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Tayyaba Ayub & Jahanzeb Durrani

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Low level of Vitamin D is very common in our population which makes them prone to many critical diseases like cardio-vascular disorders, cancer, obesity, osteoporosis, tuberculosis, multiple sclerosis and severe depression. According to a study in 2014 by Joel Fuhrman MD author of Super Immunity, there are one billion worldwide people who suffer from Vit. D deficiency. It actually functions like a hormone precursor involved in various functions like calcium bone stasis and anti-inflammatory process in every single cell of our body. Most people do not realize that they lack this vitamin in their bodies as the symptoms are generally subtle and clinically difficult to detect. People may not notice them easily even if they are having a significant negative effect on the quality of life. The common risk factors pertaining to deficient Vit. D are:

- Having dark skin,
- Being elderly,
- Obesity,
- Not eating much fish or milk,
- Staying in door.

Sun is the major source of Vit D. (popularly known as sunlight Vitamin) is associated with wide range of benefits like increased immune system, bone health and generalized wellbeing. Our body makes it from Cholesterol when it is exposed to sunlight and helps the body to use calcium from the diet. Its deficiency occurs due to low intake of Vit.D rich food and less exposure to sun. It is very strange that little data and its deleterious effects on human health are available in Pakistani population.

Vit. D is found in 2 major forms i.e. Vit D2 and Vit. D3. Vit D2 is (ergocalciferol) present in plants and fish while Vit.D3 (cholecalciferol) is synthesized in skin by dermal keratocytes and fibroblasts when exposed to the sunlight. It is absorbed in skin and transported to blood and liver, being converted into prohormone – calcidiol and calcitrool in kidneys, ultimately transported to the target organs. Calcitrool is also synthesized from immune cells like monocytes and macrophages where it acts as cytokines. Levels of Vit. D vary in different areas depending on demographic features, seasons and sun-seeking behaviors. According to the journal Nutrition Research, (2014) 42% of the US adults, 60.2 in Hispanics and 82.1% in Africans-Americans especially the North Americans are deficient in nutrient.

A study from KPK on 1000 menopausal women revealed Osteoporosis in 55% and 97% in elderly females which is due to low bone mineral density caused by low calcium, Vit.D3 and lack of sun exposure due to their indoor sedentary lifestyle. In Pakistan, Vit.D deficiency is seen in all age groups. A study of 349 pregnant women in Karachi revealed Vit. D deficiency of 70% in their neonates including their mothers. Researchers in Islamabad reported 66.6% infants deficient of Vit.D, while 85.3% in breast-fed babies as compared to 40% on formula fed milk. In Asian countries lack of Vit. D in Breast, Colon and Prostatic cancers has been widely studied. Similarly TB patients while treating with higher doses of Vit. D3 supplementation and immunity building measures led to marked clinical and radiological recovery.

In Pakistan over 30% of all deaths are related to heart diseases and diabetes. A study from Lahore reported a strong positive relation to Vit. D3 and HDL level. Another study from Aga Khan University observed a strong relation of Vit. D3 between diabetics and non-diabetics, 63% cases which were deficient had a strong relation of socio-economic status with Vit. D level. According to Pakistan Medical Research Council, there is an increasing number of obese people in Pakistan which is due to unhealthy food and sedentary life style with genetic variations. In certain cases it is very strange to observe that 63% of the medical men are not fully aware of the importance of Vit.D and its relation in various disorders. In fact, reference range of Vit.D in population vary widely depending on ethnic background, age, geographic

**Deficiency of Vitamin-D & its Deleterious Effects on Several Systems (Current Concept)**

Editorial
location and the season. Optimal blood levels Vit. D. is 28-42 ng/ml is required to reduce the risk of diseases, if it is less than this it is linked with bone diseases. The recommended daily dose is 400-800 IU. Many people need about 2000 IU of Vit.D3 to achieve that level. The new recommended daily allowance for 1-70 years age is 600 IU daily and infants from 0-12 months needs 1000 IU for their developing bones.

In Summary, Vit. D is an important factor in bone metabolism and as immuno-modulator. It is an extremely important vitamin that has a powerful effect on various systems and critical diseases of CVS, cancer, Diabetes, TB, Osteoporosis, obesity and restricted bone growth in growing children and adults. It is richly found in sea foods such as fish, mushrooms and fortified dairy products, though it is very difficult to get enough from the diet alone.

REFERENCES:

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Ophthalmology update welcomes the participants of 60th Anniversary Celebrations OSP & Lahore Ophthalmono 2017.
To Determine the Refractive Status in Albinism & Idiopathic Congenital Nystagmus at Hayatabad Medical Complex, Peshawar.

Bilal Khan FCPS.,FCPS (Vit.Ret) 1, Mir Ali Shah FCPS2 Mohammad IdrisFCPS 3, Sadaf Qayyum MBBS4

ABSTRACT
Objective: To determine the refractive status in albinism and idiopathic congenital nystagmus at Hayatabad Medical Complex Peshawar. It was a hospital based descriptive cross sectional study in the Department of Ophthalmology, Hayatabad Medical Complex Peshawar, from September 2014 to December 2014.
Methodology: A descriptive cross-sectional study was carried out to determine refractive status in idiopathic congenital nystagmus and albinism in 30 patients above age 3 years visiting Eye OPD at HMC Peshawar. Patients were evaluated according to objective of the study.
Results: Refractive status was determined for 30 patients, among them 6 (20%) were albinos and 24 (80%) were nystagmus. Genders wise distribution was such that 10 (33%) were females and 20 (67%) were males. Astigmatism in albinos patients was 33% in male and 33% in female. On average albinism have more astigmatism than idiopathic congenital nystagmus patients. Hyperopia was less common 16% in male 16% in female. Myopia was 0% in male and 0% in female similarly astigmatism in ICN patients 25% in male and 12% in female. Hyperopia was 12% in male and 12% in female. Myopia was 33% in male and 0.004% were in female. In astigmatism there were 24% male and 48% were female. Mean spherical equivalent in right eye was -2.006 and in left eye was -1.375.
Conclusion: Presence of nystagmus may interfere with normal refractive development. Poor visual acuity and higher refractive errors in albinism are not purely due to nystagmus, other structural differences play a part.
Key words: Nystagmus, Albinism, ICN (Idiopathic Congenital Nystagmus), SD (Spherical Diopter), CN (congenital Nystagmus), OCA (Oculocutaneous Albinism) OAI (Ocular Albinism Type-1)

INTRODUCTION:
Albinism is a recessively inherited disease of disturbed melanin synthesis and/or melanin: site of melanin synthesis. In albinism, melanocytes fail to synthesize or distribute melanosins properly, which results in oculocutaneous albinism (OCA) presenting with absent or reduced tanning, white, blond, or red-blond scalp, blue irides, and hypopigmented fundus due to a lack of pigments in the skin, hair, and eyes. 1 Albinism affects people of all ethnic backgrounds; its frequency worldwide is estimated to be approximately one in 17,000. Prevalence of the different forms of albinism varies considerably by population.2.

Visual acuity is severely impaired in albinism than nystagmus. Early detection, treatment and management may improve the life style, educational potential and career.

Oculocutaneous albinism” refers to a heterogeneous group of autosomal recessive disorders in which melanin is reduced or absent. Pale skin and an increased risk of skin cancer, together with the previously mentioned ocular phenotype, are present. X linked recessive ocular albinism (Nettleship-Falls type) is categorized as ocular albinism type 1 (OA 1). It has a prevalence of 1:50 000 in the United States. The OA 1locus is 5%(22-3).4,5

Charles et al 32 looked at 72 cases of OA1 and found nystagmus (in all cases except one), reduced visual acuity (to 6/36 in most cases), refractive errors (especially astigmatism), fundus hypopigmentation, lack of foveal reflex, strabismus, iris translucency.

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Ocular and visual effects in Albinism include iris transillumination, Foveal hypoplasia, fundal hypopigmentation, macular transparency, optic nerve hypoplasia, anomalous retinal vessel presence in the foveal avascularity. Abnormal misrouting of retinal ganglion cell axons at the optic chiasm. Reduced visual acuity, High refractive errors, Reduced contrast sensitivity, Nystagmus, Photophobia, Reduced or absent stereoaucuity, Amblyopia, Strabismus. Nystagmus is a relatively common clinical condition, affecting one in several thousand people. A survey conducted in Oxford, United Kingdom found that by the age of two, one in every 670 children had manifested nystagmus. Authors of another study in the United Kingdom estimated an incidence of 24 in 10,000 (~0.240 %), noting an apparently higher rate amongst white Europeans than in individuals of Asian origin.

Infants with a nystagmus in all positions of gaze but with clinically normal eyes and normal developmental milestones are said to have congenital idiopathic nystagmus. This may be X-linked, autosomal recessive or autosomal dominant. Patients with nystagmus may report problems with balance. Impairment to binocular vision is common with early onset nystagmus and depth perception. Nystagmus results from the instability or impairment of the system responsible for controlling eye movements. When nystagmus develops in early childhood, it can be caused by a problem with the visual pathway from the eye to the brain. Often the child has no other eye or medical problem. Patients with nystagmus frequently have other vision problems such as astigmatism that require eyeglasses. This is particularly true of patients with albinism and retinopathy of prematurity.

The main target of the study is to reduce higher refractive errors and impaired VA in patients with albinism and ICN because albinism and nystagmus being major ophthalmic disorders which affect the patients' life style, educational background and career opportunities.

Objectives: 1. To examine the distribution of refractive errors and visual acuity changes in patients with Albinism and Idiopathic Congenital Nystagmus above 3 years of age.
2. To depict contribution of different refractive components to refractive error in Albinism and Idiopathic Congenital Nystagmus above 3 years of age.

MATERIAL AND METHODS:

All patients coming to HMC Eye OPD with Nystagmus and albinism were examined except those who are not willing to participate in the study or those who were mentally retarded. After due permission from the ethical committee, examination procedure consists of visual acuity measurement in 3 to 5 years of age with Lea Symbols chart and above 5 years of age visual acuity were examined with Log Mar chart. Refraction was done objectively by retinoscopy. Refractive status was determined and final prescription was given on basis of subjective refraction. If necessary cycloplegic refraction was done using cyclopentolate eye drop.

Inclusion Criteria: All the patients above 3 years of age visiting to HMC eye OPD presenting with albinism and idiopathic congenital nystagmus were included.

Exclusion Criteria: Mentally retarded patients.

RESULT:

Out of 30 patients, 10 patients (33%) were female and 20 patients (67%) were male. Among 30 patients visiting Eye OPD, 6 (20%) were albinos and 24 (80%) having Nystagmus. Different refractive components gender wise according to which Hyperopia was 16% in male and 16% in female. Myopia was 0% in both male and female. In astigmatism there were 33% male and 33% were female. Mean spherical equivalent of refractive error in right eye was -0.2083 and left eye was 0.666. In our study we found that in nystagmus there were different refractive components gender wise according to which Hyperopia was 12% in male and 12% in female. Myopia was 33% in male and 0.004% were in female. In astigmatism there were 25% male and 12% were female. Mean spherical equivalent in right eye was -2.006 and in left eye was -1.375.

TABLE1: Gender distribution (n=30)

<table>
<thead>
<tr>
<th>Gender</th>
<th>No Of Patients Examined</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>20</td>
<td>66.66%</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>33.33%</td>
</tr>
<tr>
<td>Total Patients</td>
<td>30</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2: Distribution of the patients as albinos and those having nystagmus (n=30)

<table>
<thead>
<tr>
<th></th>
<th>No Of Patients Examined</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albino</td>
<td>6</td>
<td>20%</td>
</tr>
<tr>
<td>Nystagmus</td>
<td>24</td>
<td>80%</td>
</tr>
<tr>
<td>Total Patients</td>
<td>30</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 3: Refractive components in albinism (n=30)

<table>
<thead>
<tr>
<th>Refractive error</th>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperopia</td>
<td>Male</td>
<td>1</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1</td>
<td>16%</td>
</tr>
<tr>
<td>Myopia</td>
<td>Male</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Astigmatism</td>
<td>Male</td>
<td>2</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>6</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4: Refractive component in nystagmus(n=30)

<table>
<thead>
<tr>
<th>Refractive error</th>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperopia</td>
<td>Male</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>Myopia</td>
<td>Male</td>
<td>3</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1</td>
<td>0.004%</td>
</tr>
<tr>
<td>Astigmatism</td>
<td>Male</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>7</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>26</td>
<td>100%</td>
</tr>
</tbody>
</table>

DISCUSSION:

Epidemiological studies indicate that the distribution of refractive errors is approximately normal in newborn human infants and exhibits more and more clustering around a progressively less hyperopic mean value during childhood.10, 31 The retinal image motion and blur that result from nystagmus may contribute to reduced visual acuity in some albinos, foveal hypoplasia represents a much more important limitation.12, 13 For example, albinos have poorer visual acuity than subjects with idiopathic CN, even when the parameters of the retinal image motion are similar. Poor visual acuity renders the retina and visual system of albinos less sensitive than normal to image blur, thereby degrading a crucial signal for regulating the process of emmetropization.

