DISCUSSION

Cancer is on rise and becoming the major cause of death throughout the world. In our presented study, we assessed the prevalence of the most common cancers, diagnosed at KFH, Al Ahsa. The most common cancers in males were colorectal, lymphoma, leukemia, lung and prostate cancers, respectively. In females, the most common cancers were breast, thyroid and colorectal cancers, and leukemia and lymphoma, respectively. Taking all the cancer patients together, irrespective of gender, colorectal cancer, breast cancer, thyroid cancer, lymphoma and leukemia, respectively, were found to be the most common cancers. Our findings clearly indicate the high prevalence of these cancers in our region Al Ahsa. There has not been much data on the prevalence of various cancers in our region. Our results correlate with a recent report, published in Riyad region according to which colorectal and breast cancers were the commonest cancers among males and females, respectively[14]. But comparing the top five most common cancers, our results variate from this report in Riyad, according to which the most common cancers in males were colorectal, non-Hodgkin lymphoma (NHL), leukemia, prostate and liver cancers. On the other hand, this report resembles to our results in females, which shows the breast, thyroid, colorectal cancer, NHL and leukemia being the most common cancers in this gender[14]. In contrast, a recent study in United States showed the prostate cancer to be the most common cancer in males, while breast cancer remained the most common cancer in females. Assessing all the cancers in U.S, the most common cancers in males were of prostate, lung, colorectum, urinary bladder, and melanoma of skin, respectively, while in females those were of breast, lung, colorectum, uterus, and thyroid, respectively[15]. According to a research review, the most common cancers throughout the Asia continent were lung, stomach, liver, colorectal, oesophageal, and prostate cancers in males, while breast, cervix uteri, lung, stomach, colorectal and liver cancers in females[16]. It was also shown that the breast, colorectal and thyroid cancers are increasing in women of high income Asian countries, including Saudi Arabia, due to adoption of Western life style and the over use of ultra sound scanning of thyroid glands[16-20].

Taking all the discussion together, we could see that there are some similarities and dissimilarities in the prevalence of various cancers in various countries and various parts of KSA itself. These variations may be explained by the fact that there are huge differences between these parts of the world on the basis of geography, risk factors, dietary habits, socioeconomic conditions, and sedentary life style, etc. These factors have already been described to effect the development of cancer[21-25]. Additionally, there are genetic predispositions which also play an important role in the development and prevalence of various cancer types in various ethnicities[26]. Hence, it is very important to launch cancer control programs including cancer awareness, screening and genetic counseling to minimize the cancer incidence.

CONCLUSION

Among males, we found colorectal carcinoma, lymphoma, leukemia, lung cancer and prostate cancer, respectively, to be the most common cancers; and breast cancer, thyroid cancer, colorectal carcinoma, lymphoma and leukemia to be the most common cancers among females. Our results alarm to initiate the cancer control programs to decrease the cancer incidence in our region.

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

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Original Article

Blood Groups and Rh Factor

Trend of Blood Groups and Rh Factor in the District Swabi

Meena Gul[1], Shemaila Saleem[2], Aysha Baber[3] and Mir Attaullah Khan[2]

ABSTRACT

Objective: To determine frequency of ABO and Rh (D) blood groups among blood donors in district Swabi.
Study Design: Observational / descriptive study.
Place and Duration of Study: The study was conducted at BGKMC Hospital in collaboration with physiology Department, GKMC from 1st January 2015 to 31st December 2015.
Materials and Methods: A total of 2120 healthy adult, blood donors (both volunteer and directed) from district Swabi were included. The data was collected from the record of Bacha Khan Group of Teaching hospitals in collaboration with department of Physiology.
Results: Among ABO blood groups "B" (31.42%) was the most prevalent, followed by "A" (30.47%), "O" (29.53%) and "AB" (8.58%). Group Rh positive (93.11%) was more prevalent than Rh negative (6.88%). Similarly B^{+ive} (28.76%) was most frequent followed by A^{+ive} (28.41%), O^{+ive} (27.64%), AB^{+ive} (8.3%), B^{-ive} (2.64%), A^{-ive}(2.08%), O^{-ive}(1.89%) and AB^{-ive} (0.28%).
Conclusion: Blood group 'B' was most frequent among the ABO blood groups and Rh (D) positive among Rh blood groups while B^{+ive} was the most frequent blood group in the study population.
Key Words: ABO blood group, Rh (D) blood group, Swabi

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INTRODUCTION

The typical sources of blood transfusion are either autologous transfusion or homologous transfusion. The latter is much more common than the former. Using another's blood must first start with donation of blood. However this becomes only possible after the discovery of ABO blood group system which was discovered by Karl Landsteiner by year 1900. Landsteiner was awarded the Nobel Prize in Physiology or Medicine in 1930 for his work.[1] Later he also discovered the rhesus factor in 1937. Uptil now more than 30 blood group systems with more than 600 antigens have been discovered but ABO and Rh remains clinically important antigens in human transfusion. The central principle of the ABO system is the presence or absence of antigen A and B on the cell surface membrane. Due to immunological tolerance only toward what occurs in their own bodies humans express isoanti bodies – antibodies against isoantigens, natural components present in the bodies of other members of the same species but not themselves. So the person having A antigen will be have blood group A and anti B antibodies.

Person having B antigen will have blood group B and anti A antibodies. Person with both A and B antigen on red cell membrane will be labeled as blood group AB and will possess no antibodies against its antigen however person with neither A nor B antigen will have blood group O and will have both anti A antibodies and anti B antibodies[2]. In addition there are more than 40 different kinds of Rh antigens. The most significant Rh antigen is RhD. When RhD is present on the red cell surface, the red cells are called RhD positive. These antigens are under control of three allelic genes, A, B and O, situated on the long arm of chromosome 9. Rh antigens are determined by three pairs of closely linked allelic genes located on chromosome 1[3]

Before a recipient receives a transfusion, compatibility testing between donor and recipient blood must be done. Before a blood transfusion, two blood tests known as a "type and cross match" are done. More specifically, the donated RBCs must lack the same ABO and Rh D antigens that the patient's RBCs lack. However, in practice, donor blood may still be incompatible because it contains other antigens that are not routinely typed but may still cause a problem if the recipient's serum contains antibodies that will target them. Therefore, a "cross match" is done to ensure that the donor RBCs actually do match against the recipient's serum[4].

To perform a cross match, a small amount of the recipient's serum is mixed with a small amount of the donor RBCs. The mixture is then examined under a microscope. If the proposed transfusion is incompatible, the donor RBCs is agglutinated by antibodies in the recipient's serum.

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No comparative study is reported in literature regarding the population of Swabi with reference to distribution of ABO antigens in the region.

The aim of the present study was to record the various blood groups among the population of Swabi, Pakistan, and also to compare the data with the population of other areas of Pakistan, as well as some other countries of the world, with a view to generate data with multipurpose future utilities for the health planners and also see the common trend of the prevalence of various blood group

MATERIALS AND METHODS

This study was conducted at Bacha Khan group of Teaching Hospitals in collaboration with Physiology Department from 1st January 2015 to 31st December 2015. A total number of 2120 individual were taken from record book of blood bank. All of the selected individual belong to District Swabi, and were between the ages 18-50 years. A usual method of blood collection was used in all individuals. Two ml blood was drawn from the ante-cubital vein of each donor in a disposable syringe, and transferred immediately to a tube containing ethylene diamine tetra acetic acid (EDTA).

ABO and Rh (D) blood grouping was done by the classical slide method (direct) using ABO Antisera and Rhesus monoclonal Antisera of Bio laboratories. The data was compiled and then analyzed for frequency of ABO and Rh (D) blood grouping by using MS Office 2007.

RESULTS

Table 1 shows the frequency of blood ABO group, indicating that among ABO blood groups "B" was most prevalent with a frequency of 31.42 % followed by "A' with a frequency of 30.47 % , "O" with a frequency of 29.53 % and "AB" with a frequency of 8.58 %

Table No.1: Frequency of ABO Blood Groups among Blood Donors in Swabi

	A	B	O	AB	Total
Frequency	646	666	626	182	2120
Percentage	30.47 %	31.42 %	29.53 %	8.58 %	100%

Table 2 shows the frequency of blood ABO group in male and female, indicating that the percentage of male blood donors were 76.63%, 72.37%, 87.70% and 87.36 in blood group A, B, O and AB respectively while the %ages of female blood donors were 23.37%, 27.62%, 16.29%, 12.63% in blood group A, B, O and AB respectively.

Table No.3: Frequency of RH blood groups among blood donors in Swabi

	A	B	O	AB	Total
Rh Positive	602	610	586	176	1974 (93.11 %)
Rh negative	44	56	40	6	146 (6.88 %)

Table 3 shows the frequency of blood Rh group, indicating that between Rh (D) blood groups the frequency of Rh positive was 93.11 % (1974) and Rh negative was 6.88 % (146).

Table 4 shows the frequency ABO and Rh grouping pattern, indicating that B+ve was most frequent (28.76%) followed by A+ve (28.41%), O+ve (27.64%), AB+ve (8.3%), B-ve (2.64%), A-ve (2.08%), O-ve (1.89%), and AB-ve (0.28%).

This study shows a mixed distribution of ABO blood groups with a high prevalence of Rh positive phenotype.

Table No.2: Frequency of ABO blood groups on gender basis among blood donors in Swabi

	A		B		O		AB		Total
Gender	M	F	M	F	M	F	M	F	
Frequency	495	151	482	184	524	102	159	23	2120
Percentage	77%	23%	72%	28%	84%	16%	87.%	13%	

Table No.4: Frequency of blood (ABO and Rh) Groups among blood donors in Swabi

Blood Group	A+ve	B+ive	O+ive	AB+ve	A-ive	B-ive	O-ive	AB-ve	Total
Frequency	602	610	586	176	44	56	40	6	2010
% age	28%	29%	28%	8%	2.%	3%	2%	0.28%	

Table No.5: Distribution of ABO and Rhesus blood groups in Pakistan

Blood group	Nowshera (KPK)	Bannu (KPK)	Mardan (KPK)	Rawalpindi/ Islamabad	Lahore	Mirpur (AJK)	This Study
A	27.12%	31.03%	24.75%	25.53%	24.14%	25.93%	30.47 %
B	32.40%	36.23%	27.97%	33.33%	33.80%	32.59%	31.42 %
O	29.80%	25.07%	27.93%	31.10%	33.10%	24.20%	29.53%
AB	11.04%	7.67%	19.36%	10.04%	8.96%	17.26%	8.58%
Rh +ve	92.88%	89.23%	94.30%	92.45%	93.21%	83.60%	93.11%
Rh -ve	7.12%	10.77%	5.70%	7.55%		16.40%	6.88%
References	(5)	(6)	(7)	(8)	(9)	(10)	

Table No.6; Global distributions of ABO and Rhesus blood groups.

Country	A	B	O	AB	Rh +ve	Rh -ve	Reference
India	22.2	36.4	31.7	9.4	91.75	8.25	(12)
Britain	42	8	47	3	83	17	(13)
Nepal	34	29	32.5	4	96.7	3.3	(14)
Saudi Arabia	33.4	6.0	56.8	3.8	92.8	7.2	(15)
USA	42.0	10	44.0	4.0	85.0	15.0	(16)
Bangladesh	26.6	23.2	40.6	9.6	96.8	3.2	(17)

DISCUSSION

The success of human blood transfusion requires compatibility for the two major blood groups. For this blood of donor and recipient is type and screen. This was only possible after the discovery of ABO and Rh blood group by Karl Landsteiner; Number of studies `was carried out to find the distribution of ABO blood groups antigen in different population group. Similarly in Pakistan researchers have done similar studies on different geographical and ethnic populations.

From these studies a mixed pattern of relative frequency of ABO and Rhesus blood groups is evident. This study follows the pattern of B>A>O>AB such pattern is also supported by studies in Bannu by Khan et al[5] and Mirpur (AJK) by Chishti and associates[6] . Reasons may be cultural, genetic or high percentage of marriages within the families. The differences in the frequencies of blood group in different races could be explained as part of evolution with random genetic drift and natural selection genetic drift in different races can be because of evolution and natural drift. However it is evident from studies in Pakistan that phenotype B is most prevalent and phenotype AB least prevalent. Rh (D) positive was the predominant Rh phenotype throughout Pakistan with a prevalence ranging between 89.58 % to 94.30 %

As shown in table 2 gender wise distribution of ABO phenotype shows a dominance of male donors. The result clearly indicates the higher % of male donors than female. The result of our study are different from study conducted in Gujranwala showing almost equal distribution of blood group on basis of gender among blood donors [7]. This difference may be due regional variation in cultural norms. AsPakhtoon are more conservative about their females and could also be related to less awareness among female community of the region. Also the developmental prospects of the two regions may also be a contributing factor towards this difference.

There is a wide variation of ABO blood group in different population around the globe as evident from table: 5. The Indian study[8] support the pattern of B>O>A>AB in some Asian studies.[9,10,11] However another study from Bagalkot, India has shown phenotype O to be more prevalent as compared to B[12]. Similarly result of Bangladesh, Nepal, Saudi Arabia studies[13,14,15,] shows result like European pattern O>A >B >AB. While another study from Bangladesh has shown that phenotype B is more prevalent than Phenotype A[16]. These results show that there are regional differences in the countries due to ethnic geographical and genetic differences. The differences in the study may also be because of differences in sample size and study design. The knowledge of the blood groups in view to the health of an individual is very essential. The various kinds of information are helpful for medical diagnosis like association of diseases to blood groups, genetic information, genetic counseling, association of blood groups to various diseases like A and O blood group associated with carcinoma of stomach and duodenal ulcer and also for the general safety of individuals. Therefore further studies are required to be done on general population with large sample size.

CONCLUSION

In the current study 'B' was the most frequent among the ABO blood groups and Rh (D) positive among Rh blood groups.

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

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Original Article

The Prevalence of Iron Deficiency Anemia in Female Medical Students of Different Medical Colleges of Khyber Pakhtoonkhwa, Pakistan

Ayesha Jamil[1], Nizamuddin[1], Abdul Hameed Khan[1] and Amjad Mustafa[2]

ABSTRACT

Objective: Iron deficiency anemia (IDA) is very common in adolescent and adults, especially female. In medical students, it is caused by a number of causes, "including overwork, decrease appetite due to stress and unnecessary dieting". Very little data is available at national level about these health conscious medical students. This "descriptive, cross sectional study, was conducted in public and private Medical colleges of KPK". The main objective of the study was "to determine the Prevalence of IDA in female medical students of KPK".

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the department of Pharmacology, Khyber Girls' Medical College, Peshawar From December-2015 to May-2016.

Materials and Methods 390-female medical students aged 19 to 24 years have participated in this study'. After formal consent and recording of their demographic information, "Hemoglobin (Hb) and Mean Corpuscular Volume (MCV) was done using digital Sysmex XT-4000i hematology analyzer". Serum ferritin (S-Ferritin) was done using Architect I-2000 analyzer. The identity of all students was kept confidential. All students with, "Hb<12g/dl, MCV<76um^3 and S-Ferritin <11ng/ml were labeled as having IDA and students having Hb>12g/dl, MCV>76um^3 but S-Ferritin<11ng/ml were labeled as having Iron deficiency (ID), but not IDA".

Results: Complete data of all "390 students were available for further analysis". The mean age of the students was 21±1 years. IDA was present in 6.66%(n=26/390) students, while ID was present in 41.54%(n=162/390) students. Normal iron status was found in 51.80%(n=202/390) students.

Conclusion. It is concluded that "ID and IDA are very common in female medical students of KPK. All female medical students should be encouraged to take extra iron to replenish their iron store".

Key Words: Iron deficiency Anemia, Female Medical Students, Iron Deficiency.

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INTRODUCTION

Anemia is "chronic states of low Hb level in the blood, which may be due decrease number of Red Blood Cells (RBCs), or decrease amount of Hb in each RBC". Iron is the main component of Hb synthesis and is vital for healthy life but "unluckily ID and IDA are the most commonly reported nutritional problems and causes >50% of anemia in all age group world widely". In developing countries, "every second female is anemic, more than 20% maternal mortality occur due to anemia[1] and around 40% of preschool/school children and around 30% of adult are anemic". Other causes like "chronic disease, autoimmune disease, malaria, folate plus B12 deficiency, and congenital abnormalities in RBCs like thalassemia, sickle cell anemia and spherocytosis" do share some of the current volume of anemia. The overall "global prevalence of IDA is >30%, affecting>2-billion people around the world"[1,2,3]. This problem is wisely handled in developed nations by "fortification of food materials like flour, cooking oil, confectionaries and other beverages with iron and other essential elements". Apart from food fortification, population control, education, elevation standard of life and overall general health and hygiene improvement have really played essential role to defeat all nutritional deficiencies. But on the other hand, it is still a big and booming problem in developing countries. It's commonly affect "preschool and school children, young female and elderly people". The commonest factors are "poor intake of iron in diet, poor absorption from the gut and increase loss from the body". In all these nations, "Poverty, population explosion, poor allocation

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of health resources, bad quality plus low quantity of food, adulteration of food and unnecessary dieting are the common causes of poor intake" while"Poor immunization, recurrent illnesses, diarrheal disease due to poor health and hygiene practices,overcrowding, intake of contaminated water and worms infestation are the common causes for poor absorption from the gut". Menstrual problems, recurrent pregnancies and extensive lactation to multiple children are the common causes of iron loss from the body (4,5).

IDA passes through many stages, starting from depletion of iron store in first stage. In this stage, "Hb is normal but S. Ferritin is <12ng/ml". In the second stage, "S. Ferritin further decrease but Hb still remains normal'. In third stage, "the iron store get almost empty and full blown IDA get develop, which is characterized by Hb<12g/dl and S. Ferritin <11ng/ml (6) and MCV<76um^3". In young age, "female are especially prone to ID and IDA because of poor intake of iron, increase demand for rapid growth, menstrual loss and pregnancy in early married teenage girls". IDA is commonly responsible for many "pregnancy related complication and perinatal mortality in developing countries" (7).

Medical students especially female students develop "IDA due to stress, unnecessary dieting, over work, polymenorrhoea due to stress and fast food selection". It has been observed that "anemia affect all females and significantly affect their growth, behavior and performance". However, very little research data is available in Pakistan regarding this field. Keeping in mind the importance of IDA, "this study was conducted to determine the prevalence of anemia female medical students, so that all female especially the targeted group in stress can be advised to use supplemental iron timely".

MATERIALS AND METHODS

From December-2015 to May-2016, 390-female medical students aged 19 to 24 years from different medical colleges of KPK were recruited for this study. All those students who have bleeding disorder, "history of thalassemia and recent major bleeding due to any cause were excluded from the study as they may have to act as confounders and will introduce bias" in results. Criteria for "IDA and ID was designed, including Hb<12g/dl, MCV<76um^3 and S-Ferritin <11ng/ml for IDA and Hb>12g/dl, MCV>76um^3 but S-Ferritin< 11ng/ml for ID". While "Hb above 12gm/dl with normal MCV and S. Ferritin were labeled as normal". Students were divided into three groups, as group-A having IDA, group-B having ID and group-C as normal. The descriptive- cross sectional design was used in the study.

Data Collection: Total 390 female medical students, "fulfilling the inclusion and exclusion criteria were enrolled in the study in a consecutive manner". Getting formal written consent and recording of demographic information like names, age etc., "Haemoglobin (Hb) and Mean Corpuscular Volume (MCV) was done using digital sysmex XT-4000i hematology analyzer". At the same time, "serum ferritin (S-Ferritin) was done using Architect I-2000 analyzer". All students with "Hb<12g/dl, MCV<76um^3 and S-Ferritin <11ng/ml were labeled as having IDA and students having Hb>12g/dl, MCV>76um^3 but S-Ferritin<11ng/ml were labeled as having Iron deficiency (ID), but not IDA". The identity of all students was kept confidential and risk/benefits were explained accordingly. All collected information was recorded on pre-designed Performa.

Data Analysis: Data was entered in "Microsoft Office Excel 2007 and analyzed, by using SPSS statistical program". The data was expressed as "mean and presented in tabulated form"."Student's t-test was applied to test compare the difference between the groups". P-value<. 05 was considered significant statistically.

RESULTS

Laboratory and demographic data for all 390 studied students was available for further analysis. The mean age of the students were 21±1 years, ranged from 19 to 24 years". The overall result of these three groups show that"IDA was present in 6.66%(n=26/390) students, while ID was present in 41.54%(n=162/390) students". While 51.80%(n=202/390) students was found to have normal iron status, having no IDA and ID as shown in Table 1.

Iron status in different age group of 390 students was analyzed, which show that in age group of 19-20 years, IDA, ID and normal Hb were present in 06, 62 and 65 students respectively. In age group of 21-22 years, IDA, ID and normal Hb were present in 12, 65 and 72 students respectively. While in age group 23-24 years, IDA, ID and normal Hb were present in 08, 35 and 65 students respectively as shown in figure 1.

Table No.1: Over all finding in all study groups

Finding	Number of cases	Percentage
IDA	26/390	6.66%
ID	162/390	41.54%
Normal	202/390	51.80%
Total	390/390	100%

Table No.2: Mean Hb, MCV and S. Ferritin level inall groups

Finding	Group-A	Group-B	Group-C
Hb	9.8±02gm/dl	12.8±. 08gm/dl	13.3± .08gm/dl
MCV	68±01um^3	70±02um^3	78±08um^3
S.Ferritin	6.4±0.1ng/ml	8.6±0.2ng/ml	28±08ng/ml
P-value <0.**005**			

Statuses of mean Hb, MCV and S. ferritin in allthree groups was analyzed, which show that, mean Hb was 9.8±02gm/dl in group-A then 12.8±.08gm/dl in group-B and finally 13.3± .08gm/dl in group C. Mean MCV was 68±01um^3 in group-A, 70±02um^{3}in group-B and 78±08um^3 in group-C. Mean S. Ferritin was 6.4±0.1ng/ml in group-A, 8.6±0.2ng/mlin group-B and 28±08ng/ml in group-C as shown in Table 2.

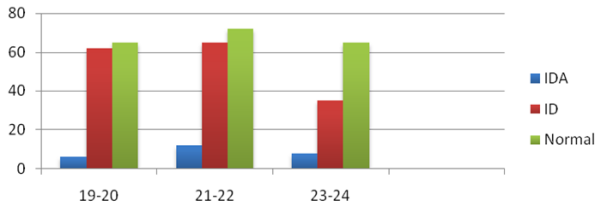

Figure No.1. Age wise over all iron status in 390 students.

DISCUSSION

Anemia is "one of the most commonly diagnosed medical problems worldwide". In our study, "Hb level of 12gm/dl was considered as the cutoff point for normal Hb, and all female students having Hb<12gm/dl were labeled as anemic". According to WHO criteria, "all Children from six month to 5 years, children from 6 to 11 years, adult female and adult male will be considered anemic, if their Hb is less than 11gm/dl, 11.5gm/dl, 12gm/dl and 13gm/dl respectively". All pregnant female having Hb<11gm/dl will be considered anemic[8,9]. Anemia is not simply known for "low blood Hb level, but a chronic morbid state of low mood, stress, poor concentration, loss of energy, growth retardation, performance depth and well-known factor for all sort mortality". There are many causes of anemia, "but iron deficiency is considered the most important cause of anemia". ID start when there is,"low intake iron containing food, mall absorption and continuous utilization during rapid growth, pregnancy, lactation and menstruation". If not treated, then this low iron store further precipitates IDA[10].

In our study, IDA was present in 6.66%, while ID was present in 41. 54% of the female students, age 19-24 years. Although most of the female medical students come from middle to upper class families, in spite of that these figures are alarming. In 2010, "Shams S, Asheri H,Kianmehr A et al, conducted a study in Tehran, targeting medical students, which show that IDA was present in 4% while ID was present in 43.3% of the female medical students in Tehran medical university[11].

IDA and ID can affect all students at any age from preschool time up to university life in any part of the world. In 2012, "Bano R, Ahmed N, Sharma BC et al, found that, IDA was present in 32% of the Indian medical students, in which 44% were female and 20% were male"[12]. In 2014, another study conducted in Bangladesh by "Kumar B. Shill, Palash Karmakar et al, which show, that 55.3% of the university students have iron-deficiency anemia, in which 63.3% were female and 36.7% were male[13]". The finding of our study is closed to the finding of another study, conducted in 2010 at university of Peshawar by "MT Khan, T Akhtar, et al with the help of PMRC, which show that 17.6% of the male and 23.3% of the female students have microcytic anemia, which is usually caused by iron deficiency[14].

Daily requirement of iron for "children, adult male and adult female is 15mg, 8mg and 18mg respectively, which usually increase to 36mg for adult female during pregnancy". Total iron store in the body is "2gm to 4gm and every person loose about 1mg iron per day, which increases up to 42mg during menstruation"[15,16]. After searching extensive online studies and literature, several possible explanations can be suggested for the development of anemia in female students, including

1. Stress due to heavy curriculum and comprehensive examination system.
2. Excessive blood loss during heavy menstruation, caused by stress.
3. Poor intake of iron and diet due to loss of appetite during stress hours.
4. Poor quality of food in hostel and college cafeteria.
5. Unnecessary dieting for weight conscious female students.

Although it was really a targeted study, but still there are some "limitations of this study including female students of medical colleges whom usually belong to middle class or upper class families, cross-sectional study design, lack of data on potential confounders and poor addressing of different students in hostel and those who are coming on daily basis from homes to the college". Finally, "the prevalence of anemia in female students leaves concern about the possibility of confounding, like socioeconomic background and religious belief of using beef or vegetarian, whichmay have impact on the development of iron deficiency in these students". We can improve the strength of our study by addressing all potential confounders, selecting large size population, categorization of students on the basis of socio-economic status and addressing of daily intake of selected food in these students.

And finally, all these finding show that " ID and IDA is a reality in all students, especially female". However, factor contributing IDA, the clinical relevance of these findings in terms of the development of IDA and ID has yet to be precisely scrutinized and ascertained.

CONCLUSION

IDA and ID are very common in female medical students. All female students, "especially the targeted group with ID should be encouraged to take iron supplements regularly". There should be strict monitoring of their food quality and awareness activity

in medical colleges on regular interval. Further study is suggested, both at national and international level to find possible causes of IDA and ID in female students.

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

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Original Article

Comparison of Efficacy of Transpermal Nitroglycyrine Patch and Intravenous Ritodrine in Preterm Labor

Summaira Hamza[1], Kanta Ahuja[2] and Umair Asghar[3]

ABSTRACT

Objective: To compare the QT dispersion for coronary artery disease in cardiac stress test by transesophageal atrial pacing in patients with coronary heart disease.
Study Design: Randomized control trial study.
Place and Duration of Study: This study was conducted at Bolan Medical College Hospital Quetta from 1st July 2012 to 30th Jun 2013.
Materials and Methods: Sample size of 58 cases were included in the study through non-probability, purposive sampling. The informed consent and demographic details were noted and the patients underwent through tocolytic trial either by i/v ritodrine or transdermal nitroglycerine patch. The data was analyzed by using SPSS-10 software. Both groups were compared by using chi-square test taking p-value≤0.05 as significant.
Results: In Nitroglycerine group, there were 20 (69%) cases in which effectiveness of drug was achieved while in Ritodrine group, there were 23 (79.3%) cases in which effectiveness of drug was achieved. The difference between both study groups was insignificant (p-value = 0.368). There were 3 patients who complaint about headache, out of which there were 2 (6.9%) cases belonged to nitroglycerin group while 1 (3.4%) cases belonged to ritodrine group. There were 13 patients who complaint about tachycardia, 1 patient who complaint about breathlessness and 2 patients in which hypotension was observed. All these cases belonged to ritodrine group.
Conclusion: The efficacy of both drugs almost equal, the side effects of ritodrine were more severe and there were more cases who complaint about side effects. Hence nitroglycerine patch is effective drug with less side effects, as a result is more appropriate to manage patients with preterm labour.
Keywords: Preterm labor, Progesterone therapy, Efficacy, Gestational age

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INTRODUCTION

Preterm labour refers to onset of labor after the gestation of viability, i.e. 20-28 weeks of gestation and before 37 completed weeks. Preterm labour occurs in 7-12% of all deliveries but accounts for over 85% of perinatal morbidity and mortality.[2] Mortality rates are 90% at 23 weeks dropping to 2% at 34 weeks.[3] To delay the delivery by use of tocolytic therapy is to administer corticosteroids to reduce respiratory distress and also to decrease incidence of intrauterine hemorrhage, necrotizing enterocolitis, patent ductus arteriosus and in utero safe transfer to a tertiary care unit.[4]

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Currently used tocolytic agents are β mimetics (ritodrine), Ca channel blocker, magnesium sulphate, prostaglandin synthesis inhibitors, glyceryl trinitrates, and nitroglycerine oxytocin antagonists. No one is still very effective but some have significant adverse effects and some has less.[5]

One of β mimetic used as tocolytic agent is ritodrine as it acts on β2 receptor of uterus which causes uterine relaxation and prolongs gestational age but has significant adverse effects like tachycardia, pulmonary edema and cardiac arrhythmias.[6] Another agent that is nitroglycerine in the form of a dermal patch is also used as a tocolytic agent. It has minimal adverse effects and is relatively safe.[7] When both ritodrine and nitroglycerine are compared for prolongation of pregnancy till 48 hours, ritodrine group is more effective 73.3%[8] than nitroglycerine patch 35.3%.[9]As for as side effects are concerned nitroglycerine patch has less side effects in terms of tachycardia 5%7, headache 28%,[10] chest pain 0%[11] while ritodrine has tachycardia 48%, headache 23% and chest pain 10%.[1]

The incidence of preterm labor is very high about 10%[12] and also premature babies have high incidence of acute respiratory distress syndrome, intracranial hemorrhage, jaundice, long term morbidity and mortality.[4] This study help to highlight the comparison

of efficacy and adverse effects of tocolytic agents, i.e. intravenous ritodrine and transdermal nitroglycerine patch, in prolongation of pregnancy for 48 hours, hence administration of corticosteroids to mother.

MATERIALS AND METHODS

Total 58 patients of preterm labor; 29 patients in each group i.e.in intravenous ritodrine group and transdermal nitroglycerine group keeping level of significance at 5%, power of test 90%. Anticipated population proportion ingroup receiving ritodrine is 0.7338, anticipated population proportion receiving nitroglycerine patch as 0.3539. All patients presenting with preterm labour, i.e. more than24 weeks and less than 37 weeks of gestation. This study was Randomized control trial Sample Technique was used Purposive non probability technique. Data was collected by taking history and examining the patients who got admission through emergency or OPD in the Department of Gynae Unit-III SPH Quetta with complaints of labour pain, meeting the inclusion criteria. The purpose and procedure of the study was explained to the patient. After discussing risks and benefits of the trial with the patient, informed consent was taken and the patients underwent through tocolytic trial either by intravenous ritodrine or transdermal nitroglycerine patch. Both type of trials are authentic and practiced in various centers, so two groups A & B of patients were selected one group was given transdem1al nitroglycerine patch and the second was given intravenous ritodrine. The first patient was given two performed labeled chits and requested to pick one and placed in group A. The rest of the patients were distributed between two groups having comparable age, parity and gestational age to minimize the effect of confounders. A preformed proforma was used to record the information about the patients, efficacy and adverse effects of the drugs used. Data was analyzed on computer using SPSS version10. Efficacy, i.e. time of prolongation of pregnancy was analyzed by calculating Mean±SD of time prolongation in two groups was calculated. Applying t-test was test difference of mean time prolonged in two groups. P≤O.05 was taken as significant. Frequency of adverse effect like maternal tachycardia, headache and chest pain was analyzed difference of frequencies was tested statistically by applying chi square test p<0.05 was taken significant. For age of patients and gestational age mean±SD was calculated.

RESULTS

The mean age of all females was 31.66±6.34years with minimum and maximum age of females was 17years and 41years respectively. The mean age of females in nitroglycerine group was 32.24±6.59years while mean age of females in ritodrine group was 31.07±6.14years. The mean gestational age was 32.53±1.72 weeks with minimum and maximum gestational age of 28 weeks and 35 weeks respectively. The mean gestational age in nitroglycerine group was 32.45±2.01 weeks while mean gestational age in ritodrine group was 32.62±1.40 weeks (Table 1). There were 6 (10.3%) females who presented during gestational age of 28-29 weeks, 4 (6.9%) females presented during gestational age of 30-31 weeks, 29 (50%) females presented during gestational age of 32-33 weeks while 19 (32.8%)females presented during gestational age of 34-35 weeks (Table 2). There were 12 (20.7%) females who had parity 1-2, 27 (46.6%) females had parity 3-4, 14 (24.1%) females had parity 5-6, 3 (5.2%) females had parity 7-8 and only 2 (3.4%) females had parity 9-10 (Table 3). In Nitroglycerine group, there were 20 (69%) cases in which effectiveness of drug was achieved while in 9 (31%) cases effectiveness could not be achieved. In Ritodrine group, there were 23 (79.3%) cases in which effectiveness of drug was achieved while in 6 (20.7%) cases effectiveness could not be achieved.