In our study which was conducted on the topic “Refractive status on albinism and idiopathic congenital nystagmus” Refractive status was constructed for 30 patients in which 6(20%) were albino patients and 24(80%) patients were nystagmus patients. Age wise distribution was such that there were no patients in age below 3 years and there was no significant variation of the refractive error with age. As review of the literature by Vanetha Sampath, Harold and Bedell suggests that Based on the clinical records that were available, the age range of our samples was 10 to 35 years (median -18 years, n -18) for the albinos and 10 to 43 years (median -26 years, n -41) for the subjects with idiopathic CN. However, refractive error does not vary significantly with age in either subject group 11 Gender wise distribution was such that among 30(100%) patients which were screened during our study there were 10 (33%) male. 20(67%) were females.

In our study we found that in albinism there were different refractive components gender wise according to which Hyperopia was 16% in male and 16% in female. Myopia was 0% in both male and female. In astigmatism there were 33% male and 33% were female. Mean spherical equivalent of refractive error in right eye was -0.2083 and left eye was +0.666 in right eye it range from +5.0 to -0.75 and in left eye was 0.25 to -5.50. As in research the spherical equivalent refractive errors of our albinos range from -13.75 to -7.30 D, with a mean of -0.65 D (median -0.63 D) and a SD of 4.56 D. If one high myope is excluded, mean spherical-equivalent is -0.07 D (median-0.38 D) and the SD decreases to 3.37 D. These values are similar to the mean and SD of the spherical-equivalent refractive errors reported by Wildsoet et al.17

According to a study conducted by Vanitha and Bedell. In Texas11 Interprets that On average, their albinos have larger astigmatic errors (mean -3.26 D, median-2.75 D, SD -1.76 D) than our subjects with idiopathic CN (mean-1.88 D, median-.75 D, SD-1.41 D). A similar difference between the magnitudes of astigmatism in albinos and subjects with idiopathic CN was noted previously by Norn.19, 20 The study carried in Camroon by Mongo et al in 1990 predicts that 27 subjects were with short sighted astigmatism. According to wildsoet et al.2000 In Boston predicts 27 subjects having high hyperopia The other research by Edmunds in 1942 Newyork interprets 16 subjects having high hyperopia Similarly in Perez Carpinell et al in 1982 21 interprets 9 subjects having myopia. Some studies suggest that hypermetropia is the most common form and other suggest a bias towards myopic astigmatism. Also, to the best of our knowledge there are no infant longitudinal data on refractive development in albinism. As clinicians we know that we may see patients with highly myopic prescriptions or highly hyperopic prescriptions. There doesn’t seem to be a clear pattern to refractive error development in these subjects.

In our study we found that in nystagmus there were different refractive components gender wise according to which hyperopia was 12% in male and 12% in female. Myopia was 33% in male and 0.004% were in female. In astigmatism there were 25% male and 12% were female. Mean spherical equivalent in right eye was -2.006 DS and in left eye was -1.35 it is slightly more myopic than in albino patients. Similarly the research which predicts that
subjects with idiopathic CN, spherical equivalent refractive errors range from -7.88 to -4.00 D, with a mean of -1.37D (median -0.81 D) and a SD of 2.71. Although the mean spherical equivalent is more myopic than in our albinos.  

Although astigmatism and hyperopia is high among the patients of ICN as the refractive error varies. There is no significant difference between refractive error of albino patients and ICN patients. Best corrected visual acuity was measured for distance in 6 albino patients with mean V.A in right eye 0.86 and in left eye 0.68 and also for the patients with ICN with mean V.A in right eye 0.612 and 0.512 in left eye. The V.A in albino patient is more affected than ICN. The mean visual acuity was 0.68- 0.17 (SD) logarithm of minimum angle of resolution (logMAR) for the albinos (median:0.65, range: 0.30–0.98) and 0.26-0.21 log MAR for the subjects with idiopathic CN (median: Visual acuity is substantially worse in our albinos than in our subjects with idiopathic CN. 

Comparisons were made between visual acuity in the present study and those data published by Grønskov et al 2009 (Denmark). Across all almost age groups N. Irish albinism cases had worse VA than Danish albinism subjects. ICN groups better levels of VA than Albinism group. Both Albinism and ICN groups: VA appeared to improve as the children became older. The refractive profile of albino subjects, which is typical by high refractive errors with an overall bias toward hyperopia, as well as high with-the-rule astigmatism, suggests that normal emmetropization is impaired. However, the data for hyperopic eyes open the further possibility that some capacity for emmetropization is retained in the vertical meridian, where visual function is likely to be less affected by the accompanying nystagmus. That myopic eye does not follow the same pattern may simply reflect differences in operating physical constraints.

CONCLUSION.

Most of the patients in albinism and nystagmus have poor visual acuity and high refractive error. Visual acuity is severely impaired in albinism than nystagmus. Early detection, treatment and management may improve the life style, educational potential and career
ABSTRACT

Purpose: To discover the phenomena of why some people with diabetes do not take their prescribed medication.

Material and Methods: This study was designed as a qualitative research, using the focus group approach method.

Results: The study found that some people with diabetes compared themselves with other diabetic patients whose health didn’t improve after taking medication, and thinking they would be the same, i.e. unsuccessful and not achieving good health. The study also identified that, due to lack of education, most of the participants were on-off users of their medication; issues were also found with the cost of the medication.

Conclusion: Awareness and educational events are required for patients to encourage an increase in the knowledge and importance of diabetes medication.

Key Words: Barriers in taking prescribed medication; non-adherence; people with diabetes; diabetic retinopathy.

INTRODUCTION

According to the research, many people with diabetes do not actually take their prescribed medication (1,2). In the United Kingdom, approximately 700 people a day are diagnosed, which is the equivalent of one individual every two minutes; more than one in 16 people has been diagnosed or undiagnosed diabetes and approximately 90% of the diabetes cases are Type 2 diabetes (3). It is also estimated that 3.3 million people in the United Kingdom are living with diabetes and it is expected that by 2025 this number will increase to 5 million. It is also estimated that there are around 500,000 people in the UK who have diabetes but have not been diagnosed (3). It has been suggested that due to our maturing population and mounting levels of obesity, the majority of cases will be Type 2 diabetes (4).

Diabetic retinopathy is a very serious eye problem associated with diabetes that can take several forms, one of which is retinal swelling, or macular oedema (5). Macular oedema occurs when the small blood vessels in the eye are damaged, which allows fluids to enter the retina, resulting in swelling (6). Diabetic retinopathy occurs when a haemorrhage from fragile blood vessels leaks into the vitreous humour (7,8). Statistics suggest that 4,200 of those individuals classed as blind are blind due to diabetic retinopathy, with the value increasing by 1,280 per annum (9). After an individual is diagnosed with Type 1 diabetes, nearly all will develop some sort of retinopathy within twenty years. Furthermore, approximately two thirds of Type 2 diabetes sufferers will develop a form of retinopathy within 20 years (5).

Higher number of People with diabetic retinopathy do not take their prescribed medication due to lack of knowledge, education and awareness, its side effects, cost, appointment schedules with health professionals, exercise and diet regimen. There should be some motivation, one-to-one guidance on diabetes, awareness of the importance of diabetic retinopathy, diet, exercise programs.

After initial diagnosis, people with diabetes try to find any possible treatment or information that could be useful to them. Without any confidence, the patients might try to find a doctor who is a specialist in a particular field to treat them. However, after taking their medication for a long time, and achieving no relief from diabetes, people just lose hope and stop their medication, which leads to complications. Some people find it very difficult to follow the recommended routines, such as a change in lifestyle and how to maintain a social life and live with diabetes and diabetic retinopathy, weight management, nutrition, exercise, meal planning and taking their prescribed medication, all of which
could have different meanings for them, so that people think that there is no cure for them and stop their medication (9,2).

A large number of people with diabetes do not take their prescribed medication. A research study found that most of them depend on ‘self-care’ and do not take their prescribed diabetes medication (10). In the results, a significant increase of the condition and its complications, including diabetic retinopathy, increases the costs for the health care system and adds to frustration in patients (11).

**METHODS:**

**Design of the study:** To understand the full phenomenon of non-adherence to diabetes and diabetic retinopathy treatment, as the qualitative method was found to be the best approach. Many researchers (12,13) agreed that a qualitative approach can highlight important areas of health research, especially when exploring patients’ behaviours and their psychological response to treatment. The study was conducted at the Institute of Diabetes for Older People (IDOP), University of Bedfordshire, UK. Six participants, with no age or gender restrictions, who were diagnosed with diabetes and diabetic retinopathy, were randomly chosen with the help from health professionals. The participants were recruited for the study between 3rd November 2014 and 3rd December 2014.

According to research, the best key tools and modes of data collection methods to explore people’s subjective understanding of their daily lives is the focus group approach, so it was deemed the most appropriate method for this study. (14,15). For the focus group, general practitioners from the Bedfordshire region were able to provide details of potential participants; the information lists provided included the names of the nominees and their addresses and telephone numbers, along with information that allowed access to potential participants by letter and telephone.

The process, therefore, started with a telephone call to invite potential participants to join the study. If they agreed, an appointment was made and the details of the study were explained. All the participants were given details of the study, and their questions about the study were answered. The potential participants were then given one week to read and consider the Participant Information Sheet and sign the Consent Form; the Sheet contained the principal researcher’s and other team members’ contact details. The focus group Guides were structured to cover general information regarding daily activities, education, communication and social roles that could influence diabetes and diabetic retinopathy.

In the focus groups, the participants were invited to sit facing each other in a circle around a table. The researcher sat within the circle, and initially requested each participant to introduce themselves. The participants were then asked to give their names. Participants were encouraged to talk freely, allowing the researcher to draw an overall picture of the participants that was beneficial for gaining richer information. The next core concept focused on the experience of participants living with diabetes and diabetic retinopathy, which was designed to follow the timeline of living with these conditions, concentrating on its impact and the barriers and difficulties experienced by people who were not taking their prescribed medication. Full ethical approval was granted by the Institute of Diabetes for Older People (IDOP), University of Bedfordshire, UK.

**RESULTS**

The following are a few examples of quotations which were collected from the focus group and described how the participants had made their decisions not to take their medication:

**First participant:** “As my mum has lost all of her fingers and vision in both eyes, even she has done everything doctors or people said to her, but her diabetes never recovered, and it made me more stressful as I am going to the same way so and sometimes I really don’t want to take my medicine.”

**Second participant:** “I had been trying many things people said to me, but nothing it could do, even making it more worse (than) it was. I do not believe in diabetic medications”. Taking herbs and dietary supplements for diabetes is not a unique phenomenon. A person with diabetes might think the ingredients could do them no harm because they all come from herbs, vegetables, or fruits; they just do not want to give up any possibility.
of curing the disease. However, this hope could bring some negative results.

**Third participant:** One of the participants from the South Asian community showed: “I stop taking my medication as it was not working on me. I did try alternative remedies, traditional remedies, herbs and diet supplements. When I started these remedies, I did check my blood sugar regularly, but I didn’t feel anything unusual, my blood sugar was the same as it was, so I stopped to take these medicine as some of them are very expensive.”

**Sixth participant:** “For me taking insulin was very painful process all the time, as I was unable to see properly the needles without my glasses. I did try the insulin devices but still no good for me, I decided to stop taking insulin.”

Some people with diabetes are not afraid of death, but they lack the knowledge that the suffering brought from the chronic complications of diabetes could possibly last for a long period before they die. Being unafraid of chronic complications may result from a lack of knowledge. The quote below presents the perspective of the person:

**Fifth participant:** “I stopped my medications as they were not working and I am not worried about the complications as everyone has to die one day. I have never worried about it, sooner or later, complications of diabetes or death would come to get you.”

According to research, 60% of those over the age of 60 had not had their eyes tested for the past two years because they had not experienced any eye complications (16). As we know from the literature review, the prevalence of diabetes and diabetic retinopathy is high, so it is quite possible that many of these people were affected by diabetes and diabetic retinopathy, or may have needed treatment. The following quote below illuminates this phenomenon:

**Seventh participant:** “I am not going to test my eyes all the time as when I been to the hospital the doctor just said to me everything is fine, I pay for the taxi and I spend 4 hours in the hospital but returned to home with nothing. I just think this waste of time and waste of money.”