Table No.1: Descriptive statistics of Age (Years), gestational age (weeks) and Distribution of females according to gestational age of Patients (n=58)

Descriptive statistics	Group	
	Nitroglycerine	Ritodrine
Age (years)	32.24±63.59	31.07±6.14
Gestational age(weeks)	32.45±2.01	32.62±1.40

Table No.2: Distribution of females according to gestational age [weeks] (n=58)

Gestational age (weeks)	No.	%
28-29	6	10.3
30-31	4	6.9
32-33	29	50.0
34-35	19	32.8

Table No.3: Distribution of Parity of females (n=58

Parity	No.	%
1--2	12	20.7
3--4	27	46.6
5--6	14	24.1
7--8	3	5.2
9--10	2	3.4

Table No.4: Comparison of efficacy achieved in both groups N=58

Effectiveness	Study Group		Total
	Nitrogly-cerine	Ritodrine	
Yes	20 (69.0%)	23 (79.3%)	43 (74.1%)
No	9 (31.0%)	6 (20.7%)	15 (25.9%)
Total	29 (100%)	29 (100%)	58 (100%)

Chi-square = 0.809, p-value = 0.368 (Insignificant)

Table No.5: Comparison of side effects in both groups N=58

Complications	Study groups		p-value	Significance
	Nitrogly-cerine (n=29)	Ritodrine (n=29)		
Headache	2 (6.9%)	1 (3.4%)	0.553	Insignificant
Tachycardia	0 (0%)	13 (44.8%)	0.000	Significant
Breathlessness	0 (0%)	1 (3.4%)	0.313	Insignificant
Hypotension	0 (0%)	2 (6.8%)	0.150	Insignificant

Inritodrine group, there were more cases in which effectiveness was achieved although the difference between both study groups was insignificant (p-value = 0.368) [Table 4]. There were 3 patients who complaint about headache, out of which there were 2 (6.9%) cases belonged to nitroglycerin group while 1 (3.4%) cases belonged to ritodrine group. The difference was insignificant. There were 13 patients who complaint about tachycardia, out of which there was no (0%) cases belonged to nitroglycerin group while 13 (44.8%) cases belonged to ritodrine group. The difference was highly significant and showing more severe side effect of ritodrine. There was 1 female who complaint about breathlessness and she belonged to ritodrine group. There were 2 females in which hypotension was observed. Both cases belonged to ritodrine group (Table 5)

DISCUSSION

Preterm labor represents a major obstetrical complication which is associated with adverse perinatal and neonatal outcomes. Its clinical significance is reflected by the fact that, it is responsible for the 74% of perinatal morbidity, even though it complicates only 7–12% of pregnancies. Factors traditionally associated with PL and delivery includes maternal characteristics (such as age, smoking, parity, history of PL, uterine anomalies and medical disorders), multiple gestation, pregnancy complications, and others.[13,14,15]

Pretermlabor is a challenging situation which requires a delicate judgment regarding the appropriate management. The use of tocolytics is associated with numerous and serious maternal, fetal and neonatal side effects, long hospitalization and questionable benefits. In addition, clinical experience has shown that preterm labour frequently progresses to true labor and delivery, irrespective of any conservative management. Digital assessment of the cervix is traditionally used to assess women presenting with threatened or true preterm labour, but various studies have shown the subjectivity of the assessment, which usually underestimates the true anatomic length of the cervix.[16,17]

Commonly used drugs in tocolysis are beta sympathomimetic (ritodrine, salbutamol and terbutaline), cyclooxygenaseinhibitors (indomethacin), calcium channel blockers (nifidipine), nitric oxide donors and oxytocin antagonist (atosiban).[18] In our study, we included total 58 pregnant females with the mean age of 31.66±6.34years. The mean age of females in nitroglycerine group was 32.24±6.59years while mean age of females in ritodrine group was 31.07±6.14years.All the females presented with preterm labor during mean gestational age of 32.53±1.72 weeks. There were 6 (10.3%) females who presented during gestational age of <30 weeks while 52 (89.7%) females presented during gestational age of >30 to 35 weeks.

Tocolytic drugs have been tried for long and even GTN is not a new drug as more than 100years ago nitric oxide donor was used in pregnancy.[19] GTN is convenient in its application and patientsthemselves can have control on symptoms as the patch canbe applied and removed as required and due to shorter half-lifeof GTN, patches have been found to be safe andeffective even at higher doses while treating serious patientsof angina as well.[20]

In Nitroglycerine group, there were 20 (69%) cases in which effectiveness of drug was achieved while in Ritodrine group, there were 23 (79.3%) cases in which effectiveness of drug was achieved. Inritodrine group, there were more cases in which effectiveness was achieved although the difference between both study groups was insignificant (p-value = 0.368).The significance level showed that both drugs are equally effective in controlling PTB. There were 3 patients who complaint about headache, 13 patients complaint about tachycardia, 1 female complaint about breathlessness andthere were 2 females, in which hypotension was observed. All cases belonged to ritodrine group, except 2 cases who had headache belonged to nitroglycerine group.

One randomized trial also compared the efficacy of nitroglycerine patch and i/v ritodrine HCl. The principal outcomes assessed were prolongation of pregnancy for 48 hours, 7 days and until 34 weeks of pregnancy & maternal side effects. Delivery of women was delayed for 48 h, 7 days and until 34 weeks gestation in 77.8%, 59.2% and 44.4% of women respectively treated with nitroglycerine compared with 73.3%, 56.7% and 43.3% respectively among women received ritodrine but the difference was insignificant as reported in our study. Average number of the side effects per patient was significantly (P <0.01) lower with nitroglycerine treatment than ritodine therapy. This study also concluded thatnitroglycerine was as effective as ritodrine in suppressing preterm labor. Its use was associated with less frequent side effects.[21]

Another study also reported that 92% patients benefitedfrom the nitroglycerine patch which is significantly higher than reported by other studies as well as ourswhich reported about 64% women had arrest of labour for a short term.[22,23]

Another study compared the efficacy of transdermal nitroglycerine and I/V ritodrine as tocolytics.The primary outcome was prolongation of gestation from entry to 37 weeks. Nitroglycerine and ritodrine

prolonged gestation by 74% of time to 37 weeks (difference nitroglecerine-ritodrine 0%). There was no significant difference in the proportion of women receiving nitroglycerine or ritodrine. No serious maternal side effects were reported for ritodrine or nitroglycerine. Authors concluded that no overall difference between nitroglycerine and ritodrine in the acute tocolysis of preterm labor but a suggested advantage of nitroglycerine over ritodrine in reducing preterm delivery rate. The maternal side effect profile and treatment discontinuation rates were fewer for nitroglycerine, suggesting it was a safer alternative to ritodrine.[24]

CONCLUSION

Through this study, it was concluded that efficacy of both drugs is almost equal but side effects of ritodrine are more severe and there were more cases who complaint about side effects. Thus nitroglycerine patch is effective drug with less side effects and thus is more appropriate to manage patients with preterm labour. Transdermal nitroglycerine patch is less effective than intravenous ritodrine incontrolling preterm labor but also has fewer side effects than ritodrine.

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

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Original Article

PGR Working Satisfaction in Medical Students

Factors Responsible for Post Graduate Resident Satisfaction Working in Medicine, Surgery and their Allied Departments in Bahawal Victoria Hospital, Bahawalpur, Nishtar Hospital Multan and Jinnah Hospital Lahore

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ABSTRACT

Objectives: The objective of the study was to evaluate the factors responsible for Post Graduate Resident satisfaction working in medicine, surgery and allied departments in BVH, NHM, and JHL.
Study Design: Observational / Descriptive / Cross sectional study.
Place and Duration of Study: This study was conducted in medicine, surgery and allied departments of BVH, NHM, and JHL from April to June 2016.
Materials and Methods: A total of 210 participants took part in the study; there were 70 participants from each of the three hospitals. The sample was taken by Stratified proportionate sampling technique. The Post-Graduate Residents were given performed questionnaires to fill out. The data was analyzed by SPSS 13 and all results were presented in the form of frequencies, percentages, and tables.
Results: All of the Post-Graduate Residents who were handed out the questionnaires responded, and therefore, the response rate was 100%. 77.2% of the Post-Graduate Residents were found to be neutral, while 22.8% were satisfied.
Conclusions: Most of the Post-Graduate Residents were found to have a neutral response towards their professional satisfaction. The Post-Graduate Residents in BVH were more inclined towards a response of being professionally satisfied. The most popularly agreed upon workplace related factor was good working relations with colleagues.
Key Words: Postgraduate residents; satisfaction; Medicine and allied departments; Surgery and allied departments.

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INTRODUCTION

This study aimed to evaluate the level of professional satisfaction of Post-Graduate Residents and to characterize factors that influence Post-Graduate Residents' professional satisfaction. The study evaluated the perception of Post-Graduate Residents towards availability of certain such factors and sought out to identify high-priority determinants of the satisfaction and dissatisfaction of Post-Graduate Residents with their jobs. The data was collected for demographic, as well as workplace related variables, but this study focused on evaluating the workplace-related factors. The respondents were queried about the availability of fair income, working hours, sanitary conditions at the workplace, relations with colleagues, facility of accommodation, support from seniors, adequate collegiality, the standard of medical and surgical training, security, appreciation of work, and availability of time for family.[2]

The respondents for this study were selected from the medicine and surgery departments of three different hospitals: BVH, NHM, and JHL. These participants were selected to achieve diversity on specialty (medicine and surgery), and working set up (BVH, NHM, JHL). Although not designed to be nationally representative, this sampling strategy allowed inclusion of PRGs working in a variety of work settings.[3]

Residents are vital to the clinical workforce and they provide much of the daily patient care. Therefore, substantial improvements in their professional satisfaction are needed to enhance health care quality as well as to decrease the incidence of healthcare errors.[4] This study also provides an important baseline to examine the impact of future health care reforms and other policy changes on the job satisfaction of doctors.

MATERIALS AND METHODS

The study was conducted in medicine, surgery and allied departments in three different hospitals in different cities, namely, Bahawal Victoria Hospital,

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Bahawalpur; Nishtar Hospital Multan; and Jinnah Hospital Lahore from April to June 2016.

A total of 210 participants took part in the study; there were 70 participants from each of the three hospitals. The sample was taken by Stratified proportionate sampling technique.

Post-Graduate Residents from all four years of residency were included while house officers, medical Officers, unpaid post-graduate residents and post-graduate residents hesitant to fill out certain details in the questionnaire were excluded from this study.

A pre-formed questionnaire was handed out to the Post-Graduate Residents, and they were requested to fill it out after introducing them to the study being conducted and acquiring their consent for participation.

The data was analyzed by SPSS 13 and all results were presented in the form of frequencies, percentages, and tables.

RESULTS

All of the Post-Graduate Residents who were handed out the questionnaires responded, and therefore, the response rate was 100%.

In M&A, BVH, 75% of Post-Graduate Residents showed a neutral response to professional satisfaction, while 25% were satisfied. 53.3% of Post-Graduate Residents in S&A, BVEI were found to be neutral, while 46.7% were satisfied. In NHM, 90% of Post-Graduate Residents in M&A showed a neutral response, while 10% were satisfied, and 60% of Post-Graduate Residents in S&A were neutral, while 40% were satisfied. 95% of the Post-Graduate Residents in M&A, JHL were neutral, while 5% were satisfied. In S&A, JHL, 90% of the Post-Graduate Residents were neutral, and 10% were satisfied. Cumulatively, 77.2% of the Post-Graduate Residents were found to be neutral, while 22.8% were satisfied in their workplace. (No Post-Graduate Residents from any hospital were found to be not satisfied) Table 1.

In this study, certain demographic variables of the Post-Graduate Residents were evaluated. The mean age of the Post-Graduate Residents was 27.5 years (Table 2). 47.1% of the Post-Graduate Residents were males, while 52.9% were females. 65.6% of the Post-Graduate Residents were unmarried, while 34.4% were married. Most of the Post-Graduate Residents were in their 1st year of residency (Table 3).

The Post-Graduate Residents responded as disagree, neutral or agree to each of the work-related variables they were queried about. 83.3% of the Post-Graduate Residents disagreed, 13.3% were neutral, and 2.9% agreed that their stipend is satisfactory in proportion to workload. 52.4% of the Post-Graduate Residents disagreed, 27 % were neutral, and 20.5% agreed upon working hours being satisfactory. 73.3% of the Post-Graduate Residents disagreed, 22.9% were neutral, and 3.8% agreed that there is a sanitary working environment. Regarding good working relations with colleagues, 6.7% of the Post-Graduate Residents disagreed, 35.2% were neutral, and 58% agreed. About comfortable facility of accommodation, 52.4% of Post-Graduate Residents disagreed, 33.3% were neutral, and 14.3% agreed. 14.3% Post-Graduate Residents disagreed, 44.8% were neutral, and 41% agreed to have supportive seniors. 15.2% Post-Graduate Residents disagreed, 43.3% were neutral, and 41.4% agreed that they had1 adequate independence regarding sharing of work-related knowledge. 42.9% Post-Graduate Residents disagreed, 32.9% were neutral, and 24.3% agreed to the availability of standardized training.

Table No.1: Overall Result

	BVH Medicine	BVH Surgery	NHM Medicine	NHM Surgery	JHL Medicine	JHL Surgery	Mean
Unsatisfied	0%	0%	0%	0%	0%	0%	0%
Neutral	75%	53.3%	90%	60%	95%	90%	77.2%
Satisfied	25%	46.7%	10%	40%	5%	10%	22.8%

Table No.2: Age Distribution among Respondents

	BVH Medicine	BVH Surgery	NHM Medicine	NHM Surgery	JHL Medicine	JHL Surgery	The mean of the Av. Ages
Average age(years)	26.6	27.1	28.0	27.7	27.7	28.7	27.5
Standard Deviation	± 1.375	±2.677	±3.930	±2.702	±1.833	±2.041	

Table No.3: Year of Residency of Respondents

Year of Residency	BVH Medicine		BVH Surgery		NHM Medicine		NHM Surgery		JHL Medicine		JHL Surgery		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1st	14	35	22	73.3	12	40	16	40	13	32.5	10	33.3	87	41.43
2nd	20	50	5	16.7	10	33.3	10	25	17	42.5	7	23.3	69	32.86
3rd	4	10	1	3.3	6	20	10	25	8	20	7	23.3	36	17.14
4th	2	5	2	6.7	2	6.6	4	10	2	5	6	20	18	8.57
Total	40	100	30	100	30	100	40	100	40	100	30	100	210	100

Table No.4: Response to Individual Variables

Sr #.	Variable	Disagree		Neutral		Agree		Total
		N	%	N	%	N	%	
1	Proportionate Stipend	176	83.3	28	13.3	6	2.9	210
2	Satisfactory Working Hours	110	52.4	57	27.1	43	20.5	210
3	Working Environment	154	73.4	48	29.2	8	3.8	210
4	Relations with Colleagues	14	6.7	74	35.3	122	58.0	210
5	Facility of Accommodation	110	52.4	70	33.3	30	14.3	210
6	Support From Seniors	30	14.3	94	44.7	86	41.0	210
7	Can Share Knowledge	32	15.2	91	43.3	87	41.4	210
8	Standard of Training	90	42.9	69	32.9	51	24.2	210
9	Security at Workplace	139	66.2	43	20.5	28	13.3	210
10	Appreciation of Work	77	36.7	92	43.8	41	19.5	210
11	Time for Family	143	68.1	53	25.2	14	6.8	210

There are multiple responses

Regarding sufficient security at the workplace, 66.2% of Post-Graduate Residents disagreed, 20.5% were neutral, and 13.3% agreed to it. Regarding appreciation of good work, 36.7% Post-Graduate Residents disagreed, 43.8% were neutral, and 19.5% agreed. 68.1% disagreed, 25.2% were neutral, and 6.7% agreed that they had sufficient family time. (Table 4)

DISCUSSION

This study was conducted to evaluate factors that are responsible for the professional satisfaction of Post-Graduate Residents and to assess the level of the professional satisfaction of the Post-Graduate Residents and determine the major factors it can be ascribed to. Diverse work settings were assessed in the study, as the 210 participants were selected from three different hospitals in different cities of Pakistan. Both, demographic as well as workplace-related factors were assessed, but the study selectively focused on the latter.

The results of the study conclude that most of the Post-Graduate Residents had a neutral response towards their professional satisfaction. Quantitatively, 77.2% of the Post-Graduate Residents had a neutral response, while 22.8% were found to be satisfied, and none of the Post-Graduate Residents responded as being dissatisfied, as per the study grading.[6] Previously conducted similar studies have shown different results in response to professional satisfaction of Post-Graduate Residents; published studies have indicated that overall physician satisfaction is relatively high. Results from a research conducted in the USA to determine factors affecting physician professional satisfaction show that most of the Post-Graduate Residents were professionally satisfied (Friedberg et al., 2013).[1] Similarly, a research conducted on Australian doctors' satisfaction with their work reported that 85.7% of the doctors were moderately or very satisfied with their jobs (Joyce et al., 2011).[3] It is further highlighted by the results of a research conducted in private sector teaching hospitals by Karachi. Pakistan that professional satisfaction among Post-Graduate Residents is high; 75.6% residents reported being satisfied with their jobs (Sameer- urRehman et al., 2012).[4] Similar results have been reported in other researches carried out to assess professional satisfaction of Post-Graduate Residents, the percentage of Post-Graduate Residents found to be satisfied being 80.1% (Ugwa et al., 2012),[2] 64% (Behmann et al., 2012)[5], 72% (Plee et al., 2013)[6], and 79- 84% (Chen et al., 2012; Frank et al., 1999; Landon et al., 2002).[7,8,9]

An important work related variable assessed in the study was the income of Post-Graduate Residents and the perception of Post-Graduate Residents about their income being proportionate to work. The Post-Graduate Residents overwhelmingly disagreed over the availability of fair stipend; 83.8% of Post-Graduate Residents responded as being in disagreement. This result was reflected in other similar studies. a local study carried out in BVH to assess job satisfaction among doctors reported that overall 56.5% doctors were not satisfied with the level of their income (Shakir S et al., 2007)[10]. In a similar national study conducted at PIMS shows that only 37% of the Post-Graduate Residents found their stipend satisfactory (Saadiq and Khaleeq- uz- Zaman, 2010).[11] A comparable study in Delhi, India reported that about half (45.6%) of the participating doctors perceived their salary as less than fair (Kaur et al., 2009)[12]. These results compellingly indicate towards a need for devising better reforms for doctors, so that they are fairly paid and made to feel properly appreciated for the very honorable job they do every day.

The number of working hours perceived as fair by the Post-Graduate Residents was another variable assessed in the study. The results show that majority of the Post-Graduate Residents, i.e. 52.4%, disagreed over the availability of satisfactory working hours. Due to excessive working hours, the Post-Graduate Residents felt that they do not get to spend sufficient time with their families. This factor was separately assessed, and the Post-Graduate Residents showed an overwhelming response of 68.1% of them being in disagreement over

having sufficient family time. The result that the Post-Graduate Residents found the working hours to be excessive is in concordance with results from similar studies. The results of a local study conducted in BVH, Bahawalpur show that 52% of respondents were unsatisfied with their working hours. According to them, they were having more working hours as compared to international standard working time, i.e. no more than 80 hours per week or more than 24 consecutive hours, standard set by the Accreditation Council on Graduate Medical Education of the United States. In another similar study conducted in India, the mean number of working hours was considered dissatisfactory by 49.6% of the doctors (Kaur et al., 2009).[12]

A very high percentage of Post-Graduate Residents, i.e. 73.3%, disagreed to having a sanitary working environment in accordance with sanitary working conditions at the workplace. It is ironic, as hospitals are the one place where sanitary conditions cannot be .compromised. This result was found to be in contradiction with results from a study conducted on job satisfaction among primary care physicians, where satisfaction level was 87%, and other similar studies conducted at PIMS, Karachi (Sadiq M and Khaleeq- uz-Zaman, 2010), and in six states of USA (Friedberg MW et al., 2013).[11,1]

The results indicate that a majority of Post-Graduate Residents perceived the security at workplace to be lax; 66.2% disagreed that there was sufficient security at work. No other similar studies could be found to compare these results with. This indicates that security is required to ensure the safety of the hospital and the patients.