The following, Figure 1, explains the different causes of not taking medication:

![Figure 1](image)

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**DISCUSSION**

The phenomena of non-adherence, or why people with diabetes and diabetic retinopathy are not taking their prescribed medication, were the main purpose of this study. Non-adherence to medicines and treatment has been studied by many researchers in different diseases and health areas. However, non-adherence to diabetes and diabetic retinopathy treatment is a completely different phenomenon, as diabetes and diabetic retinopathy is a life changing problem. People with diabetes and diabetic retinopathy not only need to adopt medication routines, but the event of being diagnosed with diabetes seemed to foretell a gloomy future ahead, and this perception brought much distress and discomfort to them. When they were told they had diabetes,
they had to face the fact that they would have to take medication and change their lifestyle for the rest of their lives. Being aware of this, their lives could no longer be the same as they used to be, and as a result they were more or less ‘different people’, living with a lifelong illness. Similar findings were also reported by other researchers; the people who did not respond seriously to the diagnosis because of inadequate knowledge and took their diabetes medication on and off would eventually be psychologically affected, as having diabetes is not a very pleasant experience, especially accompanied by diabetic retinopathy\(^1\). A lack of knowledge, education and awareness was found to be the major factor of why people with diabetes were not taking their prescribed medication for diabetes and diabetic retinopathy. 6\(^{th}\) participant reported above, illuminates this phenomenon, showing that some people with diabetes and diabetic retinopathy stopped their medicine as they were told that their diabetes and diabetic retinopathy was under control. They need a regular yearly diabetic retinopathy check-up, however, and should continue with their medications for the rest of their lives. Most of the participants reported that they stopped their medicines themselves, due to their belief that there was no benefit from medication, which resulted in further complications. Knowledge, education and awareness is very important to explain to people about the effect of regular annual diabetic retinopathy check-ups and diabetes medications, so that they can improve the conditions significantly and prevent further complications.

**In summary**, lacking knowledge of diabetes and diabetic retinopathy could be a reason for complications, resulting in the non-adherence or why people with diabetes and diabetic retinopathy do not take their prescribed medication, as diabetes is a symptom disease for years before developing chronic complications. The findings reveal that those participants with little information of the disease and its consequences have a greater chance of ignoring diabetes care and stop taking their prescribed medication for diabetes and diabetic retinopathy.

**CONCLUSION**

The results of this study found that the ratio of people with diabetes and diabetic retinopathy who do not take their prescribed medication is high, and a number of reasons were reported in this study. The main reasons for this were lack of knowledge, education and awareness with lack of improvement, its side effects, cost, appointment schedules with health professionals (which are sometimes not convenient to the people), exercise and diet regimen. This study reveals that there is a need for more education and awareness, and also to establish some sort of motivation, one-to-one guidance on diabetes, and awareness of the importance of diabetic retinopathy medication, diet, exercise programs and events for people with diabetes.

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Knowledge and Attitudes toward Corneal Donation amongst Medical Students in University of Lahore
(a cross-sectional study)

Shoaib Ahmad, MBBS¹, Muhammad Ali MBBS² Muhammad Bilal Afzal MBBS³

ABSTRACT:
Background: Corneal transplantation or keratoplasty has developed rapidly in the past 10 years. Penetrating keratoplasty, a procedure consisting of full-thickness replacement of the cornea, has been the dominant procedure for more than half a century, and successfully caters to most causes of corneal blindness.

Objective: To study the perception and knowledge about corneal transplant amongst young generation.

Methodology: A cross sectional study was conducted n medical students. Sample of 200 people was collected through non probability convenient based sampling method and a closed ended questionnaire was filled to people.

Results: The results showed that majority (75%) of students knew that eyes can be donated after death but only 20% knew that the ideal time of donation was within 6 hours of death. Most of the participants (70%) were willing of donating eyes. Perceived reasons for not pledging eyes by the students as unacceptable idea of separating the eyes from the body (30.9%), lack of awareness (29.8%), objection by family members (28.5%), and religious beliefs (12.7%).

Conclusion: It was concluded that most of the students know about eye donation but they do not like to donate the eye because of their own belief, family influence or lack of awareness and needs creation of awareness about eye donation in the community.

Key words: Corneal transplant, keratoplasty, knowledge

INTRODUCTION:

Corneal diseases are a significant cause of visual impairment and blindness in the developing world. [1] The major causes of corneal blindness include trachoma, corneal ulceration following xerophthalmia due to vitamin A deficiency, opthalmia neonatorum, and indiscriminate use of harmful medicines with proper consultation by a medical man, leprosy, and ocular trauma.[2][3]

In corneal transplant, a patient’s damaged cornea is replaced by the health cornea from the human cadaver. This is the most common type of human transplant surgery and has the highest success rate. Eye banks acquire and store eyes from donors to supply the need to transplant corneas. The Eye Bank Association of America reported that corneal transplant recipients range in age from nine days to 103 years. More than 40,000 corneal transplants are performed in all over the world each year. [4]

Most of the students know about eye donation but they do not like to donate the eye because of their own belief, family influence or lack of awareness and needs creation of awareness about eye donation in the community.

Keratoplasty, a procedure consisting lamellar or full-thickness replacement of the cornea, has been the dominant procedure for more than half a century, and successfully caters to most causes of corneal blindness.[5]

When Eduard Konrad Zirm performed the first
Knowledge and Attitudes toward Corneal Donation amongst Medical Students in University of Lahore

Successful full thickness penetrating keratoplasty in a human in 1905, he became the first person to perform a solid organ transplant. Ironically, he performed the surgery for one of the most challenging indications in ophthalmology – bilateral alkali burns. His donor was an 11-year-old boy whose eye was enucleated due to foreign body penetration and scleral injury. Emulating Zirm’s technique, surgeons began to perform corneal grafting over the subsequent 30 years using enucleated eyes of living donors. Vladimir Petrovich Filatov, a Russian ophthalmologist, became known for his work on eye banking in the early 1900s. He suggested using cadaver corneas as donor tissue and developed a method to do so.

Over the past century, keratoplasty techniques have evolved considerable development. There were early efforts to devise selective tissue replacement techniques that might preserve healthy corneal tissue and avoid risks associated with full-thickness grafting. Anton Elschnig performed the first anterior lamellar keratoplasty in 1914, for a case of interstitial keratitis. Charles Tillet performed the first successful endothelial keratoplasty (EK) case in 1956 for corneal edema. However, the introduction of lamellar techniques actually propelled penetrating keratoplasty (PK) to the forefront of popularity after 1950. Initially, anterior lamellar techniques were fraught with the problems of interface haze, scarring, and epithelial ingrowth. Tillet’s EK technique, although successful, was not repeated and no additional clinical cases were reported for decades.

The purpose of this study is to get to know of people perception about corneal transplant.

MATERIAL AND METHOD:

A cross sectional study was conducted on perception and awareness about eye donation among medical students in University of Lahore from July-December 2016. A sample of 200 patients was collected through convenient based sampling. The sample size was calculated according to the following established formula for sample size determination:

\[ n = \frac{z^2 \times p \times q}{d^2} \]

\( n \): the minimum sample size, \( Z \): constant (1.96) for 95% CI.

Hence, the sample size to achieve a precision of ± 4 % with a 95% Confidence Interval (CI),SPSS version 20.00 was used for analysis.

RESULTS

The result shows that among 200 students 75% students knew that eye can be donated. 20% knew that eye can be donated 6 hours after death. In this study Open ended question were asked to the participant to identify reason that why they do not want to donate their eyes. Table:1 Perceived reasons for not donating eye

DISCUSSION:

The results shows that majority (75%) of students knew that eyes can be donated after death but only 20% knew that the ideal time of donation was within 2-6 hours of death. Most participants (70%) were willing of donating eyes. Perceived reasons for not pledging eyes by the students were: the unacceptable idea of separating the eyes from the body (30.9%), lack of awareness (29.8%), objection by family members (28.5%), and their beliefs (12.7%).

A study was conducted in Bangalore according to this study The majority (96.8%) of students knew that eyes can be donated after death but only 38.2% knew that the ideal time of donation was within 2-6 hours of death. Most participants (85.1%) were either willing or had already donated their eyes. Nobility in the act of eye donation was the main motivational force for eye donation according to 85.6% of students. Perceived reasons for not pledging eyes by the students were: the

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of awareness</td>
<td>60</td>
<td>30%</td>
</tr>
<tr>
<td>Objection by family members</td>
<td>56</td>
<td>28.5%</td>
</tr>
<tr>
<td>Feels body ill-treated by eye donation</td>
<td>61</td>
<td>31%</td>
</tr>
<tr>
<td>Dislike of separating eyes from body</td>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td>Unsuitability to donate eye because of age</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td>Unsuitability to donate eye because of health problems</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td>Religious restrictions in separating eyes from the body after death</td>
<td>10</td>
<td>12.7%</td>
</tr>
</tbody>
</table>
Knowledge and Attitudes toward Corneal Donation amongst Medical Students in University of Lahore

Table 2: Source of information on eye donation (n=200)*

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td>145</td>
<td>77.1</td>
</tr>
<tr>
<td>Newspaper</td>
<td>136</td>
<td>72.8</td>
</tr>
<tr>
<td>Magazine</td>
<td>94</td>
<td>47.0</td>
</tr>
<tr>
<td>Poster</td>
<td>47</td>
<td>25.0</td>
</tr>
<tr>
<td>Doctor</td>
<td>52</td>
<td>27.6</td>
</tr>
<tr>
<td>Radio</td>
<td>70</td>
<td>38.2</td>
</tr>
<tr>
<td>Friends</td>
<td>69</td>
<td>36.7</td>
</tr>
<tr>
<td>Family members</td>
<td>28</td>
<td>14.8</td>
</tr>
<tr>
<td>Pamphlets</td>
<td>42</td>
<td>22.3</td>
</tr>
<tr>
<td>Others</td>
<td>52</td>
<td>27.6</td>
</tr>
</tbody>
</table>

The result shows that mostly people are aware of corneal transplantation through television and newspaper. As shown in table 2.

Table 3: Distribution of perceived reasons for donating eyes by donors (n=200)*

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye donation is a noble work</td>
<td>115</td>
<td>57.5%</td>
</tr>
<tr>
<td>Pleasure to help the blind</td>
<td>40</td>
<td>21.0%</td>
</tr>
<tr>
<td>Donated eyes can give vision to a person</td>
<td>20</td>
<td>10.0%</td>
</tr>
<tr>
<td>Influenced after reading an article</td>
<td>5</td>
<td>2.5%</td>
</tr>
<tr>
<td>A friend or relative has donated an eye</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>A friend or relative has received a donated eye</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Influenced by any lecture</td>
<td>20</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

*Included students who have either pledged or are willing to donate eyes

The result shows that mostly people donate their eyes because it is a noble task.

unacceptable idea of separating the eyes from the body (67.9%), lack of awareness (42.8%), objection by family members (28.5%), and unsuitability to donate because of health problem (10.7%).

A study was conducted in Delhi, according to this majority (99.4%) of students knew that eyes can be donated after death but only 41.1% knew that the ideal time of donation was within 2-6 hours of death. Most participants (87.2%) were willing to donate eyes. Nobility in the act of eye donation was the main motivational force for eye donation according to 85.5% of students. Perceived reasons for not not donating eyes by the people were: lack of awareness (32.7%), objection by family members (27.7%), unsuitability to donate because of health problem (17.7%) and the unacceptable idea to separate the eye from the dead body (15.5%). Mass media such as television, newspapers, magazines and posters were important sources of information on eye donation. Perceived reasons for not donating eyes need to be considered while creating awareness about eye donation in the community.

Another study was conducted in India according to this distribution of the students was: 18 years (88, 22%), 19 years (208, 52%), 20 years (78, 19.5%) and 21 years (26, 6.5%). There were 220 males (55%) and 180 females (45%). It was observed that 398 (99.5%) out of 400 students knew that eyes can be donated after death and ideally within six hours of death was known to 160 (40%) of 400 students.

The distribution of perceived reasons to the students for eye donation by the donors is shown in table. Nobility in the act of eye donation was the main motivational force according to 288 (86.2%) of the 334 students. Lack of awareness was cited as an important reason for people not donating their eyes amongst 21 (31.8%) of 66 students. Eighteen (27.2%) of 66 students each perceived objection by family members or disliking to separate the eye from the dead as the single most important reason for not donating the eyes.

Another study was conducted in Singapore according to this among 500 Singaporean youth aged 18 to 25, most students (73.2%) answered 3 or fewer of the 7 questions about corneal donation correctly. With regards to the willingness to donate, 155 (31%) were willing to donate their corneas, 111 (22.2%) were not willing to donate their corneas, and 234 (46.8%) were undecided. Willingness to donate corneas was associated with adult age group (21 to 25 years old), and had...
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CONCLUSION:

Most of the students know about eye donation but they do not like to donate the eye because of their own belief, family influence or lack of awareness and needs creation of awareness about eye donation in the community.