The work-related factor which can be most significantly attributed to the professional satisfaction of Post-Graduate Residents is good working relations with colleagues. In this study, 58% of the Post-Graduate Residents agreed that they have good professional relations with colleagues. Similar findings were reported in studies utilizing data from a study of physicians in Texas (Lewis et al.,1993a)[13], a study of family physicians (Karsh, Beasley and Brown, 2010)[14], and a study of training of medical residents in Greece (Msaovel et al., 2010).[15]

A majority of Post-Graduate Residents, i.e. 41.4%, agreed to having adequate independence regarding sharing of knowledge related to work. A similar result was highlighted in an international study conducted on factors affecting physician professional satisfaction and their implications for patient care (Friedberg MW et al., 2013).[1]

Another important variable evaluated in the study was Post-Graduate Residents' perception of the support from their seniors. The majority of the Post-Graduate Residents, i.e. 44.7%, had a neutral response, and a large number, i.e. 41%, agreed that they have supportive seniors. This result is similar to studies conducted on training satisfaction of medical students in Greece (Msaovel P et al., 2010)[15] and predictors of surgery residents' satisfaction.

We are hopeful that this study will be helpful in providing insight into major work-related factors that influence the level of professional satisfaction of Post-Graduate Residents. A limitation of the study was a small sample size, and therefore, a lack of national representativeness. Similar studies, when conducted at national level, may also provide important baseline for devising policies and health delivery systems that seek to improve the physicians' professional satisfaction.

CONCLUSION

Most of the Post-Graduate Residents from all three hospitals, i.e., BVH, NHM, and JHL, had a neutral response (77.2%) regarding their satisfaction with work. The rest of the Post-Graduate Residents (22.8%) were satisfied in their workplace.

A Greater percentage of Post-Graduate Residents working in BVH responded as being satisfied, as compared to Post-Graduate Residents in NHM and JHL.

Cumulatively, the Post-Graduate Residents most significantly agreed over the availability of the following factors, responsible for their satisfaction at their workplace:

1. Good working relations with colleagues (58%).
2. Adequate independence regarding sharing of knowledge related to working (41.4%).
3. Supportive seniors for developing skills according to the specialty (41%).
4. The Post-Graduate Residents majorly disagreed over the availability of the following factors:
5. Proportionate stipend (83.8%).
6. Sanitary working environment (73.3%).
7. Sufficient family time (68%).
8. Sufficient workplace security (66.2%).

Recommendations:

- The Post-Graduate Residents should be paid in proportion to their workload, as being underpaid gives the notion of being under-appreciated. Whereas the perception of being fairly paid leads to job satisfaction, and therefore, better work performance.
- The sanitary conditions at a health care facility should be no less than optimum.
- The number of working hours per day for the Post-Graduate Residents should be standardized, and the standards are implemented as to encourage more efficient working of the Post-Graduate Residents.
- There should be strict and proper security at the workplace for which highly trained security personnel should be appointed.
- The Post-Graduate Residents should be provided with a comfortable facility of accommodation.

- Training given to Post Graduate Residents should be in accordance with the standard set by CPSP.
- Post-Graduate Residents should be adequately appreciated for their work.
- There should be no political influence at the workplace, and the residents are allowed independence in performing their job.
- Co-operation between seniors and juniors need further improvements to enhance working efficiency at workplace.
- Every practicing Post Graduate Resident should receive an equal chance to share his/her ideas and knowledge. It provides them with independence within their own domains.
- The gradual limitation of working hours will be a short-term measure. Therefore, it should be supplemented by concurrent long-term reforms of residency training in combination with novel patterns of care management, stress reduction programs, and other systemic interventions.

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

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Original Article

Healthy Overweight Females

Frequency of Healthy Overweight Adult Females in a Cluster

Amjad Iqbal Burq[1], Viqar Izhar[2], Muhammad Athar Khan[2] and Asma Khan[2]

ABSTRACT

Objective: To find out the frequency of healthy overweight / obese females as determined by body mass index in a cluster.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Out-Patient Department of CMH Landi Kotal hospital from 1st Jan 2016 to 30th June 2016.

Materials and Methods: A non-probability convenience sampling of 500 Females between 18-24 years of age was taken. They were subject to anthropometric and body mass index measurements. Blood pressure and resting heart rate were taken. Further data was collected by a questionnaire, based on socio-demography, physical activity, self-perception of body weight and health status. Informed consent was taken prior conducting the study.

Results: Among 500 females, mean age was 19 ± 1 year, and age range was 18 to 24 years. 436 cases belonged to rural areas and 64 cases belonged to urban areas. 104 individuals (20.8%), belonged to group 1; 320 (64%) individuals belonged to group 2; 60 (12%) individuals belonged to group 3; 16 (3.2%) individuals belonged to group 4. Blood pressure and pulse rate were recorded under standard conditions in all groups (Table 1). None of the individuals had irregular pulse. All females responded to the pre-tested questionnaire. According to the collected data, 89% knew that overweight was related to diseases. About losing weight, 18% individuals replied as dieting, 22% individuals replied as exercise, 54% individuals replied both dieting and exercise and 6% individuals did not know the way to lose weight.

Conclusion: Frequency of overweight / obesity was 15% among healthy adult females. Health awareness campaigns to deliver the message for healthy eating habits, regular exercise and maintaining ideal weight will be extremely helpful in controlling the obesity in the community.

Key Words: Obesity, cluster, adult females, body mass index, overweight

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INTRODUCTION

Obesity is one of the most common disorders observed in the medical practice. It is difficult to manage and assessed by excess of adipose tissue. Accurate quantification of body fat requires sophisticated techniques which are not usually available in the clinical practice[1]. Quantitative evaluation to detect excess body fat is performed by calculating the body mass index (BMI) which is determined by dividing measured body weight in kilograms by the height in meter squares i.e. kg/(m^2)[2,3]. In the recent years, prevalence of overweight or obesity has been increased dramatically in developing countries [4]. Obesity is one of the major nutritional problems in Pakistan.

Rate of obesity increases with the increase in age, for both men, women in all urban and rural settings. The National Health Survey of Pakistan (NHS) 1990-1994 showed that 1% Pakistani were reported to be obese and 5% overweight in the 15-24 years age group[5]. With an increasing rate of urbanization, changing lifestyles, higher energy density of diets, and reduced physical activity, social and environmental changes are contributing to the increase in obesity in all regions of Pakistan. Unfortunately, both general and abdominal adiposity are associated with the risk of death along with numerous social consequences in the life such as less likelihood of marriage, less social interactions, lack of confidence and disturbed emotions. World Health Organization has recommended different BMI cut-off points for South East Asia because they have more morbidity for any given BMI[6]. Indo-Asian specific definition of obesity is set as BMI > 25 kg/ (m2) and overweight as BMI ≥ 23 kg/ (m^2)[7]. In Pakistan, the rate of obesity is currently escalating to a stage from acute to chronic disease. Therefore this study was conducted to find out the frequency of overweight and obese population in otherwise healthy adult females by measuring their BMI (weight in kg/ height in meter square) in our study population.

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MATERIALS AND METHODS

A cross sectional descriptive study was carried out in Out-Patient Department of CMH Landi Kotal hospital from 1st Jan 2016 to 30th June 2016. Five hundred females were enrolled in the study by non-probability convenience sampling between ages of 18-24 years. A questionnaire was given to each participant asking whether she knew that overweight is related to diseases and how weight could be controlled. In order to calculate Body Mass Index, the height and weight of each female was measured after completion of the questionnaire. For this purpose, standard weighing scales and measuring tapes were used. The formulae utilized during the data collection and processing was as following:

BMI = weight (kg) ÷height (m^2)

BMI based Criteria for overweight / obesity: BMI<18.5 kg/m^2 – underweight; BMI 18.5-24.9 kg/m^2 - normal weight; BMI 25- 29.9 kg/m^2 – overweight; BMI >30 kg/m^2 - obese[8]. On the basis of BMI, individuals were divided into four groups as following;

Group 1- BMI<18.5 kg/m^2

Group 2- BMI 18.5-24.9 kg/m^2

Group 3- BMI 25- 29.9 kg/m^2

Group 4- BMI ≥ 30 kg/m^2

Simultaneously their blood pressure (BP) and pulse rate were recorded after each individual had rested for 5 minutes with back support in sitting position, by the same calibrated sphygmomanometer. Statistical analysis of data was done by using statistical package for social sciences (SPSS) version 16.

RESULTS

Among 500 females mean age was 19 ± 1 year. Age range was 18 to 24 years. Among 500 candidates, 436 cases belonged to rural areas and 64 cases belonged to urban areas (Figure 1). According to Body Mass Index distribution, 104 (20.8%) individuals belonged to group 1; 320 (64%) individuals belonged to group 2; 60 (12%) individuals belonged to Group 3; 16 (3.2%) individuals belonged to Group 4 (Figure 2).

Table No.1: Blood pressure record in various groups categories based on body mass indeed (BMI) (n=500).

Sr. #	Blood Pressure mmHg	Group 1 (n=104)	Group 2 (n=320)	Group 3 and 4 (n=76)
1	<120/80	104	305	59
2	<120/80<140/90	0	15	13
3	<140/90	0	0	4

None of the individuals had irregular pulse, in all four groups. Among 500 individuals to whom the questionnaire was administered, no refusal was encountered, 89% knew that overweight was related to different diseases. About losing weight; 18% individuals replied dieting, 22% individuals replied exercise, 54% individuals replied both exercise and dieting, and 6% individuals did not know how to lose weight.

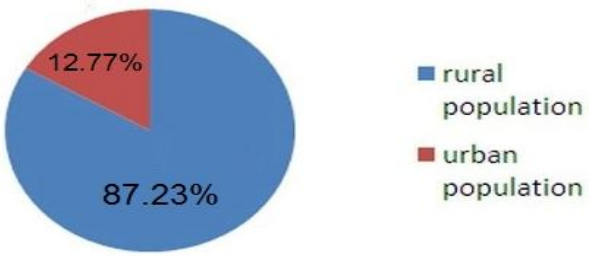

Figure No.1: Rural and urban distribution of participants. (n=500)

Figure No.2: Body Mass Index distribution of participants. (n=500)

DISCUSSION

Developing countries are increasingly vulnerable to the worldwide epidemic of obesity, which affects all segments of the population[9]. In return obesity / overweight, is a significant risk factor for arteriosclerosis, ischemic heart disease and diabetes; all of which are major causes of morbidity and mortality[10,11]. Present study has shown that 12% participants were overweight and 3.2% were obese which is in accordance with NHS 1990-94 and Al-Tawarah YM et al who has shown that nearly 12% participants were overweight or obese in Jordan[12]. Whereas Asif SA et al have reported the higher prevalence of obesity in females as 7% and overweight as 34%[13]. Similarly the Metroville study in Karachi (2006) reported that 34% of the lower socio-economic group were obese / overweight[14] and Jafar et al has noted that 1 out of 4 Pakistani over the age of 15 years is overweight or obese[17]. Nanan D compared the prevalence of overweight for adults aged 25 to 64 years in the United States (US) and Pakistan and concluded that BMI ≥25 was a good indicator of overweight in the US context but BMI ≥ 23 might be a better indicator for Pakistanis[15]. It must be kept in mind that using data from the same survey, prevalence of obesity can vary 2-7 folds depending on whether national reference data or the international approach is taken[16]. In this study we found that in group 3 and 4 (n=76 cumulatively), 16% individuals had increased BP including 7 individuals

with pre-hypertension and 2 with stage-1 hypertension as defined by seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, which is significantly higher than group-2 (n=347) in which 2.3% individuals had prehypertension[18]. This finding of rise in BP in group-3 and group-4 is attributable to overweight / obesity and in accordance with studies conducted earlier[10,14].Our study has shown no significant difference among adult age group between rural and urban population which is contrary to Hakeem R et al who have shown that urbanization contributed to obesity[19]. There is another important finding that presence of 11.2% overweight / obese individuals in this study in which majority of participants were from rural settings suggests that other factors, like lack of regular physical activity is a major contributing factor towards overweight / obesity[14,20]. In our study most of the participants (93%) knew that overweight was related to different diseases. When asked about what one can do to lose weight, majority of the respondents (83%) listed exercise and dieting among their answers and 77% mentioned dieting to lose weight thereby suggesting that participants had fair idea about effects of weight on health and healthy life style. However considering this scenario of overweight / obesity, it is recommended that health awareness programs directed towards controlling weight including dedicated and sustained life style modification should be properly developed, promoted and fully implemented. It is important to highlight that presence of overweight / obesity in younger population predominantly belonging to rural setting, even in the presence of high food prices is of great concern and it is alarming sign to have 11.2% frequency of overweight/obesity among healthy adult females. Limitation of the present study is that subject population was not evenly distributed and predominantly belonged to rural settings. Further research is recommended to find etiological factors, trends of obesity, its correlation with metabolic abnormalities and means to effectively control overweight in different age groups by conducting large scale studies, thereby promoting the healthy lifestyle.

CONCLUSION

Frequency of overweight / obesity was high among healthy adult females in our study group. Comprehensive health care awareness campaign involving healthy food intake, regular exercise and maintaining ideal weight is strongly recommended in younger population, thereby promoting the public health and reducing the risk of diseases associated with overweight and obesity.

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

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Original Article

Smoking Reasons

Smoking Among Patients Attending Chest Department Bahawal Victoria Hospital, Bahawalpur

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ABSTRACT

Objectives: Objectives of Our Study were to know the frequency of smokers attending the chest outpatient department and chest ward and determine the reasons of smoking.
Study Design: Cross Sectional Study
Place and Duration of Study: This study was conducted at Chest Ward and Chest OPD of BV Hospital Bahawalpur from 18th May to 5th June 2016.
Materials and Methods: Sample of 100 patients were taken by using non-probability sampling technique. Patients of all ages and both sexes were included and Unwilling patients were not included. It was descriptive cross sectional epidemiological study. Data Collection Procedure: The data was collected by means of a preformed questionnaire. The Patients were interviewed by the researchers themselves. Data was analyzed by SPSS 20 and frequencies were calculated and presented in the form of Tables.
Results: In the study it was found that the frequency of smokers attending the chest outdoor & chest O.P.D was 59%. This study showed that 30% of smokers had been smoking for more than 30 years while almost 7% were smoker for more than 40 years. This study showed that 20.3 % of smokers started smoking to relieve depression, 28% due to peer pressure another 19% for fashion, 12 % for copying elders and 2.7% gave other reasons
Conclusion: It was concluded that smoking was quite prevalent in the patients attending the chest OPD and chest ward. Efforts should be made at community level as well as individual level to control and prevent smoking.
Key Words: Patients; Chest ward; Smoking; Respiratory disease

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INTRODUCTION

Although people have used tobacco for centuries, cigarettes did not appear in mass-manufactured form until the 19th century. Since then, the practice of cigarette smoking has spread worldwide on a massive scale and now cigarette smoking is the leading cause of preventable death and disease in the US.[1] Smoking accounts for majority of lung cancer cases and it is an important risk factor for cardiovascular disease.[2] In addition, a recent panel of experts concluded that smoking is even more deleterious than previously thought for both smokers and those exposed to environmental tobacco smoke , causing cancer in many more organs of the body than previously believed.[3] Further; many youths underestimate the risk of addiction and health consequences of smoking.[4]
The role of smoking in causing respiratory diseases is mainly by way of producing airway hyper-responsiveness.[5-6] Airway hyper-responsiveness is the sensitivity of the airways to a variety of pharmacological and physical stimuli that induce bronchoconstriction.[7] It is associated with an increased risk of developing respiratory symptoms and asthma and more rapid than normal decline in lung function. Its presence worsens the prognosis of patients with chronic obstructive pulmonary disease (COPD), which is in turn associated with increased mortality.[8]
The World Health Organization estimates that approximately 5 million people die each year worldwide from tobacco related illnesses. If current trends continue, this figure will rise to about 10 million per year by 2025. Worldwide approximately 1.3 billon people smoke cigarettes or other tobacco products, almost one billion men and 250 million women.[9] Tobacco consumption is one the rise in Pakistan but Pakistan lacks any authentic data on cigarette-related diseases and deaths. Rough estimates suggest that tobacco causes around 100,000 deaths annually, according to a report by the Tobacco Free Initiative-Pakistan [TFI-P]. [10]
The aim of this study was to determine the prevalence of smoking and its patterns in patients attending Chest OPD and Chest Ward at Bahawal Victoria Hospital, Bahawalpur which provided an opportunity to gain insight into how and when these patients started smoking, the duration for which they smoked and what methods they used.

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MATERIALS AND METHODS

This Cross Sectional Study, conducted at chest ward and chest OPD of BV Hospital Bahawalpur, from 18th May to 5th June 2016. Sample of 100 patients were taken by using non-probability sampling technique.