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Invasive Ductal Carcinoma

An old woman presented with stiffness of the left nipple. Palpation of the left breast, mammography, and ultrasonography revealed no abnormalities. A pigmented macule that measured 5 mm was noted on the left areola. DD.Inflammatory mastitis, Traumatic fat necrosis, Cutaneous malignant melanoma, Invasive ductal carcinoma,Blue nevus. It was a case of ductal carcinoma with melanocytic colonization of breast cancer; pigmentation may occur microscopically and can occasionally manifest as skin changes. In this case, the carcinoma arose in the nipple, and conventional breast imaging was not effective for tumor detection.(Curtesy. NEJM UK)
Frequency of Myopia, its Gender & Age-wise Distribution

Bilal Khan FCPS (Vitre0 Retina),1 Bilal Khan FCPS (Neuro) 2 Mohammad Idris FCPS 3

ABSTRACT.
Purpose: To determine the frequency of myopia, its gender and age wise distribution.
Method: This cross-sectional hospital based study was conducted between 1st September to 1st December 2016 at the eye OPD of Alishfa Trust Eye Hospital Kohat. All patients of all age groups were included in this study, excluding those who were mentally retarded and unwilling to participate. Data regarding patient's age, gender, magnitude and type of refractive error was recorded on a performa.
Results: Total 220 patients were evaluated, in which 107(48.63%) had myopia, of these 52 were males (23.60%) and 55 were females (25.0%) (Table-1). Amongst myopics, 75 patients(34.09%) had mild myopia, 22(10%) had moderate myopia and 10(4.5%) patients had high myopia. In patients with mild myopia (n=75/107), there were 35 males (15.90%) and 40 females (18.18%). In High myopic category total number of patients was 10. According to age group distribution, 42 patients lie in 15-30 age group including 18 male (8.18%) and 24 female (10.90%). 31 patients came in age group 31-45 years of which were 16 male (7.2%). and 15 female (6.8%). In age group 45-60 years, there were 24 patients. 10 patients aged above 60 years, 5 males and 5 female.
Conclusion: myopia is common in young females. Screening program should be launched in school children to enhance their quality of vision.
Key words: myopia, degrees, gender, age.

INTRODUCTION:

Myopia is a condition where near objects appear clearly, while objects far away appear blurry. With myopia, light comes to focus in front of the retina instead of on the retina. Other symptoms may include headache and eye strain. Severe myopia increases the risk of retinal detachments, cataracts, and glaucoma. Other risk factors include doing work that involves focusing on close objects, greater time spent indoors, and a family history of the condition. In one study, heredity was an important factor associated with juvenile myopia, more near work, higher school achievement and less time in sports activity. Long hours of exposure to daylight appear to be a protective factor. Global refractive errors have been estimated to affect 800 million to 2.3 billion people. The prevalence of myopia has been reported as high as 70–90% in some Asian countries, 30–40% in Europe and the United States, and 10–20% in Africa. Singapore is believed to have the highest prevalence of myopia in the world; up to 80% of people have myopia, but the accurate figure is unknown. In some areas, such as China and Malaysia, up to 41% of the adult population is myopic to 1.00D, and up to 80% to 0.5 D. A study of Jordanian adults aged 17 to 40 found over half (53.7%) were myopic.

Myopia is a more common refractive error in young females; mild myopia is common than moderate and severe myopia. The prevalence is higher in the western countries as compared to the eastern countries.

In India, up to 41% of adult population is myopic to 1D and up to 80% to 0.5D. According to the national blindness and visual impairment survey, roughly Pakistani population suffers up to 36.5%. Myopia, which is measured in diopters by the strength or optical power of a corrective lens that focuses distant images on the retina, has also been classified by degree or severity. Optical correction using glasses or contact lenses is the most common approach; other approaches include drugs (mostly atropine), vision therapy, orthokeratology and refractive surgery.

METHODOLOGY:

It was cross-sectional hospital based study, conducted at Al-shifa Trust Eye Hospital, Kohat, from 1st September to 1st December 2016(03 months) All
patients from 01 to 70 years and above were included. All the patients coming to eye OPD were checked for refractive errors. Patients who are unwilling to participate, mentally retarded patients, and patients having myopia less than -0.25 DS, were excluded from the study. Informed consent was taken from every patient selected for the study. Special performa was used for data collection, which included patient’s age, sex, degree of myopia, visual acuity with and without glasses, and prescription. All data was analyzed using SPSS version 19, and was expressed in the form of tables and charts.

RESULTS

Total 220 patients were evaluated, in which 107 (48.63%) had myopia, of these 52 males (23.60%) and 55 females (25.00%). (Table-1). Among myopics, 75 patients (34.09%) had mild myopia, 22 (10%) had moderate myopia and 10 (4.5%) patients had high myopia. In patients with mild myopia (n=75/107), there were 35 males (15.90%) and 40 female (18.18%), 22 patients were having moderate myopia, in which 11 were males (5%) and 11 female (5%). In high myopic category total number of patients were 10 having 6 male (2.70%) and 4 female (1.80%). (Figure-2)

According to age group distribution, 42 patients lie in 15-30 age group including 18 male (8.18) and 24 female (10.90%), 31 patients came in age group 31-45 years of which 16 male (7.2%) and 15 female (6.8%). In age group 45-60 years, there were 24 patients, 13 male (5.9%), and 11 female (5%). 10 patients aged above 60 years, 5 male (2.2%) and 5 female (2.2%) (Figure-3).

(Table 1) Gender Wise Distribution of Frequency of Myopia (n=107)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Myopics</td>
<td>113</td>
<td>51.37</td>
</tr>
<tr>
<td>Myopics</td>
<td>107</td>
<td>48.63</td>
</tr>
<tr>
<td>Male</td>
<td>52</td>
<td>23.60</td>
</tr>
<tr>
<td>Females</td>
<td>55</td>
<td>25.00</td>
</tr>
<tr>
<td>Total</td>
<td>220</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 2; gender wise distribution of the degree of myopics.

Figure 3, Age wise distribution among myopic patients the highest number of patients were in the younger age group i.e. 15-30 years.

DISCUSSION:

Global refractive errors have been estimated to affect 800 million to 2.3 billion. Variations in the prevalence of myopia in children of different geographical areas have also been widely reported. Considerable regional difference exists from country to country even within the same geographical area. Prevalence rates in East Asian and Southeast Asian countries were found to be generally higher than other parts of the world.

In our study myopia was present in 48.63% of the adult’s population, though larger population studies are lacking on this issue, it gave us a meek insight into the prevalence of myopia in this part of the world. Large community studies conducted in various parts of the world showed the myopia prevalence from as low as 2.7% to as high as 80%, with greatest geographic and ethnic variations. In Brazil, a 2005 study estimated 6.4% of Brazilians between the ages of 12 and 59 had −1.00 Diopter of myopia, compared with 2.7% of the indigenous people in northwestern Brazil. A study of Jordanian adults aged 17 to 40 found over half (53.7%) were myopic. Singapore is believed to have the highest prevalence of myopia in the world; up to 80% of people have myopia, but the accurate figure is unknown.

Majority of adults among myopics have a mild degree of myopia, as evidenced by our study showing that 75 out of the 107 myopics have mild myopia, and 10% (n=22) among general population have moderate myopia, while only 4.5% (n=10) had high degree of myopia. In a study by Bar DY et al, among general population it was shown that the mild myopia is present in 20.7% of the adults, while moderate was present in 9.2%. East Asia has incidence of mild myopia as high as 80% while US and Europe has quite low as 25%.
This could explain why so many people are not using glasses, because the individual with mild myopia used to cope/compensate for the myopia. This has been reported by Wu LJ et al, who showed that only 40% of subjects with myopia (> -1.0D) used glasses regularly.

According to our study, myopia is present in young adults more in comparison to the older age group, as depicted in the figure 3; 19% among general population aged 15-30 years had myopia, and 14.09% aged 31-45 had myopia. This was also reported by Midelfart A et al, from Norway, who showed that 35% of the age group 20-25 years had myopia, while 30% of the age group 40-45 years had this refractive error. While a study from China (Wu LJ et al), showed prevalence as high as 80% among the high school children, however, it was attributed to the large amount of time spent on reading (average 8 hours).

CONCLUSION:

Myopia is a common refractive error in young females; mild myopia is commoner than moderate and severe myopia. The prevalence is higher than the western countries but lower than the eastern countries.

REFERENCES:

ABSTRACT
Objective: To determine association of convergence insufficiency in patients with myopia of age group 15-25 years
Methods: This prospective, descriptive, cross-sectional study was conducted between 15th March to 15th August 2016 at Isra University Islamabad Campus. All patients in 15-25 years age group were included in the study, excluding those who had any manifest deviation (tropia) in distance or near or other refractive error. Patients were first checked for having Myopia and NPC with RAF rule. Data regarding patient’s age, sex were recorded.
Results: Total 100 patients’ data 51, (51%) male and 49, (49%) female were collected. It was observed that at least every second patient has convergence insufficiency; total 71 patients had reduced convergence with more common among females (39%) and in male (32%) and in patients between 20-25 years (71%), especially those who were engaged in near work study having normal vision 6/6 with best correction of myopia. Out of this 71% suffered convergence insufficiency was.
Conclusion: This study shows that a large number of myopic patients after correction with headache who have normal visual acuity may be suffering from convergence insufficiency. Near work is a single important contributing factor. The study highlights the importance of orthoptic examination and convergence exercises in all cases of eye strain and headache.
Keywords: Convergence insufficiency, exophoria, asthenopia, near work, orthoptics.

INTRODUCTION:

Convergence insufficiency (CI) is a common condition that is characterized by a patient’s inability to maintain proper binocular eye alignment on objects as they approach from distance to near object. It is a common eye muscle coordination problem. When reading or doing close work, a person’s eyes must turn in (converge) for the words to be clear and single. This usually happens easily, without thinking. In CI, the eyes do not turn in easily and as a result, extra convergence effort must be used to force the eyes to turn in. This additional effort can cause a number of symptoms such as eyestrain, headaches, blurred vision, double vision, difficulty concentrating, loss of place, concentration, and reading slowly.

There is a high rate of students with headache who had normal visual acuity after correction, suffer from convergence insufficiency. It is more common in females between 21-25 years, especially those engaged in near work. The study highlights the importance of orthoptic examination and convergence exercises in all such cases.

Convergence insufficiency has no obvious sign and is only detected through an eye examination. While looking at objects close by, there is typically an exophoria or intermittent exotropia, a receded near point of convergence, reduced positive fusional convergence amplitudes, and a low accommodation convergence/accommodation (AC/A) ratio. The symptoms associated with convergence insufficiency vary from mild to severe, but they are often extremely troublesome for patients with this condition, especially when associated with a small angle exotropia at the near working distance causing binocular diplopia.

Although Convergence insufficiency can present at almost any age, it is most common in the young adult population. The disorder is reported to be rare in children younger than 10 years of age. Convergence...
insufficiency prevalence had no significant change with growing age up to the age of 60 years but increased significantly after 60 years. Increased visual demands of school work and prolonged periods of reading exacerbate symptoms in older children. Indeed, many patients with this disorder have vocational and/or vocational visual demands that require prolonged close work. The most common presentation encountered by the clinician is that of a high school or college student who develops symptoms when excessive demands are placed on the visual system during extended periods of studying. Lack of sleep, illness, and anxiety are also known to aggravate the problem. Orthoptic exercises are an effective means of reducing symptoms in patients with convergence insufficiency and decompensating exophoria, and appear to target the proximal and fusional components of convergence.  

In 1855, von Graefe first described the symptoms of convergence insufficiency and thought it to be myogenic in origin. In the recent past, convergence insufficiency was considered by some ophthalmologists to be a syndrome of asthenopia, psychogenic in origin and manageable with Orthoptic therapy. Our current understanding suggests an innervational etiology because of the frequent dramatic response to treatment both in the patient’s subjective improvement as well as the objective measurements of near point of convergence and fusional convergence amplitudes.

The current reports sight a frequency of convergence insufficiency between 2.25% and 8.3%, this originate from clinical studies on school age children and university students. Earlier reports find that incidence data varies from 1 to 25%. Further study needs to be done to define the prevalence of this entity and determine if there is a familial predisposition as seen in other strabismic conditions.

CI may severely limit the performance and productivity of an individual. Fortunately, in most of the cases the problems can be resolved easily if timely interventions are made. In order to make the best use of the available resources and eye-care team it is imperative to have an estimate of the magnitude of the problem. Unfortunately any such data is missing from Pakistan. This study will provide baseline information regarding the current burden of convergence insufficiency even after the best correction of myopia.

**METHODOLOGY:**

**Objectives:** to determine association of convergence insufficiency in patients with myopia of age group 15-25 years at Isra University Islamabad Campus. It is a descriptive cross section study  
From 15th March to 15th August 2016.  
**Inclusion Criteria:** 100 myopic students after correction identified with convergence insufficiency that came to the university during the study period.  
**Exclusion Criteria:** Patients less than 15 years or more than 25 years who have manifest strabismus (Heterotopia).

After obtaining the informed verbal consent, medical history was taken from the student in the beginning. This included questions about problems with focusing, blurred or double vision, headaches, and other symptoms. Then the near point of convergence (NPC) was measured with Royal Air Force Rule (RAF-Rule). This test measures the distance from the eyes to where both eyes can focus without double vision. Ethical approval was taken from ethical committee of Isra University.

**RESULTS:**

Total 100 students having myopia after full correction were evaluated for convergence insufficiency at the Isra university Islamabad campus, of these 51 (51%) were males and 49 (49%) were females patients. (Figure 1) Mean age of the patients was 21 years. Most of them (27%) were between 15-20 years age, 73 (73%) patients were in 21-25 years age group (Figure 2). Out of 100 patients 71 (71%) were found to have convergence insufficiency. Table 1 shows that some of patients (18%) were Orthophoric when Orthoptic assessments (Cover and uncover test) were done. The most common cause was near exophoria 51 (51%), and others are shown in table.
Table 1: Frequency of Patients by Type of Deviation

<table>
<thead>
<tr>
<th>Type of Deviation</th>
<th>Cover Uncover Test</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthophoria</td>
<td></td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Near Exophoria</td>
<td></td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>Near Esophoria</td>
<td></td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

DISCUSSION:

This type of study has not been conducted in Pakistan. Therefore, this study can help find that how much patients are affected by convergence insufficiency having myopia, and which type of gender is more affected. Convergence is indispensable for maintenance of single binocular vision for all distances nearer to infinity.\(^\text{12}\) The current study indicates that at least every second patient has convergence insufficiency; total 71% patients have reduced convergence with myopia. Out of 71% the ratio of female is high in which females are 39% and males are 32%. The current study is in accordance with previous studies conducted in India which also reported that almost every second person (49%) presenting with the headache with normal vision and fundus was found to be suffering from convergence insufficiency. This similarity may be due to the resembling social, environmental and economic conditions of India and Pakistan. Most of patients have complained about headache, blurriness at near, loss of concentration during study or computer use, eye strain etc even they have full correction.

This finding is in agreement with a Romanian study revealing roughly 3 in 5 (60.4%) of young adult patients were complaining of blurring of vision at near work and had suffered from convergence insufficiency.\(^\text{13}\)

In another study which was conducted by southern California college of optometry, it was found that approximately 1 in 8 (13%) of fifth and sixth grade children examined during visual screening had the disorder,\(^\text{14}\) as did nearly 1 in 5 (17.6%) of 8 to 10 years old receiving examination at optometry clinic.\(^\text{15}\) These clinical studies show that there is no big difference seen in the number of convergence insufficiency over different regions of the world. The difference identified in literature is possibly due to varying definitions and criteria being used, the population being studied and methods of measurements. In the current study, the higher number of convergence insufficiency may be due to the fact that it was a university based study where student only come and read books for long time. Another large scale study conducted in the general population might be better indicative of the magnitude of the problem.

CONCLUSION:

The current study highlights the high rate of students with headache who had normal visual acuity after correction suffering from convergence insufficiency. It is more common in females between 21-25 years, especially those engaged in near work. The study highlights the importance of orthoptic examination and convergence exercises in all cases of eye strain and headache.

REFERENCES:

Association of Convergence Insufficiency in Patients with Myopia of age Group 15-25 Years


The Importance of Education in Eye Complications associated with Diabetes in South Asian Communities

Dr. Nizam M. Darwesh MD, MSc, PhD., Muhammad Naeem. FCPS², Dr. Irshad Ahmad PhD (Bio)³ Nighat Nawaz M.Phil. (Bio)⁴

ABSTRACT

Objective: To investigate the importance of education, knowledge and awareness in eye complications associated with diabetes in South Asian communities.

Methods: This study was designed as a qualitative research using the combination of in-depth interviews and focus group approach methods; the data was analysed thematically.

Results: The results showed that most of the participants had no knowledge or awareness regarding eye complications associated with diabetes, and they thought there was no link between the eye complications and diabetes. Most participants had the perception that low vision was a normal ageing process and could not be rectified. The study found that there was evidence to suggest that eye health was not considered to be a priority; instead, it was thought to be a natural part of the ageing process.

Conclusion: Education, knowledge and awareness are the key factors to minimise the risk of eye complications associated with diabetes, and to enhance eye health and diabetes care.

Key Words: Importance of education, eye complications associated with diabetes, South Asian communities.

INTRODUCTION

Worldwide, the prevalence of diabetes is high. According to the International Diabetes Federation (1), it was estimated that the worldwide diabetes prevalence for 2015 was approximately 415 million individuals aged between 20 to 79 and above; it is expected that these numbers will increase to 642 million people by 2040 (1).

It is estimated that 3.3 million people in the United Kingdom are living with diabetes and it is expected that by 2025 this number will increase to 5 million. It is also estimated that there are around 590,000 people in the UK who have diabetes but have not been diagnosed (2). South Asian communities are more likely to develop this metabolic disorder (2,1). According to the 2011 UK census, after the white population, the South Asian population are the second largest ethnic group in the UK (4). Studies estimated that the prevalence of diabetes in South Asian communities in England in 2010 was 14.0%, compared with 6.9% in the general population (5,4). Worldwide, diabetes education is considered to be very important for diabetes self-management; however, in South Asian communities, knowledge of this condition remains low (6).

Seventy (70%) of eye complications are treatable if diagnosed during the early stages. The importance of the support of health professionals, family and friends always benefit the patient. Learning along with exercise, medication and management with regular check-ups are important parameters to control its complications.

If the South Asian communities are more likely to develop diabetes, it may possible that the ratio of eye complications associated with diabetes may also be high in these people. Many people with diabetes develop some form of eye disease which can damage vision or provoke blindness (7,1). Research on epidemiological data for the United Kingdom suggests that between 12-15% of people with diabetes aged 75 or over have visual acuity of less than 6/18, and they are ten to twenty times more at risk of going blind compared to those without diabetes (8). Additionally, individuals with diabetes have a doubled risk of suffering from diabetic retinopathy, maculopathy, proliferative retinopathy, cataracts, glaucoma and age-related macular degeneration compared to other individuals, all of which are...
The Importance of Education in Eye Complications associated with Diabetes in South Asian Communities

Statistics suggest that 4,200 of those individuals classed as blind are blind due to diabetic retinopathy, (7). After an individual is diagnosed with Type 1 diabetes, nearly all will develop some sort of retinopathy within twenty years. Furthermore, approximately two thirds of Type 2 diabetes sufferers will develop a form of retinopathy within 20 years (7). South Asian communities need more diabetes screening and prevention programmes to reduce the risk of eye complications associated with diabetes.

METHODOLOGY

The main objective of this study was to investigate the importance of education, knowledge and awareness regarding eye complications associated with diabetes and to identify related issues among South Asian communities, and to evaluate how to enhance their knowledge related to eye complications associated with diabetes. This study was designed as an exploratory qualitative study using a combination of in-depth interviews and focus group approach methods, and the data was analysed thematically. Qualitative methods are an appropriate approach to understand people’s behaviour related to their experiences, particularly people’s feelings and behaviour related to their health issues (9). The key tools and modes of data collection research methods to explore people’s subjective understanding of their daily lives are focus groups and interviews (10). The focus group and interviews were determined by the researcher to be suitable methods to be adopted for data collection.

The study was conducted in the Institute of Diabetes for Older People (IDOP), University of Bedfordshire, UK. The participants for this study were recruited between 4th September and 4th November 2014. Eight participants for in-depth interviews and 6 participants for the focus group, aged 50, with no upper age limit, diagnosed with eye complications associated with diabetes, were randomly chosen with help from health professionals, general practitioners and an optometrist from the Bedfordshire region. All participants were given details of the study, and their questions about the study were answered. The potential participants were then given one week to read and sign the consent form.

Full ethical approval was granted by the Institute of Diabetes for Older People (IDOP), University of Bedfordshire, UK. After data collection, a thematic method was used for the data analysis. The thematic analysis method is very effective for exploring and extracting the living experiences of participants (11,10). The following steps were used for thematic analysis:

Familiarisation: Generation of codes, themes search, themes review, define and name the themes production of the report.

RESULT:

Three main themes, 8 categories and 28 subcategories were identified to highlight the broad story of living with diabetes. In this article we will only concentrate on those subcategories which quote the importance of education in eye complications associated with diabetes.

The following four sub-categories were identified on the subject:

Essential learning, experiential learning, support from health professionals, family and friends, education, knowledge and awareness of diabetes, essential learning.

People with diabetes and its complications, specifically eye complications, have to learn how to deal with it. Essential learning is the basic information which people could obtain from health professionals, books, media, or other sources (9). Learning the basic knowledge is necessary for people in order to cope with their diabetes and its complications.

This quoted statement shows their concerns: Interviewee one: “We learned lots from books, some medical words we can’t understand, but since being diagnosed with diabetes We educate myself with books.” Interviewee two: “While for me books are not a good thing as my eyes problems. Long time ago I took some booklet from surgery to read, but even more, I feared that my blood pressure and blood sugar might not be under good control, it make me more worried I just stop to read it.” Interviewee three: “I can just get information on Goo-
gle to learn about diabetes to control but I don’t know who is writing that one. I cannot verify the authentic source of what is available on Google or not. I just don’t know.”

**Diabetes complications**, specifically eye complications, among other chronic diseases, have particular characteristics and education could be more helpful in improving diabetes care skills (12).

**Experimental learning** People with diabetes and its complications, specifically eye complications, can start to develop strategies to cope with their problems; e.g. knowing how to avoid the risk of increasing their blood glucose level. This quoted statement shows their concerns:

**Interviewee four:** “I educate myself about eye health and diabetes through books. I’m very sensible about, I might have a box of chocolates for my birthday or Christmas and it takes 6 months to get through it. And I love chocolate but I’m not stupid. It wouldn’t occur to me to eat two or three after another - I’d like to but I know I can’t.”

**Interviewee five:** “Education is very important for people with diabetes. I know how to cope with my condition, I think exercise is very important to control your sugar and cholesterol, just keep doing exercising.”

- Support from health professionals, family members and friends are also important at the onset of diagnosis. Participants reveal the process below:
  - “I feel something in my eyes unusual, so at that time I said to myself ‘Go back to your doctor’ but the (doctor) said: ‘There’s nothing you can do’ as you are diabetic. I was very upset and even the doctor didn’t explained to me any things about my problems as they are very busy. He (doctor) just said there is nothing they could do.”
  - **Interviewee six:** ‘There’s nothing you can do’ as you are diabetic. I was very upset and even the doctor didn’t explained to me any things about my problems as they are very busy. He (doctor) just said there is nothing they could do.”
  - **Interviewee seven:** “When I was diagnosed with diabetes I was very upset. And then my son say to me ‘dad, in fact, you don’t need to worry, it’s easy, just take your medication and control your diet. Don’t eat sugar.’ So it is nothing, and that’s true he make me comfortable.”

If the person with diabetes has a family history of the disease, their learning could start earlier. However, the learning could be negative or positive, depending on how their family perceives diabetes. If their family has good knowledge about diabetes and they have good metabolic control, it would be more likely to lead to a positive influence.

Due to lack of education and awareness of diabetes, most of the participants experienced chronic complications of diabetes, including eye complications and strokes. The quoted interview below illuminates diabetes and eye health being affected by the lack of knowledge and awareness:

**Participant: 1** “I feel the things in my vision, can’t focus my vision properly, so I have been to the optician, she advised me an eyeglasses. At that time I feel I am fine, but after a month my vision was the same. I stopped to wearing my glasses as it makes me dizzy and gave me headache. I have been to my GP and I was shocked when he said that you are diabetic and maybe your vision problems is related to your diabetes. He send me to the hospital for my eyes check-ups and I was diagnosed Diabetic Retinopathy. I was not aware of any these problems otherwise I would control my diabetes and its complications.”

**Participant: 2** “The loss of vision would worry me, but I did not know this is a complication of diabetes, I thought this is just my age related problem.”

**Participant: 3** “I am getting older, I don’t think so my eye problems were associated with diabetes, this is just my age”.

**Participant: 4** “I did not know about the stroke but after I had one my doctor said this is due to your diabetes, I started to take exercise every day.”

**Participant: 5** “In the findings, if the people with diabetes had ever met another person with diabetes suffering from diabetes complications, they would start thinking about themselves and being afraid to live a life like that, they experienced tremendous stress.

The quote below presents the perspective of the person:

**Participant: 6** “My father had diabetes and he lost both of his eyes; he was unable to see, he passed away last year. As I am diabetic with eye problems (Diabetic Retinopathy) always thinking the same as my father faced. I must control my diet, and take exercise constantly as well.”

With a lack of education or limited awareness of potential complications, people might ignore the importance of diabetes education. One of the participants described how he suffered from hypoglycaemia without knowing how to deal with it:

**Participant: 7** “I didn’t know about the hypoglycaemia and that I had to eat sweets whenever I got hungry. No one told me that before, otherwise I would have had no problem to take a toffee at any time. This is just a sample of information but no one gives me that information, I think information is very important for all people suffer from diabetes.”