Patients of all ages and both sexes were included and Unwilling patients were not included.

It was descriptive cross sectional epidemiological study. Data Collection Procedure: The data was collected by means of a preformed questionnaire. The Patients were interviewed by the researchers themselves.

Data was analyzed by SPSS 20 and frequencies were calculated and presented in the form of Tables.

RESULTS

In this study it was found upon cross tabulation & subsequent CHI-Square test application that the age has no significant relationship with smoking (Table 1). Also age distribution among smokers showed that 71% of the smokers were in between the age group, above 40 years.

On application of chi square on sex distribution it was found that cigarette smoking had a strong gender association with males (Table 2).

In this study it was found that socio economic status had no effect on whether a person was smoker or not (Table 3). Test of significance revealed that education & smoking association was insignificant (Table 4). This study showed that married people were more prone to smoking (Table 5).Residential status had no effect on the distribution of smokers. In this study it was found that smoking was more prevalent 51% in persons with urban background than in rural population.

Table No.1: Age distribution among smokers and non-smokers

Age	Smokers	Non-Smokers	Total
Below 20	0	7	7
20-40	17	13	30
Above 40	42	21	63
Total	59	41	100

X^2=15.05 d.f=2 P<0.05 (Significant)

Table No. 2: Sex distribution among smokers and non-smokers

Sex	Smokers	Non-Smokers	Total
Male	52	21	73
Female	7	20	27
Total	59	41	100

X^2=19.16 d.f=1 P<0.05 (Significant)

In the study it was found that the frequency of smokers attending the chest outdoor & chest O.P.D was 59%. This study showed that 30% of smokers had been smoking for more than 30 years while almost 7% were smoker for more than 40 years. Majority of smokers 54% smoked up to 1 pack daily, 16.9% of smokers smoked more than one pack daily.

This study showed that 20.3 % of smokers started smoking to relieve depression, 28% due to peer pressure another 19% for fashion, 12 % for copying elders and 21% gave other reasons.

Table No. 3: Socio-economic status among smokers and non-smokers

Earning	Smokers	Non-Smokers	Total
< 5000	37	25	62
5000-10,000	20	12	32
>20,000	4	2	6
Total	61	39	100

X^2=8.5 d.f=2 P<0.05 (Significant)

Table No. 4: Education status among smokers and non-smokers

Education Status	Smokers	Non-Smokers	Total
Illiterate	42	25	67
Middle	10	13	23
Matric	7	3	10
Total	59	41	100

X^2=8.06 d.f=2 P<0.05 (Significant)

Table No. 5: Marital status among smokers and non-smokers

Marital Status	Smokers	Non-Smokers	Total
Married	56	33	89
Unmarried	3	8	11
Total	59	41	100

X^2=9.67 d.f=1 P<0.05 (Significant)

DISCUSSION

The results of this study can be compared with nationally and internationally published data, but the variations were due to differences in population characteristics & geographical settings.

A study carried out in Karachi showed that 4.3 55% of citizens were indulged in smoking.[11]

In Peshawar University in 2005, 27% of students are found smokers out of which 5% were females.[12]

The frequency of smoking in our study was 59% of the percentage of female smokers was

12.5%. The frequency of smokers in our study was almost comparable to the one conducted in Karachi.

Frequency of smokers in our study was quite high as compared to the frequency found in the students of Peshawar University. The probable reasons were their higher educational status and their increased knowledge regarding the hazards of smoking. In our study most of the people were either uneducated or had just completed primary education.

The percentage of female smokers in both the studies was similar. Internationally, a study was carried out on Chinese-Filipino American adults.[13] The smoking

prevalence was lowest among Chinese (14%), followed by non-Hispanic whites (19%), African Americans (22%), Filipino Americans (24%), American Indians/ Alaska Natives (29%) pacific islanders (32%).[14] A Brazilian study in general hospital in patients showed 21% of patients were smokers. A study conducted on Irani Population showed current prevalence of smoking in males and females as 18.8% and 1.2%.[15]

These values regarding the frequency of smokers in different countries were quite low as compared to our study. The probable reasons for these variations were lack of education, lack of health education and lack of awareness regarding the hazards of smoking in our country.

CONCLUSION

It was concluded that smoking was quite prevalent in the patients attending the chest OPD and chest ward. Efforts should be made at community level as well as individual level to control and prevent smoking.

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

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Original Article

Depression among Medical Students of Quaid-e-Azam Medical College, Bahawalpur

Depression in Medical Students

Khaliq-Ur-Rehman[1], Yusra Balouch[2], Ammara Ishtiaq[3]

ABSTRACT

Objective: Main purpose of this study was to see the Stress and depression in the medical students of Q.A.M.C, Bahawalpur.

Study Design: Descriptive / cross-sectional study.

Place and Duration of study: This study was conducted at the QAMC, Bahawalpur from 1st May 2016 to 1st August 2016.

Materials and Methods: 150 both male and female students were included. Predesigned questionnaire was used to collect data. SPSS 20 Software used for data analysis and collected results were described in the form of frequencies tables, percentage and figures.

Results: Seventy percent students were Non-depressed. Depression was more of the female gender. The number of depressed students was high in the 1st year followed by in 2nd year, the 3rd year, final year and 4th year. 13 % students were mildly depressed, 9% were moderately depressed and 8% students were severely depressed.

Conclusion: The present study concludes that the depression rate is more among medical students.

Key Words: Depression; Prevalence; Psychological Order.

Citation of article: Rehman K, Balouch Y, Ishtiaq A. Depression among Medical Students of Quaid-e-Azam Medical College, Bahawalpur. Med Forum 2016;27(11):57-59.

INTRODUCTION

Depression is a most important psychiatric illness, express with low mood, lack of interest and happiness, considering of guiltiness, eating and sleeping hobbits disturbance and lack of concentration in work.[1]

Medical education is considered as environment causing stress. In various studies, high level of stress and depression reported .[2-5]

Depression is a Psychological illness, affects the behavior of a person, body fitness and social communication or collaboration. Medical studies are stressful put a bad impact on campus performance, body fitness and psychosomatic health of the medical students.[6] Medical students being expected to learn a lot of knowledge about their field.[7] For the achievements of good results students sacrifice their personal social life and interaction with others.[8]

Students those who are poor in educational performances are prone to stress and depression in their student life.[9] the depression and stress produce a lot of negative effects on students educational as well as personal performance .[10]

Medical student entering in new campus life with new study schedule try to cope with this new life. Dr. Kavan described the face of new medical student just like a "pressure cooker". It is only for the student facing some symptoms of depression and anxiety.[11]

Stress during college life, later can cause problems in patient care during practical life.[12]

Depressed mood and symptoms mimicking psychological depressive disorders can be the result of a number of infectious diseases and physiological problems. Depression is the early symptoms of hypothyroidism too.[13]

Depressive characterized by negative thoughts, moods, and behaviors as well as particular changes in the functions of body like mood swings, body pain, lethargic condition with libido, changes in eating habits and weight gain or loss. The nervous system changes in the brain causes many physical characteristics that causes lack of participation and a decreased or increased level of activity.[14]

Several people don't realize about depression. They criticize the depressive person; blame the person being lazy and weak. Many also consider the depression like a mind-set from which a person cannot escape.[15]

The people suffered from depression don't take it serious. This is wrong approach, it can be harmful if people hide or avoid getting help for treatment of depression.

Medical students frequently exposed to human distress and casualty experiences most have never face it before. They can be maltreated; institutions or superiors take the advantages by overwork or inappropriate assignments ("run down to the cafeteria and pick up our lunch").[16]

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Nervous tension during study can cause mental level disturbance and have a negative effects on performance and education. So it is necessary to see the factors causing depression in medical students. Main purpose of this study was to see the Stress and depression in the medical students.

MATERIALS AND METHODS

This cross-sectional descriptive scrutiny was carried out in Q.A.M.C, Bahawalpur from 1st May 2016 to 1st August 2016. 150 both male and female students were included.

All medical students of MBBS classes of Q.A.M.C, Bahawalpur willing to give data were included while Students not related to medical education were excluded from out study. The study was conducted on 150 students of age (18-26) years. Predesigned questionnaire was used to collect data. SPSS 20 Software used for data analysis and collected results were described in the form of frequencies tables, percentage and figures.

Data Analysis: SPSS 20 Software used for data analysis and collected results were described in the form of frequencies tables, percentage and figures

RESULTS

Data was taken from 150 medical students, out of them 75 were females and 75 were males. All of them were Pakistanis.

105 (70%) students were Non depressed. 20 (13.3%) students were mildly depressed 13 (8.66%) were moderately depressed and 12 (7.99%) were severely depressed.

Depression significantly associated with female gender (68.88%). (Figure 1).

The incidence of depression was highest among students 1st Year then by students of 2nd Year (Table 1).

The incidence of depression was more 23(52%) among the age group 18-20, the age of mostly 1st and 2nd year students and lowest 4 (9%) among the age group 24-26, the age most final year students.

109 (72.66%) students were satisfied with their studies, out of which 55 (37%) were girls and 54 (36%) were boys (Table 3).

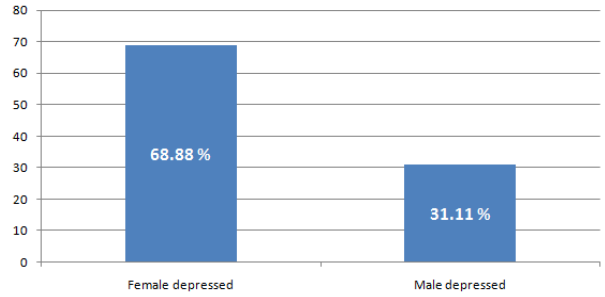

Figure No.1: Prevalance of depression according to gender

Monthly income and expenditure had no significant role in our study (Table 2).

46(61.33%) girls said that their performance is average while 31(41.33%) boys said that their performance is average. 63 (42%) boys and 68 (46%) girls passed the exam.

Table No.1: Depression According to year of study

Serial No.	Year of study	Depressed students	Percentage
1	First year	15	33.33%
2	Second year	13	28.88%
3	Third year	9	20%
4	Fourth year	3	6.66%
5	Final year	5	11.11%

Table No.2: Monthly income of parents

Income in Rupees	No. of Students	Depressed students	Percentage
<20000	30	20	66.66%
20000-29,999	18	9	50%
30000-39,999	20	8	40%
40000-49,999	24	14	58.33%
>50000	58	38	65.51%

Table No.3: Performance of students

Excellent		Average		Satisfactory		Unsatisfactory	
Females	Male	Females	Male	Females	Male	Females	Male
8	8	46	31	19	23	2	13
5.33%	5.33%	30.66%	20.66%	12.66%	15.33%	1.33%	8.66%

DISCUSSION

Medical field is a most popular field among the students. Every year a lot of student apply and get admission in medical colleges via clearing entrance test. There is always a challenge for students to compete with others as every student has equal abilities and inteligene.[9]

The presence of depression in medical student is high (30%).Other studies also documented that incidence of depression more in medical students as compared to other fields. Incidence of depression is more in female students.[5]

This scrutiny found that depression significantly associated with stress of exams. Seven out of ten students complained of stress of studies and academic work load. Academic pressure and its associated matters were the 8th most common stress factors in all

medical students. It is understandable that student live in academic stress during campus life.[5&17]

Students who had gap between them and parents were more stressful than the students had strong relation with parents. Family support is important for students. Parents are chief financial and emotional supporter for their children. Therefore students attached to parents less likely prone to depression as they have support from their families.[17]

Another study reported that students expected a lot of knowledge from lectures when they can't get as much information as they expect they fallen into depression. Those students who were shy in asking questions or remain at a distance from their teachers at the end they feel uncertainty about their academic performance.[18] this can cause depression in this students group.

In our study depression ratio was high in 1st and 2nd year medical students as compared to the students of other years. The students from these years facing a lot of expectations from their parents, having strong competitive environment and complex materials for studies. Student study anatomy physiology and biochemistry required a lot of concentration to remember them.When student can't perform well in tests and modules then they face depression. A study was conducted at Louisiana State University School of Medicine, New Orleans, 128 first year students were included, and Results of that study showed that Students experienced bad health at the beginning and the end of year .[19]

Now students should be encouraged to learn themselves by self-learning methods and by new skills as advancement of medical life and sources of studies .[20]

There was a significant association of the results of this study with other researchers in the country as well outside this country.

CONCLUSION

Incidence of depression is high in medical students as compared to other fields. Depression is more in female students. Depression should be detected early so that treatment and support should be provided to the students.

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

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Original Article

Frequency of Hypomagnesemia in Patients with Diabetes Mellitus at Civil Hospital Karachi

Hypomagnesemia in Diabetes Mellitus

Muhammad Umar Khan[1], Adil Faraz[2] and Muhammad Tanveer Alam[3]

ABSTRACT

Objective: To determine frequency of hypomagnesemia in diabetic patients presenting at Civil Hospital Karachi.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at a Diabetic Clinic in National Institute of Diabetes and Endocrinology (NIDE), Karachi from January to June 2016.
Materials and Methods: All patients > 12 years of age of either sex, diagnosed cases of diabetes mellitus (either Type I or Type II) of > 5 years duration and have given consent for participation in the study were included. Patients with acute pancreatitis and have history of alcoholism (such conditions results in reallocation of the magnesium from extracellular to intracellular space), occurrences of diarrhea, regurgitating and nasogastric suction, ostomies and gastrointestinal fistulas (conditions which result gastrointestinal magnesium loss) and patients receiving diuretics, chemotherapeutic agents (cisplatin), antimicrobials (amphotericin B, aminoglycosides, pentamidine, capreomycin. vancomycin, and foscarnet), immunosuppressants (tacrolimus and cyclosporine), and proton-pump inhibitors,(as all these drugs results in renal loss of magnesium)were excluded.
Results: The average age of selected patients with diabetes mellitus was 46.31±8.8 years. Of 350 patients, 203 (58%) were female and 147 (42%) were male; 176 (50.3%) patients had diabetes for >= 7years; 269 (76.9%) patients had type II diabetes and 275 (78.6%) had uncontrolled diabetes. The mean serum magnesium level was 1.48±0.36 mg/dl and the frequency of hypomagnesemia was 227 (64.9%) cases.
Conclusion: It is concluded from this study that the frequency of hypomagnesemia was 64.9% among study population.
Key Words: Hypomagnesemia, Diabetes, Type I diabetes, Type II diabete

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INTRODUCTION

This disorder leaves an indicative influence on the standard and prospects of life, health and the entire well-being of an individual.[1] The incidence of diabetes is increasing all over the world. The global prevalence is expected to rise to 300 million, an increase of approximately 122% from 1995 to 2025.[2]In the urban and rural areas Pakistan, a study was done on 5433 people reported that the proportion of people suffer from type two diabetes were 19%.[3]

After potassium (K^+), Magnesium is second most common intracellular ion and according to the ratings the eleventh most typical ion in human body. Magnesium is amongst the eleventh most prolific element by mass found in the human body and its ions are vigorous element of cell. The majorrole of magnesium is to manipulate the essential biological polyphosphate compounds[4]. Patients with diabetes mellitus are prone to hypomagnesemia[5]. Hypomagnesemia in diabetes may result from poor oral intake, poor gastrointestinal absorption, enhanced renal magnesium excretion and certain metabolic disturbances.[5]The prevalence of hypomagnesemia in diabetes mellitus is 65%[6]. The constant hypomagnesemia precipitates to elevate the level of serum glucose and diminishes the degree of magnesium which is positively linked with serum glucose concentration and the amount of glucosuria[7].

Moderated intracellular Mg concentrations cause a substandard tyrosine-kinase activity, post-receptorial deficiency in insulin action, and deteriorating insulin defiance in diabetic patients. There are number of diseases including poor glycemic control, hypertension, coronary artery disease, diabetic retinopathy, nephrology, neuropathy and lastly foot ulcers are associated with hypomagnesemia[5,8,9].

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On this topic, there is very limited data available locally; hence considering all the appropriate discourse and context, the current study is set in a tertiary care hospital of Karachi. This study mainly focuses on the disruption of the level serum magnesium (hypomagnesemia) present in patients suffering with diabetes mellitus. Secondarily, magnesium supplementation may be advised to prevent the complications caused by magnesium deficiency in diabetes mellitus.

MATERIALS AND METHODS

A cross-sectional study conducted from January to March 2016 in Karachi. Study was conducted at a diabetic clinic in National Institute of Diabetes and Endocrinology (NIDE), Karachi.

All patients were evaluated for their serum magnesium status by taking 3 cc venous blood sample in a disposable syringe and sent to laboratory for analysis. Inclusion Criteria were All diabetic patients > 12 years of age of either sex, diagnosed cases of diabetes mellitus (Either type I or type II) of > 5 years duration and patients who agreed to give consent for participation in the study. Exclusion criteria were patients with acute pancreatitis or having history of alcoholism (as such conditions result in redistribution of magnesium from extracellular to intracellular space), patients with history of diarrhea, vomiting and nasogastric suction, gastrointestinal fistulas and ostomies (as such conditions result in gastrointestinal magnesium loss) and patients on diuretics (loop diuretics, osmotic diuretics, and chronic use of thiazide), chemotherapeutic agents (cisplatin), antimicrobials (amphotericin B, aminoglycosides, pentamidine, capreomycin. vancomycin, and foscarnet), immunosuppressants (tacrulimus and cyclosporine), and proton-pump inhibitors, as all these drugs result in renal loss of magnesium.

RESULTS

A total number of 350 patients were enrolled in this study during study period. The mean age of enrolled participants is 46.81±6.8 years and 55.4% patients are below 45 years of age.