In the findings, some participants had stopped taking their medication due to a lack of awareness, knowledge and education. This is a common misconception being found involved with medication, and one of the participants below demonstrates this phenomenon:

**Participant: 8** “When I was diagnosed with diabetes my friend said ‘don’t take medication. After taking medication, you will taking it for a long time, and will never stop.”
DISCUSSION:

South Asian people living with diabetes have a greater chance of developing long-term diabetes complications if they do not have good metabolic control \(^{13,4}\), and for good metabolic control they need good knowledge and education. Once they have complications, the suffering they have can be more intense. Without education it will not be possible to provide good care to people living with diabetes \(^{14}\). For good knowledge and awareness of diabetes and its complications, specifically eye complications, learning is the essential key, and if people with diabetes cannot identify that they have changed due to diabetes, the situation becomes harder and more challenging. Having diabetes deeply affects the sufferer as a changed person, both psychologically and physiologically \(^{13}\). People with diabetes have to learn how to manage and cope with diabetes complications in order to remain healthy, as people with diabetes have a great chance of developing long-term complications. Most participants identified their families as a source of positive support in the management of their diabetes, as the participants quoted above reveal; this is also confirmed by other researchers \(^{16}\).

South Asian communities are at a higher risk of developing Type 2 diabetes at a younger age than white European people \(^{6}\) and they are also at increased risk of eye complications associated with diabetes. Education, knowledge and awareness are essential to diabetes care; the capability of a person with diabetes to search for resources, could help them to advance their learning \(^{15}\). If people with diabetes start to learn how to deal with their diabetes and have more in-depth information about diabetes care to suit them, they will be able to better look after themselves \(^{16}\). It is impossible that the individuals with diabetes stay unaffected by their social context, but if people with diabetes have good knowledge and education then the risk of complications will be lower and more controllable. Education, knowledge and awareness regarding diabetes will change people’s perceptions to understand the consequences of diabetes, and it will be possible for them to take action and change their lifestyle; otherwise, they have a greater chance of suffering from diabetes complications, including eye complications associated with diabetes \(^{17}\).

CONCLUSIONS:

Similar themes to those raised during the interviews and focus groups in this study were also found in earlier studies, particularly the fundamental importance of education and knowledge of diabetes complications. According to Charles (2007), 70% of eye complications are treatable if diagnosed during the early stages, which also found that learning, exercise, medication management, and regular check-ups were important. The importance of the support of health professionals, family and friends was acknowledged by this study, which was also reported by Watson et al. The themes of education, knowledge and awareness of diabetes emerged from interviews and focus groups in this study, which were also found in the earlier research. Education, knowledge and awareness of diabetes will help people to understand the importance of diabetes controls and eye examinations, early diagnoses and, in time, treatment, as well as reducing the risk of eye complications associated with diabetes.

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To determine the Causes of Severe Visual Impairment /Blindness in Children attending Schools for Blind in KPK

Javed HassanBVS., MPH (CEH), Nazish B. Rehaman BVS., Sadiqullah FCPS., M.Sc., Jamil Ahmed BVS, saifullah BVS MPH, Muhammad Imran KhanBVS MPH

ABSTRACT

Aim: To determine the causes of severe visual impairment /blindness in children attending schools for the blind in Khyber Pakhtunkhwa.

Material and Methods: This was basically a cross-sectional descriptive study. A sample of 106 children was taken using non-probability purposive sampling technique. Children with severe visual impairment and blindness were examined attending schools for blind in Khyber Pakhtunkhwa. Data of the students were collected using WHO designed form for severe visual impairment /blindness. Examination includes visual acuity testing using standard LogMAR Chart, Retinoscopy, Ophthalmoscopy and Anterior segment examination with magnifying loupe. Study was conducted from June to December 2013.

Results: 3.8% of the children had visual impairment, 17% had severe visual impairment (corrected visual acuity less than 6/60 in the better eye) and 78.3% were blind. Retinal dystrophies (41%) was the commonest cause responsible for blindness followed by whole globe problems (19%), followed by lenticular pathology (14%) and the fourth factor the corneal pathology (9.50%).

Conclusion: Retinal dystrophies were the major cause of blindness followed by whole globe problems. A high proportion of children were blind due to avoidable causes and consanguinity in parents was also high 62%. 95% of the children were having SVI/BL. The majority of causes acquired during childhood could be prevented or treated such as VAAD and measles.

Key words: SVI (Severe visual impairment), Blindness, VAAD (vit. Associated disorders), children.

INTRODUCTION

According to the new data by the World Health Organization (W.H.O.), there are approximately 285 million people around the world whose vision is impaired, due to either eye diseases or uncorrected refractive errors. Of this number, 39 million are blind and 246 million have low vision. Ninety percent of these blind people live in developing world where blindness remains one of the major public health problems. Generally common causes of blindness include cataract, uncorrected refractive errors, glaucoma, age-related macular degeneration and corneal opacity (mainly from trachoma). Vit. A deficiency/measles contributed to the majority of the preventable causes. Childhood cataract was one of the main treatable conditions. Retinal dystrophy (41%) was the major cause of blindness, consanguinity was found as high as 62%.

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known as VISION 2020: The Right to Sight. Unlike in adults, only about fifty percent of all childhood blindness is avoidable. The major preventable causes include vitamin A deficiency, measles, trachoma, harmful traditional eye medicines and ophthalmia neonatorum. Cataract, glaucoma and retinopathy of prematurity are common surgically treatable causes of childhood blindness. The Vision 2020, Initiative aims to reduce the prevalence of blindness in children from the present 0.75 per 1000 children to 0.40 per 1000 children by the year 2020. Childhood blindness has profound consequences not only for the individual but also for the family as well as for the community. 1.5 million children are blind and out of them 1 million live in Asian countries.

MATERIAL AND METHODS:

This was basically a cross-sectional descriptive study. A sample of 106 children was taken using non-probability purposive sampling technique. The institutes for the blind children in Khyber Pakhtunkhwa were visited from June 2013 to August 2013 and data were collected through WHO/PBL designed examination record form for children with blindness and low vision. Informed permission was obtained from the head of each institution and also from the parents. All children aged less than 16 year attending schools for blind in KPK were included in the study. Log MAR vision chart was used for vision assessment was done and recorded for each eye separately. 3/60; visual acuity was considered as a land mark and if a child was unable to read 3/60 was supplementary checked for light perception and simple magnifying loupe was used for anterior segment examination. Those children whom vision in the better eye with best available correction was less than 6/60 were further examined for cause of SVI/blindness. Regarding onset of visual loss related information, a brief history was also collected from concerned class teacher and parents of blind children whenever possible to collect such information as to have well informed understanding of the child disease medical record of the institution was also reviewed. A thorough history regarding age at the time of onset of visual loss, other family members with same condition of blindness and whether the parents of consanguineous marriage were also recorded.

RESULTS:

The total number of 106 students whose ages were around 16 year were examined, (93%) were males and (7%) were females. A history of consanguinity was recorded in (62%) of the parents. On the basis of initial examination and vision assessment 83 (78.3 %) children were blind (<3/60 to NPL)

<table>
<thead>
<tr>
<th>WHO Category</th>
<th>Vision in the better eye</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No visual impairment</td>
<td>&gt;6/18</td>
<td>1</td>
<td>0.9%</td>
</tr>
<tr>
<td>Visual impairment</td>
<td>&lt;6/18 to 6/60</td>
<td>4</td>
<td>3.8%</td>
</tr>
<tr>
<td>Sever visual impairment</td>
<td>&lt;6/60 to 3/60</td>
<td>18</td>
<td>17.0%</td>
</tr>
<tr>
<td>BLIND</td>
<td>&lt;3/60 to NPL</td>
<td>83</td>
<td>78.3%</td>
</tr>
<tr>
<td>Cannot test</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Not specified</td>
<td></td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>106</td>
<td>100%</td>
</tr>
</tbody>
</table>

One child (0.9%) had no visual impairment (Visual acuity equal to or better than 6/18). 04 (3.8%) of the chil-

Unusual cases of Retinoblastoma (n=227)

<table>
<thead>
<tr>
<th>Presenting features</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of cases with endophthalmitis</td>
<td>15</td>
<td>6.6</td>
</tr>
<tr>
<td>Orbital cellulitis and uveitis</td>
<td>5</td>
<td>2.2</td>
</tr>
<tr>
<td>Endophthalmitis</td>
<td>4</td>
<td>1.7</td>
</tr>
<tr>
<td>Hyphaema</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>Complicated cataract</td>
<td>1</td>
<td>0.45</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>1</td>
<td>0.45</td>
</tr>
<tr>
<td>Corneal staining</td>
<td>1</td>
<td>0.45</td>
</tr>
<tr>
<td>Phthisical eye</td>
<td>1</td>
<td>0.45</td>
</tr>
</tbody>
</table>

% = percentage, n = no of case
dren had visual impairment (best VA <6/18 to 6/60). 18(17.0%) of the children were suffering from severe visual impairment (best VA <6/60 to 3/60). (Table 1)

Table 2: Major anatomical site of abnormality leading to Visual Loss

<table>
<thead>
<tr>
<th>Site of anomaly</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole globe</td>
<td>20</td>
<td>19.00%</td>
</tr>
<tr>
<td>Cornea /phthisis</td>
<td>10</td>
<td>9.5%</td>
</tr>
<tr>
<td>lens</td>
<td>15</td>
<td>14.3%</td>
</tr>
<tr>
<td>Uvea</td>
<td>1</td>
<td>1.00%</td>
</tr>
<tr>
<td>Retina</td>
<td>43</td>
<td>41.00%</td>
</tr>
<tr>
<td>Optic nerve</td>
<td>08</td>
<td>7.6%</td>
</tr>
<tr>
<td>Glaucoma/bupthal-</td>
<td>05</td>
<td>4.8%</td>
</tr>
<tr>
<td>Not examined</td>
<td>3</td>
<td>2.9%</td>
</tr>
<tr>
<td>Not specified</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

Anatomical sit of anomaly
Retina (41.0%) was found as a major site of anomaly followed by whole globe (19.0%), lens (14.3%) and cornea (9.5%). (Table 2)

Table 3: Etiology of VI in children whose vision in the better eye is less than 6/60

<table>
<thead>
<tr>
<th>Etiological category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hereditary</td>
<td>65</td>
<td>61.9%</td>
</tr>
<tr>
<td>Intrauterine</td>
<td>1</td>
<td>1.00%</td>
</tr>
<tr>
<td>Perinatal</td>
<td>1</td>
<td>1.00%</td>
</tr>
<tr>
<td>Childhood</td>
<td>6</td>
<td>5.7%</td>
</tr>
<tr>
<td>Unknown</td>
<td>32</td>
<td>30.5%</td>
</tr>
<tr>
<td>Not specified</td>
<td>00</td>
<td>0.00%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

Hereditary anomalies were responsible for majority of cases (61.9%) which includes retinal dystrophies, optic atrophy followed by unknown etiology (30.5%) (Table 3)

DISCUSSION

Blind schools screening has been proven to be effective in identifying blind/SVI children especially in low income countries where resources to undertake more formal searches are scanty. Although blind school studies have the advantage of ease of examining a large number of children within a relatively short period of time by one or two examiner using standard methods, there are potentially two major biases in study of blind school children. First those children with multiple handicap or syndromes involving the eye as a part of systemic condition are excluded as they are educated in different schools and it was not possible to include these schools in study. Secondly pre-school children are not found in the schools for the blind and are thus excluded from the study. 17.0% had severe visual impairment and 83(78%) were suffering from blindness and overall SVI/BL was 95.0% in the study population, which is higher than reports for Sri Lanka (89.0%),7 Ethiopia (94.5%),8 and North India (92.4%).9 Nigeria (98.6%)10 and Indonesia (99.7%).11

Major anatomical site involved was retina 41%.followed by whole globe 19%, lens 14.3% and Glaucoma/Buphthalmos.

4.8% comparing these results to studies conducted in other parts of the world we find that in 20.8% of cases retina was responsible for SVI/BL in Malaysia12 and 22.5% in China.13 In Indonesia11 blindness /SVI due to whole globe was found in 35.9% of cases and in North India 27.4%.10 While in Nigeria10 it was 17.4%.

Hereditary factor was responsible for 61.9% of blindness/SVI which is higher than reports for Ethiopia (49.4%),8 Nigeria (38.61%)10 and Indonesia (31.9%).11 In 30.5% of cases it was not possible to categorize the blindness/SVI to one of WHO’s four etiological classifications. Childhood factor was found in 5.7% of cases which is lower than reports for Indonesia (28.5%)11 Nigeria (38.61%).12 in schools, the etiology of blindness/SVI could not be determined in 30.5% of children. Of cases of known etiology, Kello8found that childhood factors (mainly VAD) accounted for 49.8% of the cases. In the study by Muhit et al, 30.7% of cases were due to childhood factors resulting in corneal scarring principally from vitamin A deficiency14.

CONCLUSION

Vit. A deficiency/measles contributed to the majority of the preventable causes. Childhood cataract was one of the main treatable conditions. Retinal dystrophy (41%) was the major cause of blindness, consanguinity was found as high as 62%.

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To determine the Causes of Severe Visual Impairment /Blindness in Children attending Schools for Blind in KPK


********************************************************************************

Promyelocytic Leukaemia (APL).

An old man presented with progressive neutropenia and anemia. The bone marrow aspiration showed evidence of promyelocytes with prominent Auer rods. Auer rods can be seen in most subtypes of acute myeloid leukemia, but when such rods are abundant, they suggest APL. D.D. Acute promyelocytic leukemia (APL), Chronic lymphocytic leukemia (CLL, Multiple myeloma (MM), Acute lymphocytic leukemia (ALL), Chronic myeloid leukemia (CML).
ABSTRACT

Background: Down syndrome is a common chromosomal disorder. It is associated with numerous ocular manifestations, including eyelid problems, keratoconus, Brushfield spots of the iris, refractive error, strabismus, and nystagmus.

Objective: Aim of this study is to investigate the refractive error of down syndrome patients.

Methods: Total 50 children with down syndrome age ranging from 6 years to 14 years old were included in this study through convenient based sampling. All children were assessed through cycloplegic and non-cycloplegic refraction.

Results: The result shows that among 50 children, 65% had hypermetropia and 25% had astigmatism and 7% had myopia. There is a significant relationship in between learning disability and hyperopia and astigmatism.

Conclusion: Refractive error is very common in down syndrome patients. The main refractive error were found to be hyperopia and astigmatism.

Key Words: Cycloplegic refraction, astigmatism, myopia, hypermetropia

INTRODUCTION:

Down syndrome is among the most common genetic disorder in which a person has 47 chromosomes with extra chromosome at pair 21. A comparatively high incidence of ocular and orbital abnormalities has been reported in persons with Down syndrome.[1]

The reported incidence of Down syndrome ranges from one in 600 to one in 800 live births.[2] Down syndrome was first described by John Langdon Down in 1866.[4] He described the face as ‘flat and broad, the eyes are obliquely placed, the palpebral fissure is very narrow’.[4] Dr. Down established an institution for educating those with intellectual / cognitive disabilities. The incidence of Down syndrome is about 1 in 600 live births, but it increases dramatically with the age of the mother at the time of delivery:


a. At 20 years = 1/2000
b. At 30 years = 1/1000
c. At 35 years = 3/1000
d. At 40 years = 1/100
e. At 45 years = 36/1000
f. >49 years = ¼. [5]

Refractive error is very common in down syndrome patients i.e., hyperopia and astigmatism with greater learning disability. Such ocular anomalies are common hence regular examination is mandatory in such patients.

The prevalence of refractive errors differs among different ethnic groups. Asians have the highest prevalence of myopia. In Asian patients with strabismus, exotropia is the most common type.[6,7,8] It is likely that the ocular clinical manifestations of Down syndrome also differ according to ethnicity. However, there is limited information concerning Down syndrome in Asians.[9] Moreover, there is no detailed description of strabismus or refractive errors in Asian patients with Down syndrome. This study was designed to survey the prevalence of refractive errors and strabismus in Asian patients with Down syndrome, as well as to analyse age-related changes in refractive errors and strabismus in patients with Down syndrome.

Through this study we can analyze that which type of eye anomalies are common in down syndrome patients and how to manage these anomalies. Down syndrome is the most common cause of intellectual
impairment, and life expectancy in this group has increased in recent decades, meaning that healthcare is increasingly focused on quality of life and the management of treatable illnesses. There are frequent problems associated with vision in Down syndrome, including refractive errors, strabismus, reduced vision, and reduced accommodative ability.

One particular aspect of visual function that can be effectively managed by optometrists is accommodative deficits. Woodhouse et al., 16 initially established that significant accommodative deficits were present in children with Down syndrome, and further work has established that this is not just a consequence of other ocular conditions, such as uncorrected refractive error or poor visual acuity (VA). Accommodative deficits are particularly important as near tasks are central to development in childhood. Children with Down syndrome are considered visual learners, 24 and vision is a key sense contributing to the achievement of developmental milestones and accessing educational and recreational material. [10]

MATERIAL AND METHODS:

**Inclusion criteria:** A cross sectional study was conducted from 15 July to 15 September on down syndrome patients of 5-16 years old children. Convenient based sampling was done and sample of 50 children was taken. informed consent was taken from each patient.

**Exclusion criteria:** was any history of trauma. Data was analyzed using SPSS 20.00 software. All the data was presented in the form of tables, and graphs.

RESULTS:

The result shows that 52% female and 48% male were included in this study. This result also shows that 32% of the patients are between 5-8 years, 42% are 8-11 years and 26% are 11-15 years of age.

<table>
<thead>
<tr>
<th>Types of refractive error</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>MYOPIA</td>
<td>7%</td>
</tr>
<tr>
<td>HYPERMETROPIA</td>
<td>65%</td>
</tr>
<tr>
<td>ASTIGMATISM</td>
<td>25%</td>
</tr>
<tr>
<td>EMETROPIA</td>
<td>3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Explanation:** The result shows that the main refractive error of down syndrome patients was hyperopia and then astigmatism.

<table>
<thead>
<tr>
<th>Group</th>
<th>Correlation coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astigmatism versus learning disability</td>
<td>0.988</td>
<td>P &lt; 0.01</td>
</tr>
<tr>
<td>Myopia versus learning disability</td>
<td>0.818</td>
<td>Not significant</td>
</tr>
<tr>
<td>Emmetropia versus learning disability</td>
<td>0.448</td>
<td>Not significant</td>
</tr>
<tr>
<td>Hyperopia versus learning disability</td>
<td>0.989</td>
<td>P &lt; 0.01</td>
</tr>
</tbody>
</table>

**Explanation:** The relationship between refractive error and the level of learning difficulty is shown in Table 2. A significant correlation was found between greater levels of cognitive impairment and astigmatism and hyperopia.

DISCUSSION:

The result shows that among 50 children 65% had hypermetropia and 25% had astigmatism and 7% had myopia. There is a significant relationship in between learning disability and hyperopia and astigmatism. A study was conducted in Hauqland Hospital Norway. According to that From longitudinal spherical equivalent values of the right eye, three main categories of refraction were defined: stable hypermetropia (<1.5 D difference between the first and last visit) (n=34), increasing hypermetropia (“hypermetropic shift”; >1.5 D difference) (n=11), and decreasing hypermetropia/development of myopia (“myopic shift”; >1.5 D difference) (n=9). Patients with anisometropia (n=6) were evaluated separately. In the stable hypermetropia group three sublevels were chosen: low (> +2.0 D at the last visit), moderate (+2.25 to + 4.0 D), and high (> +4.0 D). An accommodation weakness was found in 55% of the children. Accommodation weakness was significantly less frequent in the stable, low grade hypermetropia group (22%) than in all the other groups (p=0.008). The frequency of astigmatism >1.0 D at the last visit was 57%, the direction of axis being predominantly “with the rule.” All the eyes with oblique astigmatism had a side specific direction of axis; the right eyes belonging to the 135° axis group and the left eyes to the 45° axis group.

A total of 86 children (aged 5-18 years with a mean age of 12.5 years) were examined in the institutions. Sex distribution was 50% male and 50% female. Mild learning difficulty was found in 6% of the children, 7% had moderate, 45% severe and 42% profound learning difficulty. 9% of the children did not have any refractive errors. A total of 86 children (aged 5-18 years with a mean age of 12.5 years) were examined in the institutions. Sex distribution was 50% male and 50% female. Mild learning difficulty was found in 6% of the children, 7% had moderate, 45% severe and 42% profound learning difficulty. 9% of the children did not have any refractive errors. The group with low or no refractive errors included all of the children with mild learning difficulty, 50% of those with moderate learning difficulties, 34%
of those with severe learning difficulties and 50% of those with profound learning difficulties. None of the children with mild learning difficulties had moderate refractive errors, but 50% of the subjects with moderate learning difficulties had moderate refractive errors as did 38% of the children with severe learning difficulties and 42% of the children with profound learning difficulties. Twenty eight percent of those with severe learning difficulties and 8% of those with profound learning difficulties had high refractive errors while none of the children with mild or moderate learning difficulties had this degree of refractive error.\[13\]

Another study was conducted in New York according to this It was exceedingly common for older adults with Down syndrome to have an ophthalmic disorder. The medical records of 77.6% (353 of 455) adults with Down syndrome indicated they had at least one ophthalmic disorder. We found an association between age and the prevalence of having at least one ophthalmic disorder such that, as a group, individuals having an ophthalmic disorder were 2.5 years older than those who did not, F(1,454) = 8.35,. The association between sex and the prevalence of having at least one ophthalmic disorder were 2.5 years older between age and the prevalence of having at least one ophthalmic disorder. The medical records of 77.6% (353 of 455) adults with Down syndrome indicated they had at least one ophthalmic disorder. We found an association between age and the prevalence of having at least one ophthalmic disorder such that, as a group, individuals having an ophthalmic disorder were 2.5 years older than those who did not, F(1,454) = 8.35,. The association between sex and the prevalence of having at least one ophthalmic disorder was not significant, \( \chi^2 (1) \) [14]

CONCLUSION:

Refractive error is very common in down syndrome patients. The main refractive error were found to be hyperopia and astigmatism. Greater learning disability is associated with hyperopia and astigmatism in down syndrome patients. This study proves that refractive error and ocular anomalies are common in down syndrome patients so regular examination must be done in these type of patients.

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13. Refractive errors and visual anomalies in Down syndromeJoav Merrick and Kenneth Koslowe
Knowledge, Attitude, Practices of using Spectacles in Adult Population of KPK.

M. Mugheera Nafey MBBS¹, Amir Iqbal MBBS³, Hajira Khan MBBS³

ABSTRACT:

Objective: Spectacles are most frequently used option for correcting refractive error. It is less costly and one of the easy method that can be used on daily basis. To study the ratio of spectacle user in KPK and to know of awareness level of people about spectacles.

Methodology: A cross sectional study was conducted on it. Sample of 185 people was collected through non probability convenient based sampling method.

Results: The result shows that 70 patients of age 21-30 are not using spectacle which is highest frequency among all. In between 31-40 are using plastic material which is the highest amount among all. Out of 185 people mostly 58% do not know about alternate options of spectacle. 42% people do not know about cleaning and proper use of spectacles.

Conclusion: Most of the people did not know about spectacle material, design and proper alternative. Knowledge attitude and practices of people of KPK about spectacles is very poor

Key words: Spectacle, Attitude, practices, refractive error

INTRODUCTION:

Spectacles are optical to correct defective visions (reading and/or distance), protection, fashion and for achievement of confidence. Spectacles are widely used instrument for correcting refractive error in all over the world, every 10th person use spectacle all over the world. But in some remote areas of Pakistan like KPK, very few people use spectacles in fact people do not know about its proper use.

Refractive error is a very common issue of people in all over the world. People have enough knowledge about how to face this issue. There are some areas in developing countries, where people do not have enough knowledge about it. Every 3rd person is suffering from this issue. People use spectacles normally for better vision although in 21st century many alternate options are available to treat this issue but still spectacle is considered to be one of the safe and cheapest method. Both glass lenses and plastic lenses are used in spectacles and both have different benefits. Spectacles have many advantages like better field of vision, cosmetically more acceptable freely available.

Most of the people do not know the benefits of spectacles uses. They also do not know the material, design and proper alternative for glasses. So the knowledge, attitude and practices are important to know.

The glassworks of Murano in Venice, is a birthplace of spectacles. In the 13th century, they 1st discover soft glasses. The first quality specifications were defined a short time later. These spectacles, called reading aids, had a convex ground lens. The edge was made from iron, horn or wood. Only a single mountain style was available at the time. In general, the first spectacles were used exclusively as visual aids to enable far-sighted individuals to read.

The prevalence of refractive error among the people varies that depend upon, race and ethnicity, with myopia being the most prevalent refractive error ranging from 9.6% in South Africa to 73.9% in Singapore. Data are limited on the prevalence of refractive error among high school students and teenagers in Kenya. Several studies reported that a lack of knowledge regarding refractive error and incorrect attitudes about spectacles are major contributors in uptake of refractive services. So the aim of this study is to know about people awareness about spectacles.

MATERIAL AND METHOD:

A cross- sectional study was conducted from July 2017-september 2017 among adult population living in Malakand KPK either they are using spectacles...
Knowledge, Attitude, Practices of using Spectacles in Adult Population of KPK.

or not. Data was collected through structured questionnaire which included following things:
Knowledge about spectacles,
Spectacle daily use,
Types of spectacles,
Materials of spectacle.

Non probability convenient based sampling was used to collect data and total sample was 185. SPSS version 20.00 was used to analyze the data. Total 10 (five rural and five urban) Union Councils of district Malakand were selected through random sampling.

RESULTS:
The result shows that total 185 people of age group 11-50 were included in this study.