Of 350 patients, 203 (58%) were female and 147 (42%) were male with female to male ratio of 1.38:1. 176 (50.3%) patients had diabetes for >= 7years in 269 (76.9%) patients had type II diabetes and 275 (78.6%) had uncontrolled diabetes.

The mean serum magnesium level was 1.48±0.36 mg/dl and the frequency of hypomagnesemia was 227 (64.9%) cases.

Among the patients with type II diabetes, 183 (68%) had hypomagnesemia compared to 44 (54.3%) cases among those with type I diabetes (p-0.017) (Table 1). Among the patients with uncontrolled diabetes, 187 (68%) had hypomagnesemia compared to 40 (53.3%) cases among those with controlled diabetes (p-0.014) (Table 2).

Table No.1: Hypomagnesemia according type of diabetes (n=350)

		Type of diabetes		P-value
		Type II DM	Type I DM	
Hypomagnesemia	Yes	183	44	0.017
		68%	54.3%	
	No	86	37	
		32%	45.7%	
Total		269	81	
		100%	100%	

Table No. 2: Hypomagnesemia according status of diabetes (n=350)

		Status of diabetes		P-value
		Uncontrolled	Controlled	
Hypomagnesemia	Yes	187	40	0.014
		68%	53.3%	
	No	88	35	
		32%	46.7%	
Total		275	75	
		100%	100%	

DISCUSSION

It is reported that hypomagnesemia likely to occur in diabetic patients with both type 1 and type 2 as compared to non-diabetic patients. Although several studies have been done to support the evidence of complications in diabetic patients with hypomagnesemia, but the evidence fails to get attention among physicians. The important negative correlations have been shown between magnesium and fasting plasma glucose, HbA1c, HOMA-IR.[10,11]

The various causes of low magnesium in diabetics include diets low in magnesium[12], osmotic diuresis causing high renal excretion of magnesium, insensitivity to insulin affecting intracellular magnesium transport and thereby causing increased loss of the extracellular magnesium [13], extensive use of loop and thiazide diuretics promoting magnesium wasting, diabetic autonomic neuropathies [14], and reduced tubular reabsorption due to insulin resistance[15]. In the present study hypomagnesemia was found in 64.9% of diabetics. The reported prevalence of hypomagnesemia in this study is quite high as compared to global estimates where studies have reported incidence rates of 13.5–47.7% in diabetic subjects [16]. The high incidence of hypomagnesemia in this study could perhaps be attributed to inclusion criteria with high sensitivity in order to include more patients and drinking water in some regions of Pakistan has lower content of calcium and magnesium.

Low intracellular magnesium results in defective tyrosine-kinase activity and worsening of insulin resistance [17]. Low cellular magnesium results in altered activities of various enzymes involved in transport and oxidation of glucose and release of insulin. Mg is a cofactor for adenylatecyclase enzymes[18]. Long term deficiency of magnesium has also been associated with elevated levels of TNF-alpha and contribute to post-receptor insulin resistance [19].

In this study, the mean duration of diabetes in the patients with hypomagnesemia was 7.08 years. We also found that patients with more than 7 years of DM have significant hypomagnesemia (p-0.01). In contrast to the findings of this study, in another study it was found that the mean diabetic duration was 8.85 years in hypomagnesemic patients and concluded that serum magnesium level has no direct relationship with diabetic duration if the diabetes is well controlled [14]. Available studies incorporating the gender difference factor, reported a higher incidence of hypomagnesemia in women as compared to men. at a ratio of 2 to 1 [7,20]. Further, a high ionized levels of Mg reported in men with diabetes. Similarly we found statistically high proportion of hypomagnesemia in female patients (p-0.001). The findings of this study also correlate with a study from India [21]. In a descriptive case series, patients with T2DM had higher frequency of hypomagnesemia with is comparable to this study (p-0.017). Hypomagnesemia is also found in patients with poor glycemia control (0.014).

CONCLUSION

Regional administration of corticosteroid injection as conservative management of carpal tunnel syndrome provides statistically significant mean decrease in distal motor latency on nerve conduction in four weeks after injection.

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

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Original Article

Carpal Tunnel Syndrome

Mean Decrease in Distal Motor Latency after Treated with Local Steroid Injection in Symptomatic Patients of Carpal Tunnel Syndrome

Syed Adeel Raza Kazmi[1], Syed Arslan Haider[1] and Athar Iqbal[2]

ABSTRACT

Objective: To determine the mean decrease in distal motor latency after administration of local corticosteroid injection in symptomatic.

Study Design: Quasi experimental trial study.

Place and Duration of Study: This study was conducted at the Department of Neurology, Mayo Hospital, Lahore over a period of six months from 01.02.2012 to 31.07.2012.

Materials and Methods: One hundred cases were included. Baseline distal motor latency (DML) was assessed by using nerve conduction study on distal position. Then patients were administered corticosteroid injection (triamcinolone acetonide 20mg) through distal (palmar) approach.

Results: Mean age of the patients was 52.4±6.1 years. Out of 100 patients, 22 (22.0%) were males and 78 (78.0%) were females. Mean distal motor latency at baseline was 5.5±2.6, at 4th week 4.8±2.4 and mean decrease was observed 0.7±0.2.

Conclusion: Local corticosteroid injection for carpal tunnel syndrome provides statistically significant mean decrease in distal motor latency on nerve conduction study in 4 weeks after injection.

Keywords: Carpal tunnel syndrome, Distal motor latency, Corticosteroid injection

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INTRODUCTION

Carpal tunnel syndrome (CTS) is caused by entrapment of the median nerve at the wrist and symptoms consist of paresthesias and numbness in the area of median nerve innervations. Frequently pain in the hand and wrist is present, sometimes radiating to more proximal areas of the arm. Most cases are idiopathic, sometimes there are underlying factors causing compression of the median nerve.[1,2]

Carpal tunnel syndrome can be treated with oral analgesics, splinting, and injections with corticosteroids of surgery. Marshall et al[3] investigating the local corticosteroid injection for carpal tunnel syndrome showed that steroid injection provides greater improvement in symptoms one month after injection than placebo injection, but significant symptom relief of steroid injection beyond one month could not be demonstrated. The risk of adverse events for steroid injection therapy for CTS has been estimate to be less than 0.1%.[4]

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If corticosteroid-injection provided by general practitioner proves to be effective and safe, it could have important advantages for individual patients (less waiting-time and the availability of this treatment modality in the proximity of the patient) and healthcare-system (treatment in primary care would be more cost-effective).[5]

Local corticosteroid injection for the treatment of CTS provides significant symptom improvement for three months. Distal motor latency (DML) of median nerve was reduced up to 0.6 msec. In this trial it as observed that baseline DML was 5.2±0.9 msec which was reduced up to 4.6±0.6 msec (p value <0.05) after 1 month (4 weeks) of administration of corticosteroid injection.[6]

MATERIALS AND METHODS

This quasi experimental trial was carried out at Department of Neurology, Mayo Hospital, Lahore over a period of six months from 01-02-2012 to 31-07-2012. One hundred cases were included. Patients of age 40-75 years of either gender, presenting with symptoms and signs suggestive and carpal tunnel syndrome were included. History of presence of contraindications for corticosteroid injection, prior treatment for CTS in the last six months with steroid injection or surgery or splinting of wrist, traumatic or neoplastic origin of symptoms and hypothyroidism (T3 <2.3 or T4 <4.5 or TSH >5.5), diabetes (BSR >180mg/dl) were excluded.

Baseline DML was assessed by using nerve conduction study on distal position. Then patients were administered corticosteroid injection (triamcinolone acetonide 30mg) through distal (palmar) approach. The distal site of injection was at volar side of the wrist distal to the wrist crease at the palmer site. The injection was given with 13mm long 0.45mm needle with the angle of 5-10° or parallel to arm, while 40-50° wrist extension (dorsiflexion). Needle was introduced slowly and the patient was instructed to say stop if he or she felt pain, pins or needles in the fingers. If a resistance was felt it was withdrawn a few millimeters then repositioned. Then patients were followed-up weekly in OPD for 4 weeks. DML was noted by using nerve conduction study on distal position on 4th week. Data was analyzed through computer software SPSS version 20.

RESULTS

The mean age of the patients was 52.4±6.1 years (Table 1). Out of 100 patients, 22 patients (22.0%) were male while remaining 78 patients (78.0%) were female (Table 2). Mean distal motor latency at baseline was noted 5.5±2.6, at 4th week 4.8±2.4 and mean decrease was observed 0.7±0.2 (Table-3).

Table No.1: Groups with reference to age of patients (n = 100)

Age (Year)	Number	Percentage
40-50	61	61.0
51-60	28	28.0
61-70	11	11.0
Mean±SD	52.4±6.1	

Table No.2: Groups with reference to sex of patients (n = 100)

Sex	Number	Percentage
Male	22	22.0
Female	78	78.0

Table No.3: Mean decrease in distal motor latency on nerve conduction study

Reading	Mean	S.D
At baseline	5.5	2.6
At 4th week	4.8	2.4
Mean decrease	0.7	0.2

DISCUSSION

Median nerve is anatomically located underneath flexer ratinaculam where it is most likely to be compressed precipitating clinical presentation of "Carpal tunnel syndrome", there are motor and sensory findings which the patients have and this is by far quit frequent happenings. Since palmar cutaneous branch is given before median nerve enters carpal tunnel, so signs and symptoms associated with damage to the palmar cutaneous branch are not observed. Clinical setting pertaining to Carpal tunnel syndrome can be really troublesome for the patients. This condition can also result from fluid overload conditions such as pregnancy'. This syndrome can be managed conservatively but if situation is severe surgical intervention of flexer ratinaculam is the option.[7] Manktelow et al[8] stated that Carpal tunnel syndrome imposes a lot of disability to the patients. Flexer ratinaculam is modification of deep fascia of forearm. Flexer ratinaculam concavity of carpal bones into a tunnel through which median nerve passes into hand in association with long flexer tendons of the hand and forearm.

De Krom et al[9] in 1992 documented that 3.4% of mature females were found to have Carpal tunnel syndrome. Ferry et al[10] proved in their research work, that Carpal tunnel syndrome was seen in 7-16%. In another research done in Hasan Sadikin Hospital, Bandung, on four hundreds eighty five cases of Carpal tunnel syndrome, women were involved predominately. Nonsteroidal anti inflammatory drugs are useful in Carpal tunnel syndrome, diuretics and pyridoxine are also effective. Before surgery, parenteral administration of corticosteroids is preferred to be advised.[11] this injection close a lot good in relieving the of Carpal tunnel syndrome. Chang et al documented that corticosteroid tablets are useful in Carpal tunnel syndrome.[12]

Age group between forty years and sixty years is most likely to be affected by Carpal tunnel syndrome.[13] Results of current research are in agreement with work done by Ferry et al.[14]

In this research work, fundamental "DML is 5.5±2.6 msec and statistically significant" lowering was observed e.g. 4.8±2.4 msec (p value <0.05) post four 4 weeks of giving parenteral corticosteroid . Findings of current research are in agreement with results of Milo et al.[6]

Kumar[15] has stated that in as we give tablet form steroid, only 10% of the patients are benefited, but parenteral administration of steroid are much more effective and bring about better clinical outcomes. "Triamcinolone acetonide" was the Triamcinolone administered in current research work for Carpal tunnel syndrome. Triamcinolone has been proved to be best form in management of Carpal tunnel syndrome.[15]

CONCLUSION

Regional administration of corticosteroid injection as conservative management of carpal tunnel syndrome provides statistically significant mean decrease in distal motor latency on nerve conduction in four weeks after injection.

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

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Original Article

Hepatitis B & C Among Nurses

Needle Stick Injuries: Knowledge, Attitude, Practices (KAP) and Frequency of Hepatitis B & C among Nursing Students in Karachi

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ABSTRACT

Objective: The objectives were to determine the Knowledge, Attitude, Practices regarding needle stick injuries (NSI) and frequency of Hepatitis B & C among nursing students at two tertiary care hospitals of Karachi.

Study Design: Cross-sectional study**.**

Place and Duration of Study: This study was conducted at the Department of Medicine, DMC, JPMC and Hilton Pharma, Karachi from January 2014 to June 2014.

Materials and Methods: This study was carried out on NSI exposed 214 nursing students from 1st year to 4th year, visiting their respective hospitals and engaging in clinical activities. A hundred of those students who reported needle stick injuries randomly selected and screened for Hepatitis B surface antigen (HbsAg) and anti-HCV in sera.

Results: Approximately thirty four percent (34%) of the students reported to have NSI one time. Out of the 214 students only 143 (66·8%) of the students were aware of the Universal Precaution Guidelines while 71 (33·2%) were unaware of it. After getting NSI only 18·2% reported it to the infection control team while 81.8% failed to report it. Of the 100 students randomly selected for screening, four tested positive for HbsAg and two tested positive for Anti-HCV.

Conclusion: Allowing nursing students to practice without prior knowledge of their immune status poses a major risk of acquiring hazardous infections. Prior to practice, students should be ingrained with the universal precaution guidelines and screened for blood borne infections that should be followed up every year.

Key Words: Hepatitis C, Needle stick injuries, Hepatitis B, Nursing student

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INTRODUCTION

One of the major concerns of hospital administrations is the transmission of blood borne infections to the health care workers (HCWs) through needle stick injuries (NSI). Of these infections, the most challenging and with fatal consequences are Hepatitis B, C and HIV but the risk of HIV transmission appears to be low (0.3%).[1]

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In Pakistan, there are an estimated 7-9 million carriers of hepatitis B virus with a carrier rate of 3-5%. The percentage of hepatitis B virus infection in the general population is 4.3% ± 1.64%, in healthy blood donors 3.93% ± 1.58%, healthcare persons 3.25% ± 1.20%, and in users of injectable drugs is 14.95% ± 10.54%.[2] Percentage prevalence of HCV was 4.95% ± 0.53% in the general adult population, 1.72% ± 0.24% in the pediatric population and 3.64% ± 0.31% in a young population which applied for military recruitment. Very high 57% ± 17.7% prevalence was observed in injecting drug users and 48.67% ± 1.75% in a multi transfused population.[3]

The risk of HBV or HCV infecting a healthcare worker is higher in percutaneous than in mucosal-cutaneous exposure. According to the data provided by the World Health Organization (WHO), there are approximately 36 million healthcare workers worldwide, of whom around 3 million per year receive an injury with a sharp instrument, thus resulting in 2000000 subjects contaminated with HBV and 1000000 with HCV.[4]

Globally, it is estimated that out of the total of 35 million HCWs worldwide, 3 million experience NSIs every year; [5]of these, nurses are at the greatest risk, with up to 50% of all NSIs being sustained by this group. [6] Considering such prevalence and penetrance in the general population, the exposure of the unsuspecting nursing students is immense. Being

amateurs in their clinical skills, with little experience but extreme enthusiasm the rate of acquiring these infections is quite high. After keeping all factors under consideration the primary objective was to assess the knowledge, attitude and practices regarding NSI among nursing students. The secondary objective was to determine the frequency of Hepatitis B & C among nursing students with NSI.

MATERIALS AND METHODS

This cross sectional study was carried out among nursing students of This study was conducted at the Department of Medicine, DMC, JPMC and Hilton Pharma, Karachi**,** from January 2014 to June 2014. Raosoft calculator was used to calculate the sample size assuming frequency of NSI among nurses 20.4%, margin of error 5%, and confidence level 95%. The minimum recommended sample size was 247.[16] Three hundred and fourteen nursing students in the two institutes were approached to take part in the study, of which 214 nursing students from 1st year to 4th year were recruited on atleast once exposed to NSI. We obtained responses regarding their practices with the help of a pretested questionnaire.[12] A total of 33 questionnaires were not included in the final analysis due to incomplete information. The areas covered in the questionnaire to judge the knowledge, attitude and practices of students were their level of training; instruments involved in injury; amount of bleeding; frequency of NSI in their total clinical experience; initial measure taken to stop the bleeding; reporting to infection control team; knowledge about universal precaution guidelines; reason for getting injury and mode of injury; and finally their vaccination history and immune status.

A hundred students were selected randomly for the screening of Hepatitis B surface antigen (HBsAg) and Antibody to Hepatitis C virus (Anti-HCV) in their sera. All participants were informed about the aims and objectives of the study and their consent was obtained to fill the questionnaire and blood samples. Participants data was kept confidential and positive results on hepatitis B & C were informed to participants and as well as to concerned authorities.

One hundred randomly selected samples were screened for HBsAg and anti-HCV. For screening, 5cc blood samples were collected and centrifuged at 6000 rpm for 5 minutes. The serum was separated and was transferred into disposable Eppendorf. Vitros Electrochemical Immunoassay (ECI) technology and kits were used under the supervision of well experienced technicians provided by the company. The sensitivity and specificity of the test for the detection of HBsAg is 99.99% and 98% respectively. [8] Similarly for the detection of anti-HCV in sera, sensitivity of this technique was 100% while specificity for the test was 99.99%.[9] Data was entered into Microsoft Excel and exported to SPSS version 20.0 for analysis. All categorical variables were expressed in frequency and percentages.

RESULTS

The frequency of students regarding year of education, 11 (5.1%) belonged to 1st year, 101 (47.2%) students belonged to 2nd year, 64 (30%) from 3rd year, and 38 (18%) from 4th year of nursing school. Thirty six (16.8%) students were male and 178 (83.2%) were females. the mean age of the students was 21.17 +/- 2.56 years.

Majority of the students experienced NSI at least once during their clinical encounters. However, many of the 3rd year (33.3%) and most of 4th year (56.2%) students suffered the injury twice. Thirty percent (30%) of the total students reported to have had NSI more than twice. When asked about the cause of injury, 130 (61%) said that the practice of recapping syringes and 26 (12.1%) said bent needles were to blame. The remaining 58 (27.1%) mentioned that handling other sharp objects caused them the injury. In answer to the question regarding what made them prone to acquiring NSI, 123 (58.2%) said immense workload, 34.1% and 28.9% of which were in 3rd year and 4th year of education, and 43 (20.4%) admitted that their own negligence led to this unfortunate event. Little experience was the reason for 41 (19.4%) students, majority (80.4%) of them were in 2nd year of nursing school.

Regarding their attitude, it was noted that 54% students pressed the wound to bleed further as a remedy, while 23.3% washed the wound site. Following NSI only 18.2% reported the incident to the Infection control team while the remaining 82% chose to remain silent. Precautionary measures like double gloving were taken by 127 (60%) students while 87 (41%) showed carelessness in this regard. After going through the results of this study it was surprising to learn that only143 (67%) students were aware of Universal Precaution Guidelines and 71 (33.2%) were unaware.

Regarding their practices, it was noted that one hundred and forty one (66%) students had completed their Hepatitis B vaccination course before enrolling into the nursing school, whereas as much as 65 (30.3%) were unvaccinated. Eight (3.7%) students still had doses remaining. Only 20 (9.3%) got tested for Anti HBsAg titers prior to clinical exposure while the remaining 194 (90.7%), whether vaccinated or unvaccinated, did not get tested. Blood samples from randomly selected students were collected and screened for the presence of HbsAg and Anti HCV. A positive result for HbsAg was reported for 4 students out of the 100, all of which failed to provide any evidence of past vaccination. Anti HCV was reported positive for 2 students out of the 100, both of which were vaccinated against Hepatitis B virus.

Table No.I: Knowledge, Attitude and Practices of Nursing Students Regarding NSI (n=214)

Questions	N (%)
What is the frequency of NSI?(n=194)	
One time	65(33.5)
Two times	71(36.5)
> 2 times	58(30)
How you got a NSI? (n=213)	
Recapping	130(61)
Bending needle	25(12)
Others	58(27)
How do you think you got NSI? (n=210)	
Workload	123(58)
Little experience	41(19)
Negligence	43(21)
Confidence	4(2)
Do you know universal precaution guidelines? (n=214)	
Yes	143(67)
Hepatitis B vaccination done? (n=214)	
Yes	141(66)
No	65(30)
In progress	8(4)
Anti HBs antibody after vaccination? (n=214)	
Checked	20(9)
Unchecked	194(91)
Have you reported the incidence to infection control team? (n=214)	
Yes	39(18)
What did you do with injury site after getting NSI? (n=214)	
Washed	56(26)
Pressed it to bleed	111(52)
Washed, pressed it to bleed	41(19)
Did nothing	6(3)

DISCUSSION

The multi-centered study which was carried out in two nursing institutes associated with tertiary care hospitals of Karachi, suggested the thirty four percent (34%) of the students reported to have NSI one time, Kessler CS et al reported a prevalence of 22.6% among health care workers in United States.[10]Other regional studies suggested a mixed pattern where one study reported a higher incidence of NSI with a rate of 74%, while other studies showed a lowering trend i.e. 53.5%, 45%, 38.4%, 26.1%, 24.4%, and 20.4%. [6,11,12,13,14,15,16]

Majority of students failed to report the NSI to the infection control team in our study (81.8%) in concordance with other studies that have shown high failure rates of 55%, 21% and 47%.[10, 11, 15]This shows lack of formal training and emphasis on incident reporting and careless attitude of students regarding NSI across the board. We did not explore the most common reasons for underreporting but other studies revealed "unused needles" being the source of injury, belief that most exposures are insignificant, and "being too busy" as the most common reasons for not reporting.[10,17]

Notably in our study recapping of syringes (60.7%) was identified as a major risk factor for NSI as compared to other studies that suggested rates of 35%, 32% and 11% which indicates inadequate knowledge of protocols and precaution guidelines at a stage of basic training for young nurses.[11, 14, 18] Bent needles (12.1%) were identified as a second major risk factor for NSI. In junior students of 1st and 2nd year little experience was identified as the major risk factor for NSI. In a similar study in Tehran the subjects were seen to be more likely to develop blood borne infections during their internship period.[6] Majority of senior students in our study reported that high workload (75.5%) lead to the incidents of NSI. Other studies in Health care workers (HCWs) also supported a higher rate of NSI with increased work load and tiredness.[14, 19] The frequency of NSI showed a higher trend amongst middle year students with 51.5% of total injuries reported by 2nd year students and 26.3% by 3rd year. This is primarily because of increasing workload but insufficient amount of training in middle years whereas 1st year students (5.7%) and final year students (16.5%) had a lesser incidence of NSI due to very little clinical exposure and significant experience respectively.

In our study, 66.8% of the students reported that they had knowledge of Universal precaution guidelines (UPG), which corresponds with findings by Chan et al (2002) and Van der ber et al (2012). [20, 21]There is however a lot of scope for improvement, as no less than 100% awareness is desirable. These studies also showed no significant correlation between having knowledge of and adherence to UPG.[22]This may have contributed to the high rate of NSI in our study.

Strikingly, in our study, a sizeable proportion of students (30.3%) were not vaccinated for Hepatitis B which is significantly higher than that in other studies which have shown a better trend in vaccination.[16, 22, 23] With regard to screening, prevention and treatment of blood borne infections, this shows a clear lapse in policy making and implementation on part of Nursing school administrations.

In our study, 4% of the subjects had positive HBsAg while 2% tested positive for Anti-HCV. This may represent current infection or carrier status. However the positive results shown may not be entirely due to NSI and the students may have acquired it prior to their admission in nursing school, or been carriers since birth, following vertical transmission. Moreover, our study could only reveal point prevalence of Hepatitis B and Hepatitis C in the study population, but could not determine the frequency of past incidences of infection that may have taken their natural course and resolved following NSI. Therefore, there is a need to conduct

larger scale studies targeted at determining period prevalence of blood borne infections among nursing student populations while they are in training.

During preclinical years, nursing school training should place more emphasis on tending to universal precaution guidelines, so that the students are well-versed with all safety protocols by the time of their first few clinical encounters, when the likelihood of NSI was reported highest. This should be combined with adequate clinical supervision. A protocol should be worked out and implemented, that in the event of an incident, mandates students to report sharps injury to infection control department in a prompt manner, take the right post-exposure measures and initiate necessary prophylaxis against infections.

CONCLUSION

Allowing nursing students to practice without prior knowledge of their immune status poses a major risk of acquiring hazardous infections. Prior to practice, students should be ingrained with the universal precaution guidelines and screened for blood borne infections that should be followed up every year.

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

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Original Article

Tetralogy of Fallot

Surgical Correction of Grown Up Tetralogy of Fallot

Muhammad Musharaf, Iqbal Hussain Pathan, Muhammad Jawad and Faryal Akber Jalbani

ABSTRACT

Objective: To get an audit of outcome of our patients operated for total correction for grown up Tetralogy of Fallot
Study Design: Observational / analytic study.
Place and Duration of Study: This study was conducted at the Department of Cardiac Surgery, NICVD, Karachi from January 2015 to August 2016.
Materials and Methods: We reviewed our surgical record and collected the data of patients with age 18 years and beyond, who underwent for total correction in Tetralogy of Fallot. We had included the patients whose prospective record of their surgical as well as socioeconomic outcome.
Results: Total 35 patients were identified , out of 35 patients 19 were selected as final cohort of patients for our study they included 11(48%) females and 8 (42%) males with age range of 18 to 28 years. Procedures for TOF repair included trans-annular patch (n=7), trans-ventricular (n=5) , trans-atrial (n=2). While the remaining patients (n=3) had combined approaches (tran-atrial with trans-pulmoary or trans-ventricular with trans-pulmonary). The 30-day mortality rate was 16% (right ventricular failure n=1; tamponade n=1; low cardiac output with pulmonary edema as a result of residual ventricular septal defect n=1) . 3 patients were re-explored due to mediastinal bleeding with one of them had developed cardiac tamponade.
Follow-up of minimum 3 month to maximum of 15 months was feasible in 16 out of 19 survivors, improvement in functional class (NYHA) was observed in 11 patients.
Conclusion: Complete repair of TOF in patients 18 years or older is possible but carries increased operative risk. Survivors have improvement in their functional class as well as social status however it is difficult to commit on economical productivity of patients.
Key Words: Grown Up, Cyanotic Heart Defects, Tetralog of Fallot, Total Correction

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INTRODUCTION

Congenital heart defects consists of about 1/3 of all congenital anomalies . Broadly congenital heart defects are classified in cyanotic and acyanotic defects. Tetralogy of Fallot is considered most common cyanotic heart defect presented for total correction in paediatric population[1] . Tetralogy of Fallot was first described by Etienne-Louis Fallot in 1888; it consists of a ventricular septal defect, right ventricular outflow tract obstruction, overriding of aorta, and right ventricular hypertrophy. First successful correction of this lesion was reported by Leheli in 1955[2] . Ever since it's identification, more and more efforts have been made for early age total correction. Currently definitive repair beyond childhood is extremely uncommon.

However in the developing countries the practice of delayed repair is relatively common due to delayed diagnosis or lack of cardiac surgical facilities responsible for late surgical repair in adult hood or even beyond . These patients are often those who are either palliated with systemic to pulmonary artery shunt or they have less severe variety of Tetralogy of Fallot (Pink Tetralogy). As suggestive of poor natural history', indicates that hemodynamic impairment in the survivors to adulthood is less sever . It is still controversial whether surgery after long-standing cyanosis in adult patients with Tetralogy of Fallot has how much impact on survival[3,4,5] and socioeconomic status. Neverthless Nollert and colleagues showed normal life expectancy after definitive repair of Tetralogy of Fallot in adults of 18 years or beyond[6] . Despite of strong recommendation we still received patients diagnosed with Tetralogy of Fallot from cardiology departments for total correction beyond the childhood who have either had only a palliative procedure or not undergone any surgical intervention and first time presented or ignored past advice for surgical intervention due to social taboos . Few studies describe the outcome of such patients after total correction . However, the long standing hypoxia that is

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major feature of patients with Tetralogy of Fallot may results in variable cerebral complications, compromised myocardial function, and an increased occurrence of .ventricular and atrial arrhythmias [6,7,8].

This study was conducted to analyze the early and intermediate results of patients operated for total correction of TOF over the period of 20 months.

MATERIALS AND METHODS

From January 2015 to April 2016, total 35 adults with Tetralogy Of Fallot referred to surgery from the cardiology department. Among these 19 were included in study because their complete E-record and recent follow up was available. Following Data was collected pre-admission (NYHA class), hospital course (pre and post op rhythm, intervention and complications) and socioeconomic status by review of record and interview on post-op follow up.

Statistical analysis: Variables are presented as number ,percentage and mean with range as appropriate .. Analyses were performed using SPSS 21.

RESULTS

Preoperative Findings: There were 11 (48%) female and 8 (42%) male with median age of **20** (18-28) years. All patients were cyanotic, with oxygen saturation from From 70% to 91%, and hemoglobin from 10 to 21 g/dl. 5 patients had undergone previous modified Blalock-Tussig shunt in their childhood with two patients having functional shunts. All patients had sinus rhythm. Out of 11 female patients, 1 was married compared to 2 male patients out of 8. However none of them had any children. Among 19 patients, 3 pateints were functional class NYHA 2, 11 patients were NYHA 3 and rest of NYHA 3+ status.

Surgical Techniques and Results: All surgeries were performed under moderate hypothermic cardiopulmonary bypass using cold blood cardioplegia antegrade for myocardial protection. Mean Cardiopulmonary bypass time was 105 (60-164) min with mean aortic cross-clamp time of 73 (26-123) min. Different approaches were required for total correction in which trans-annular patch repair in 7 patients (26%) ,while trans-ventricular and trans-atrial approaches for total correction were used in 5 and 2 patients respectively. Rest of the patients required combined approach either trans-atrial with trans-pulmonary or trans-ventricular with trans-pulmonary.

Perioperative Management and Complications: hn All patients were weaned off from Cardio pulmonary bypass on ionotropic support in which 4 (21%) patient required double ionotrope support, 8 (42%) patients were successfully followed by fast tract protocol. Early postoperative course of 9(47%) patient remained unremarkable while 6(31%) patient have mediastinal bleeding in which 3(16%) required re-exploration and delayed extubation, while 2 patients (10%) developed multi-focal arrhythmias. Out of 19, 16 (84.2%) survived while 3(15.8%)expired during same hospital admission. Among the non survivors, one had sever Right ventricular dysfunction; who had preoperative enlarged right ventricle with severe tricuspid regurgitation, other developed pulmonary edema and hemodynamic instability secondary to residual ventricular septal defect and the last of those three had cardiac arrest secondary to cardiac tamponade.

Mid- and Long-Term Follow-Up: Follow-up consisted of minimum 3 month and maximum 13months between surgery and the last clinical examination or telephonic contact. After successful surgery NYHA class improvement was observed in 11(58%) patients with 5(26%) had equivocal reply while social improvement as asked by family members 12(63%) patients had improve social attitude than 4(21%) had equivocal outcome while one women had a successful marriage . However non of patient has an obvious improvement in economic productivity.

DISCUSSION

Review of our surgical audit suggested that Tetralogy Of Fallot can be operated in adult patients but with significant risk of postoperative morbidity and mortality as compared to paediatric patients[9,10,11,].

Nevertheless the fact of higher age as a risk factor for total correction of TOF for morbidity and mortality in long term follow up is also documented in many studies.[12,13,14] Despite of significant advances in surgical techniques, myocardial protection, postoperative care and understanding pump physiology in the past 30 years the operative mortality in adult patients operated for TOF remains high. This high mortality may be responsible of number of reasons due to long-standing cyanosis, which have independent effect on perioperative mortality and morbidity[15]. The long standing hypoxia results in right ventricular dysfunction secondary to myocardial fibrosis[16,17]. There is no obvious evidence for the support of two-stage repair with improvement of oxygen saturation before correction may improve surgical outcome in adult patients with Tetralogy of Fallot. Currently, results for total correction are reported as better as less than 1% operative mortality for Tetralogy of Fallot [18] in younger patients. However, operative mortality is age dependent; in experienced centers, it is less than 1% for patients under one year and 4.4% for older patients[19] . In another study 5.1% early mortality rate for older patients was observed[20]. Considering these results, our study population appears to have high mortality, but we should understand the fact this population was out of 35

patients operated during that period; if we calculate the mortality percentage out of total population than mortality will be 9%. Postoperative mediastinal bleeding is a frequent observe complication requiring multiple transfusion of blood and its products.

Postoperative ventricular and supraventricular dysrhythmias caused significant morbidity in postoperative period in adult patients. There are several studies suggestive of an association between right ventricular functional status and the occurrence of dysrhythmia[21,22,23] and demonstrated that early intervention may protect form some of these dysrhythmias[22,24]. We observed sinus tachycardia in one patient and atrial fibrillation in other patient. Both of these patient were treated with amiodarone infusion. There was both objective and subjective improvement in the well being of patients and was observed by patients themselves and by their close associate, which confirms the observations in previous studies [4,6,11]. And this remains a concern regarding long term outcome of such patients. Nevertheless it is reported in one study showing long-term survival up to 35 years after correction of grown up Tetralogy of Fallot, which is very similar with the general life expectancy[25] .Though social improvement was observed we could not commit on employability or socioeconomic contribution of our individual patients.

CONCLUSION

It is concluded that Hormonal contraceptive method is the most commonly used method in female and condoms in the male clients.

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

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Original Article

Contraceptives and Their Side Effects

The Frequency of Different Contraceptives Uses and Their Side Effects in Clients Visiting Family Planning Center, BVH Bahawalpur

Ammara Ishtiaq[1], Khaliq-Ur-Rehman[2], Yusra Balouch[3]

ABSTRACT

Objective: The aim of present study was to determine the frequency of different contraceptive methods and their side effects in clients visiting Family Planning Centre, BVH Bahawalpur.
Study Design: Cross-sectional descriptive epidemiological study
Place and Duration of Study: This study was conducted at Family Planning Centre; BVH Bahawalpur From 5th May 2016 to 20th June 2016.
Materials and Methods: Data was collected through a pre-designed Performa after informal consent. It included questions about fertility history, use of contraceptives, their source of information and their side effects. The questionnaire was first translated into Urdu and then reverse translated in English and then filled by interviewing each client. Data was entered and analyzed by using SPSS 13.All results were presented in Frequencies ,percentages and in the form of tables and figures.
Results: The most commonly practiced contraceptive methods in females were 36% hormonal injections and 29% oral pills while in males 75% condoms. The side effects, like menstrual irregularities and leucorrhoea of different contraceptive methods, were 38% with hormonal injectables, 35% with oral pills and 25% with IUCDs. No side effects were found in cases of condoms and vasectomy use.
Conclusion: Out of 80 users of female contraception, 29% developed side effects like menstrual irregularities and leucorrhoea. No side effects were found in cases of condoms and vasectomy use.
Key Words: Contraception, side effects, Clients.

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INTRODUCTION

Contraceptive methods are defined as preventive methods to help couples to avoid unwanted pregnancies.
During the past century, there has been a tremendous progress in all scientific fields. With the rapid increase in world's population, there was a great need for limiting family size according to available resources. For that purpose, there has been a worldwide rise in the practice of contraceptives during last 30 years. The developing countries also have had their share of this change in the urban areas but the scenario in the rural and slums is, unfortunately, not much different from what it was many decades before.

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It has been estimated by WHO that some 120 million women in developing countries who don't wish to become pregnant are unable to use any contraceptive method for a variety of reasons. It is also estimated that there are 150,000 unwanted pregnancies terminated every day and 20-25% of pregnancy-related deaths in Asia are the result of induced abortions.[1]
Pakistan is one of those countries who have a high population growth rate (2.1% per annum) and very low prevalence of contraceptive practice i.e. 37% with a distribution of 50% in urban and 30.5% in rural population.[2]
Pakistan is experiencing a rapid population growth and this indicates a large unmet need of family planning services. This unmet need is the product of both a lack of adequate services and social milieu that is generally unfavorable to the adoption of contraception. According to Pakistan Reproductive Health And Family Planning Survey 2000-01 33% of currently married women don't want another child immediately or in near future but are not using contraceptive method.[3]
We choose family planning center BVH Bahawalpur to find out the frequency of use of different contraceptive methods and their side effects among clients visiting there for consultations.

MATERIALS AND METHODS

This cross-sectional descriptive epidemiological study was carried out at Family Planning Centre; BVH Bahawalpur From 5th May 2016 to 20th June 2016.A total of 100 married clients between the ages of 20-50 years were enrolled in this study out of which 80 were females and 20 were males collected by nonprobability convenience sampling (first 100 clients visiting in the center fulfilling eligibility criteria).

Both gendersMarried clients in their reproductive age were included in this study while clients who were not willing to enter into the study were excluded.Data was collected through a pre-designed Performa after informal consent. It included questions about fertility history, use of contraceptives, their source of information and their side effects. The questionnaire was first translated into Urdu and then reverse translated in English and then filled by interviewing each client.

Data was entered and analyzed by using SPSS 13.All results were presented in Frequencies ,percentages and in the form of tables and figures.

RESULTS

Out of total 100 sample population, 80 were females and 20 were males. The study revealed that the most commonly used contraceptive methods in females, were 36% Injections, 29% oral pills, 25% IUCDs, 6% Norplant, and 4% tube ligation, In the case of Male clients the most commonly used methods were 75% condoms and 25% vasectomy.

The side effects of different contraceptive methods were reported as 38% and 35% with hormonal injections and oral pills respectively and 25% with IUCDs as shown in fig 4, 5 and 6. The common side effects were menstrual irregularities and leucorrhea.

Table No. 1: Contraceptive use and Age of Clients

Age (Years)	Numbers	Percentage
20-29	54	54
30-39	35	35
40-49	11	11
Total	**100**	**100**

Table No.2: Contraceptive use and Monthly Income of Clients

Monthly Income	Numbers	Percentage
<5,000	39	39
5,000-10,000	54	54
10,000-15,000	7	7
Total	**100**	**100**

54% population of clients using contraceptive methods was under the age of 20-29 years, 35% were 30-39 years and 11% were under the age of 40-49 years.

The study revealed that the frequency of clients using contraceptive methods, having a monthly income of less than 5000 was 39%, 5000-10000 was 54c, 0 and 10000-15000 were 7%.

In the case of hormonal contraceptive method majority of clients i.e., 71% were under the age of 26-35years and 29% were under the age of 15-25 years.

Table No.3: Hormonal Contraceptive Method and Age of Clients

Age (Years)	Numbers	Percentage
15-25	15	28.85
26-35	37	71.15
36-45	Nil	0.0
Total	**52**	**100**

DISCUSSION

Despite the growth rate has fallen in recent years, still, its value is 1.8% per annum in our country Pakistan, which is higher than most of the developed and developing countries.[4] As we are growing at a tremendously high rate, we are endangering our resources and the natural ecosystem. The contraception is the only way if applied adequately, to cope with this dreadful situation.

The present study was conducted to investigate the relative frequency of use of various contraceptive methods and their side effects among clients visiting Family Planning Centre BVH, Bahawalpur. The study revealed that the most commonly used methods by female clients were injections (36.25%) and oral pills (28.75%).[5,6] The other important method used was IUCDs, whereas Norplant and tubal ligation were used by only 10% of the clients. These results are consistent with a study conducted on Muslim Arabs in rural Israel.

The male clients of Family Planning Centre of BVH, Bahawalpur were using condoms (75%), the rest of them were vasectomized (25%). These findings are similar to a study conducted on Muslims Arabs in rural Israel.[7]

As for the profile of side effects is concerned, 37.9% women using injections reported side effects. A similar percentage of clients (34.78%) reported side effects with oral pills. The side effect profile with other methods was negligible. These findings are consistent with a study in Uganda.[8]

All the male clients developed no side effects with condoms and vasectomy.These results are similar to the findings of a study in RachaKoyas of Andhra Pradesh.[9]

CONCLUSION

It is concluded that Hormonal contraceptive method is the most commonly used method in females and condoms in the male clients.

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

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Original Article

Awareness among Diabetics

Awareness about the Baseline Blood Glucose Levels, Risk Factors and Complications Among Diabetic Patients Attending OPD of National Institute of Diabetes and Endocrinology, Karachi

Adil Faraz[1], Muhammad Umar Khan[2] and Darshan Kumar[2]

ABSTRACT

Objective: To evaluate awareness among diabetic patients attending OPD of National Institute of Diabetes and Endocrinology, Karachi, about the baseline blood glucose levels, Risk factors and Complications.

Study Design: Cross-sectional study

Place and Duration of Study: This study conducted at the OPD of National Institute of Diabetes and Endocrinology (NIDE), at OJHA campus of Dow University of Health Sciences, Karachi from January to March 2016 in Karachi.

Materials and Methods: Adult, age 18 years and above, cases of diabetes were recruited from OPD of National Institute of Diabetes and Endocrinology (NIDE), at OJHA campus of Dow University of Health Sciences, Karachi. Data was collected using a structured questionnaire which was translated into local language i.e. Urdu. SPSS was used for statistical analysis.

Results: A total of 100 participants completed the interview out of which 53% were male and 47% were female. Mean age of the participants was 49.3 ±10.7 years. Regarding the knowledge about target blood glucose levels, only 39% of the participants correctly identify the fasting blood glucose level while only 26% correctly answered random blood glucose levels. Overall mean score of knowledge and awareness was 40%. Male had better knowledge then female. Mean score for male was 50% compared to 30% among female. This difference was statistically significant p-value <0.05. Over all 45% of the participants were found to have poor knowledge scores, 35% had acceptable while only 20% had acceptable knowledge scores.

Conclusion: This study found that there is low level of awareness among the patients attending diabetic outpatient clinics of NIDE. This indicates gaps in the patient care which needs attention. There is need to integrate patient education regarding glycemic targets, risk factors, complications and self-care as essential component of care through different channels of communication.

Key Words: Awareness, Baseline Blood Glucose Levels, Diabetes Mellitus

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INTRODUCTION

Diabetes is a major and growing health problem affecting more than 171 million people worldwide and the number is expected to rise to 366 million by 2030 [1]. Type 2 Diabetes will continue to account for 90% of all the cases. In Pakistan 9.5% of the urban and 9.4% of the rural population suffer from type 2 diabetes. Overall glucose intolerance (diabetes and impaired glucose tolerance) is 22.04% in urban and 17.15% in rural areas [2]. According to the WHO estimates, Pakistan ranked seventh in prevalence of Diabetes. These figures however represent tip of the iceberg with many cases still undiagnosed [3,4].

Despite all the research, diabetes remains under diagnosed. This then ultimately presents with complications, the direct and indirect costs of which are enormous [5,6].Diabetes care aims at improving the quality of life of patients with type 2 diabetes through good glycemic control, control of risk factors, lifestyle modification, prevention of complications and diabetes education[7,8]. Diabetes education is the cornerstone of diabetes care. Improved training of the primary health care providers and patients with diabetes is therefore beneficial[9]. Several studies of family physicians identified the need for improvement in their practices for treating and educating diabetics[10]. Pakistan is one of high burden countries with respect to diabetes and

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prevalence of diabetes ranges from 7% to 11% with regional variation [11]. In Pakistan, there is paucity of information about knowledge and attitudes concerning glycemic control, complications and the health impact of diabetes as only few studies have been conducted yet[12].

MATERIALS AND METHODS

A cross-sectional study conducted from January to March 2016 in Karachi. Study was conducted at a diabetic clinic in National Institute of Diabetes and Endocrinology (NIDE), Karachi. NIDE was selected as study site for this study because this is one of few endocrinology centers of Karachi where large number of patients with diabetes and other endocrine disorders from all across the Karachi and other parts of province as well come for seeking care.

Data was collected using a structured Questionnaire. This questionnaire was divided into five main sections namely demographic data, knowledge about diabetes and glycemic control, risk factors, complications and miscellaneous. The questionnaire was translated into local language i.e. Urdu. Translated version of questionnaire was back translated into English by independent person for accuracy of translation.

RESULTS

A total of 100 participants completed the interview out of which 53% were male and 47% were female. Mean age of the participants was 49.3 years with standard deviation of 10.7 years. Proportion of the participants having age less than 40 years was 35%. About 30% of the participants either had no schooling or went to a madressah, 43% had primary or secondary level education while 27% had education higher than secondary level. Median income was PKR 25,000 with interquartile range of 15,000-35,000 per month. Mean duration of diabetes since diagnosis was 10.5 years (Table 1).

Majority 90% of the participants were found to have type II diabetes . A little more than quarter 26% of the patients had received diabetic education. Regarding the knowledge about target blood glucose levels, only 39% of the participants correctly identify the fasting blood glucose level while only 26% correctly answered random blood glucose levels. Majority of the participants 78% believed diabetes is raised blood glucose levels. About 26% of the participants considered diabetes diet as a healthy diet for most people. About two third 66% of the participants thought that family members should be screened for presence of diabetes. Majority 85% of the participants believed smoking is a risk factor for their health. Very few participants had knowledge that unsweetened fruit juices also increase blood glucose levels as only 14% of the respondents answered correctly. Regarding the wound healing in diabetics near three quarters 70% of the participants knew slow healing of wounds in diabetics. A little more than half 53% of the patients considered medications more important than diet and physical activity to achieve glycemic control. About 62% of the participants believed that diabetes can affect any part of the body. More than two third 68% of the participants had knowledge about sensory loss in diabetes. A little less than half 46% of the respondents considered obesity to increase the risk of complications. About three fourth 73% of the participants considered exercise to help control blood glucose levels. Only 18% respondents knew that wearing shoes a size bigger than usual helps prevent foot ulcers. Regarding low fat diet, 59% of the participants believed eating foods lower in fat decreases risk for heart disease. A little more than one third 36% of the participants considered it important to consult an ophthalmologist. Regarding damage to kidney caused by diabetes, 70% of the participants thought diabetes can damage kidneys. Concerning risk of diabetes among offspring, 41% believed having diabetes increases the risk of diabetes among children (table 2).

Table No.1: Characteristics of participants

Characteristic	%age	n
Age in years		
Mean (SD)	49.3 (10.7)	
Less than 40 years	35	35
40 years or more	65	65
Sex		
Male	53	53
Female	47	47
Education Status		
No schooling	18	18
Primary	22	22
High school	21	21
Intermediate	13	13
Graduation& above	14	14
Maderssah	12	12
Monthly income		
Median (IQR)	25000 (15000-35000)	
Duration of Disease in years		
Mean (SD)	10.5 (5.6)	

Overall mean score of knowledge and awareness was 40%. Male had better knowledge then female. Mean score for male was 50% compared to 30% among female. This difference was statistically significant p-value <0.05. Over all 45% of the participants were found to have poor knowledge scores, 35% had acceptable while only 20% had acceptable knowledge scores. Among the male 34% (18) had poor knowledge, 45% (24) acceptable and 21% (11) had good knowledge. Among female, 51% (24) had poor knowledge, 32% (15) acceptable and 17% (8) had good knowledge.

With respect to education, those who had no education, 52% had poor knowledge, 35% acceptable and only 13% had good knowledge scores. In contrast, those who have education higher than secondary, only 15% had poor scores, 40% had acceptable and 45% had good scores.

Younger patients (less than 40 years of age) were found to have better scores compared to older age group (more than 40 years of age). Among those aged less than 40 years, 29%, 34% and 37% had poor, acceptable and good scores respectively compared to 46%, 34% and 20% had poor, acceptable and good scores respectively.

Table No.2: Knowledge about the baseline blood glucose levels, risk factors and complications among diabetic

Sr. No.	Knowledge question	Answer (%)	
		Yes	No
1.	Normal fasting blood sugar*	39	61
2.	Normal random blood sugar*	26	74
3.	Diabetes is raised blood sugar only	78	22
4.	The diabetes diet is a healthy diet for most people	26	74
5.	Urine testing and blood testing are both equally as good for testing the level of blood glucose	43	57
6.	Family members should be screened for diabetes	66	34
7.	Cigarette smoking is a risk factor for my health	85	15
8.	It is important to check serum lipids for a diabetic patient	28	72
9.	Unsweetened fruit juiceraisesblood glucose levels	14	86
10.	Cuts and abrasions in diabetesheal more slowly	70	30
11.	Medication is more important than diet and exercise to control my diabetes	53	47
12.	Diabetes is a disease which can affect any part of the body	62	38
13.	Diabetes can cause loss of feeling in my hands, fingers and feet	68	32
14.	Obesity does not increase the risk of complications in diabetes	46	54
15.	Exercise help in blood sugar control	73	27
16.	Wearing shoes a size bigger than usual helps prevent foot ulcers	18	82
17.	Eating foods lower in fat decreases your risk for heart disease	59	41
18.	It is important to consult ophthalmologist	36	64
19.	Diabetes can damage my kidneys	70	30
20.	If I am diabetic, my children have a higher chance of being diabetic	41	59
*Proportion of participants giving correct values			

Those who received diabetic education had better knowledge scores compared to those who did not receive diabetic education. Among those who received diabetic education, 15% had poor knowledge, 31% acceptable and only 54% had good knowledge scores. In contrast, those who did not receive diabetic education, 70% had poor scores and only 18% and 12% had acceptable and good scores respectively.

DISCUSSION

This study assessed the awareness of diabetic patients regarding target blood glucose levels and complications and care. Results of this showed that only a little more than one third of the participants know about the target fasting blood glucose levels while only near a quarter know about correct value of random blood glucose levels. Mean score of knowledge was 40% with males having better scores than females. There were differences in knowledge scores with respect to age, education status and exposure to diabetic education.

In this study I found that 39% of the participants had correct knowledge about the target fasting blood glucose levels. This proportion is higher than reported in another study from Karachi in which about 21% of the respondents had correct knowledge about the target fasting blood glucose levels[13]. Similarly higher proportion of participants had correct knowledge about target for the 2 hours postprandial blood sugar level than reported by previous study 26% compared to 8.7%[13]. Trend however is similar in both the studies that more people know about fasting blood glucose levels than random blood glucose. Another study from Rawalpindi Pakistan found that about 37.5% of the diabetics correctly identified normal blood glucose levels[14]. A similar study from Peshawar, Pakistan also reported lower proportion of diabetics having correct knowledge about target blood glucose levels [15]. This study reported that 17% and 12% patients had correct knowledge about fasting and random blood glucose levels respectively. These proportions are lower than reported in my study.

Mean score of knowledge in my study was 40% which is similar to a study conducted in Karachi where authors reported mean knowledge scores of 40%[16]. This similarity however should be interpreted cautiously as number of knowledge items is different in these two studies. In my study differences in mean scores with respect to genders was significantly different 50% for males compared to 30% for females. Other study from Karachi however did not find significant difference in mean knowledge score of males and females, 41% and 38% respectively[16]. Knowledge of patients regarding target blood glucose levels and risk factors is strongly linked with exposure to health education through various media and health care settings[17]. These can be changed with proper education and awareness programs can change the knowledge and attitudes of the people regarding diabetes[18].

My study found that only one fourth 26% of the patients received diabetic education in clinics. This is percentage is lower than reported in other study from Karachi, which reported 38% of the patients received some diabetic education in clinics[13]. A similar study from Peshawar, Pakistan reported 45% of the patients had received some diabetic education[15]. This indicates lack of standardized practices regarding diabetic care in different health care facilities within same city and across different cities in Pakistan.

A study which was conducted at the Department of Medicine, Khyber Teaching Hospital Peshawar, Pakistan and used similar items in the tool found that knowledge of the patients were poor[15]. In this study 22% of the patients considered diabetes as raised blood sugar only compared to 78% in my study. Regarding the screening of family members this study reported 60% of the participants responded yes compared to my study in which 66% thought that family members should be screened. In this study, 70% of the patients considered smoking as a risk factor for their compared to 85% in my study. Regarding awareness about importance of check on serum lipids for diabetics, this study reported 42% of the participants responding yes compared to only 28% in my study. There was lower proportion of participants 26% believing diabetes can affect any part of the body compared to 62% in my study. Knowledge about the role of exercise in glycemic control was similar in two studies 75% compared to 73%. Similarly comparable proportion of participants from both studies 38% versus 36% considered it is important to consult an ophthalmologist. Differences in the level of awareness regarding same items in different parts of Pakistan may partly be attributed to differences in the levels of literacy and health consciousness. However there is no consistent pattern as for some the items participants from my study scored better while for other items respondents from Peshawar scored good. This could possibly be due to differences in quality of care provided in two parts of the country and lack standardize care practices in different health care setting in different cities within country[19].

CONCLUSION

This study found that there is low level of awareness among the patients attending diabetic outpatient clinics of NIDE. This indicates gaps in the patient care which needs attention. There is need to integrate patient education regarding glycemic targets, risk factors, complications and self-care as essential component of care through different channels of communication.

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