Table 1: Types of spectacles

<table>
<thead>
<tr>
<th>Patient age</th>
<th>Not using</th>
<th>Near vision</th>
<th>Distance vision</th>
<th>Both</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>51</td>
<td>0</td>
<td>20</td>
<td>2</td>
<td>73</td>
</tr>
<tr>
<td>21-30</td>
<td>70</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>76</td>
</tr>
<tr>
<td>31-40</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>41-50</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

The table shows that 70 people of age group 21-30 are not using spectacles which is the highest frequency. And 10 people of age group 41-50 are using spectacle which is the lowest frequency.

Table 2: Material of spectacles

<table>
<thead>
<tr>
<th>Age group</th>
<th>Plastic</th>
<th>Glass</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>21-30</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>31-40</td>
<td>20</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>41-50</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>10</td>
<td>53</td>
</tr>
</tbody>
</table>

The result shows that in between those people who are using spectacles mostly people of age group 31-40 are using plastic lens material in spectacles.

Table 3: Alternative treatment of refractive error

<table>
<thead>
<tr>
<th>Age group</th>
<th>Do not know</th>
<th>Contact lenses</th>
<th>medication</th>
<th>Surgery</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>23</td>
<td>16</td>
<td>23</td>
<td>15</td>
<td>9</td>
<td>86</td>
</tr>
<tr>
<td>21-30</td>
<td>27</td>
<td>10</td>
<td>12</td>
<td>17</td>
<td>10</td>
<td>76</td>
</tr>
<tr>
<td>31-40</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>41-50</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>27</td>
<td>38</td>
<td>38</td>
<td>31</td>
<td>185</td>
</tr>
</tbody>
</table>

The table shows that most of the people did not know about alternative, but most of the people in age group 11-20 somehow know about other alternatives.

DISCUSSION:

The result shows that 70 patients of age 21-30 are not using spectacle, which is highest frequency among all. In between 31-40 are using plastic material which is the highest amount among all. Out of 185 people mostly 58% do not know about alternate options of spectacle, 42% people do not know about cleaning and proper use of spectacles.

A study was conducted in Ethiopia according to this total of 780 study subjects participated in this study. About 25% of the participants have been using spectacles during the study. Participants with primary school education (AOR:2.79, 95 % CI 1.20–6.50) had good knowledge about spectacles. Housewives (AOR = 3.40, 95 % CI; 1.35–8.54) and participants who unable to read and write (AOR: 3.51, 95 % CI 14–10.72) had favorable attitude towards spectacles use[112]

A study was conducted on this topic on 2004 77 children were included in this study. Uncorrected refractive error was found in majority of children. Astigmatism was most common refractive error among children which was almost 46%.8 Another study that was conducted in Nerobi in which the prevalence of significant R.E was 17.2%. The prevalence of myopia, hyperopia and astigmatism was found to be 15.6%, 0.9% and 7.6% respectively. The percentage of students with un-
corrected vision was 64.1%. Only 39% of students had an eye checkup before. Financial issues (38%) and bad appearance (38.1%) were the most common reasons for not wearing spectacles amongst students, 72% students found other ways of correcting vision like contact lenses[13].

Another study that was held in Kerala This study included 50 cases, 60% of the participants were aware about number of their glasses. 52% were aware about how to maintain glasses and care about glasses. 88% checked their eyes after every 3 months, 68% do not know about glasses cleaning, 32% knew about glasses care. 70% had knowledge about glasses uses. Many people were not educated in this data.[14] In another study four factors were identified, which include style, vision avoiding glasses. Many people were not using spectacles because of looks issue many people did not know about their refractive error most girls were avoiding glasses for many reasons like facial appearances and fear to be mocked in the society as a mark of social taboo.[15]

Another study was conducted in the middle east according to this a total of 214 wearers comprising 43.5% males and 56.5% females aged 18-84 years were surveyed. The majority of subjects (92.6%) had at least secondary education. The wearers’ challenges included expensive spectacles (43.0%), falling/scratched/broken lenses (29.4%) and fear that spectacles would damage the eyes (23.8%). The wearers’ attitudes were comprised of consultations with ‘road side dispensers’ (7%) and permitting other individuals to select spectacle frames for them (26%). Care and maintenance practices included use of handkerchief, tissue paper, fingers and water to clean spectacles (49.5%) and placing spectacles inside spectacle cases (30.4%). There were no associations (P > 0.05) between gender or literacy levels and who selected the frames for the subjects, caregivers consulted for spectacles, and cleaning materials for spectacles. The placement of spectacles when not in use was significantly associated (P < 0.05) with the wearers’ gender and literacy levels but not with the length of spectacle wear.[16] So many factors that does matter except literacy level. People who know about glasses uses yet they do not use glasses against social taboo of the society.

**CONCLUSION:**

Most of the people did not know about spectacles uses benefits and how to use spectacles. Majority of people who are using spectacles did not know about proper material and design and proper alternative of glasses. So the knowledge, attitude and practices were not proper among people of KPK.

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Knowledge, Attitude and Practices (KAP) in Management of Diabetic and Diabetic Retinopathy in District Peshawar

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ABSTRACT:
Objective: To investigate the knowledge, attitude and practices in management of diabetes and diabetic retinopathy in district, Peshawar.

Material and Methods: In the periphery of rural areas of district Peshawar, 40 awareness raising seminars were conducted on diabetes and diabetic retinopathy where 25,135 individual. Systematic random sampling technique was used to fill the KAP questionnaire from every 8th individual. Total of 16,205 individual were labeled and responses were noted in the KAP questionnaire. The results were analyzed by different statistical tests (univariate and multiple regression) using SPSS version 20.

Results: Among (n=1605) individuals, 738 (45%) had some knowledge about diabetes and 562 (35%) had some knowledge about diabetic retinopathy. Female had more knowledge about diabetes (OR=1.86, 95% CI: 1.65-2.19) and in those who belonged to the upper socioeconomic class (OR=2.43, 95% CI: 1.14-2.37). The knowledge about diabetic retinopathy was significantly higher among subjects who spoke the local Pushto language (OR=4.28, 95% CI: 2.23-6.13), and in those who belonged to the upper socioeconomic class (OR=1.75, 95% CI: 1.39-2.18). Compared with those who had no knowledge of diabetic retinopathy (n=1043), significant percentages of individuals with knowledge (n=624) had the right attitude i.e., to go to an ophthalmologist for regular eye examinations (60% vs 93%) (p<0.0001). Regarding practice patterns, only 34% of individuals with knowledge about DR believed that if they controlled their blood sugar, they could avoid a visit to an ophthalmologist, compared with 66% with no knowledge (p<0.0001).

Conclusion: Comprehensive awareness raising seminars should be carried out throughout the community to educate the rural population to adopt health practices to manage diabetes and diabetic retinopathy.

INTRODUCTION:

Diabetes is a common chronic disease affecting almost all countries of the world. WHO referred alarming increase in the type 2 diabetes both in developing and developed countries in coming 20 years. In the developed world approximately 46% increase will occur from 55 million in 2000 to 83 million in 2030 however countries in developing world will face approximately increase 150% from 30 million in 2000 to 80 million in 2030. Diabetes as an emerging chronic disease leads to increased morbidity and mortality rates.

There is close association of literacy and language which are independent factors in awareness about the diabetes and diabetic retinopathy. Comprehensive awareness raising seminars should be carried out throughout the community to educate the rural population to adopt health practices to manage diabetes and diabetic retinopathy.

The situation become worse if there is lack of knowledge, attitude and practices by the patient. The rapid rise in developing of the diabetes type 2 created a need to assess the needs for further educational interventions regarding knowledge, attitude and practices about diabetes. As diabetes leads to many other diseases like sight threatening...
Knowledge, Attitude and Practices (KAP) in Management of Diabetic and Diabetic Retinopathy in District Peshawar

ocular complication diabetic retinopathy, renal disorders and life threatening cardiovascular and neurological disorders therefore proper management of the disease seems to be indispensable.

Literature shows that only 63% of the urban population who have diabetes visited an ophthalmologist for eye examination. Similarly Danhona et al observed that 28% of the people have any knowledge about the diabetic retinopathy in urban population. However, the knowledge about the disease fluctuated with the socioeconomic conditions and academic education of the individual. The present study focuses to assess the awareness level or knowledge of diabetes and DR in a rural population of the district Peshawar. This study will provide baseline information about planning for management of the disease in district Peshawar.

METHODOLOGY:

The Research and ethical approval was secured from the Advanced Scientific Research Board (AS&RB) and Ethical approval Committee of Pakistan Institute of Community Ophthalmology HMC Peshawar. Proper inform consent was obtained from all the participants. The demographic and clinical data of the patients were collected and recorded using a questionnaire. The research methodology used in this research was same as used by Rani PK, Raman R, Agarwal S, Paul PG, Uthra S, Margabandhu G et al. In the peripheral rural areas of district Peshawar, 40 Awareness raising seminars were conducted on diabetes and diabetic retinopathy with the help of community support groups affiliated with each Basic Health Unit.

The targeted group was approached with the help of community support group and lady health workers, one month before screening camps. Different methods were used for awareness like banners, leaflets, cable ads etc in local and national languages.

Literature review was carried out for conducting KAP study and published questionnaires and reports were collected regarding diabetes and diabetic retinopathy. The knowledge was assessed by asking the questions like:

1. Have you heard of diabetes mellitus or diabetic retinopathy?
2. Is diabetes mellitus a hereditary disease?
3. Does diabetic retinopathy affect vision?
4. Can individuals with controlled diabetes have eye problems?
5. What eye problems can individuals with diabetes have?

Similarly Attitude was assessed by asking questions: Should patients with diabetes go for eye examinations? ‘Does good control of blood sugar result in preventing a visit to an ophthalmologist? indicated the practice pattern. The responses to questions regarding their knowledge and attitude towards diabetes and DR were acquired in the format of ‘yes’, ‘no’ and ‘do not know’. The results were analyzed by different statistical tests (Univariate and multiple regression and Chi Square) using SPSS version 20 and were interpreted in tables and charts.

RESULTS:

Tab:1Socio Demographic Profile

<table>
<thead>
<tr>
<th>Variables</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years)</td>
<td>56±6.1</td>
</tr>
<tr>
<td>Median Age (Years)</td>
<td>45</td>
</tr>
<tr>
<td>Gender (Male: Female)</td>
<td>4:2</td>
</tr>
<tr>
<td>Level of Education (Illiterate, Primary, Middle level, Higher education)</td>
<td>31%, 39%, 20%, 10%</td>
</tr>
<tr>
<td>House income (Low income, Middle income, high income) on year 2017 per capita income 15000PKR/month</td>
<td>40%, 35%, 25%</td>
</tr>
<tr>
<td>Mean Duration of DM (Years)</td>
<td>4.14±1.6</td>
</tr>
</tbody>
</table>
Knowledge, Attitude and Practices (KAP) in Management of Diabetic and Diabetic Retinopathy in District Peshawar

DISCUSSION:

Diabetes is major public health morbidity. This KAP study was carried out to find the knowledge and aptitude and practices of rural population towards diabetes. The study revealed that only half of the population has medium level of awareness about diabetes however the similar kind of study carried out in Malaysia reports good knowledge, attitude and practices towards the disease (Dandona R, Dandona L) et al., 11. The adult population (40-50 years of age) and who are from high socio economic status has good knowledge about diabetes and diabetic retinopathy. These finding are consistent with the earlier studies that literacy and socioeconomic status has impact on knowledge of the diseases (Fatema K, Hossain S, Natasha K, Chowdhury) et al., 12, 13. The study shows that majority of the population speak local
Pushu language therefore high literacy rate is important in the awareness of the disease. Females were relatively more aware than males about diabetes but not diabetic retinopathy. These findings are also attributed by a study carried out in rural population of India (Al Wadaani F) Furthermore many of the female were housewives and they can easily influence other family members. Awareness is an important step in implementing any successful program against a disease in a particular community therefore it holds well in the issue of diabetic retinopathy. Keeping in mind the goal of generating cognizance among the population, filling the space of knowledge, attitudes and practices with respect to diabetes and visual deficiency in diabetic individuals is of vital importance (Rural and Remote Health Journal) . Previous study also reported that awareness about the diabetes which causes diabetic retinopathy among elder subjects (aged above 30 years) have association with level of education and socio economic condition (Schmid KL) et al. However this study reports is based on the urban population while rural population KAP study of this nature is not reported previously. There is need of specific methodology for awareness strategy in the rural population(Schmid KL) et al. This awareness will encourage patients who have diabetes to visit eye care practitioners to prevent further complication in prevention of blindness.

CONCLUSION

The present study suggests that there is close association of literacy and language are independent factors in awareness about the diabetes and diabetic retinopathy. Awareness raising seminars in rural population will initiate literacy.

REFERENCES:
Difficulties Faced by Visually Impaired Students in Blind Schools of Khyber Pakhtunkhwa (KPK)

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Aimal Khan, B.Sc (Opt)³, Zahid Jadoon, M.Sc (Epidem)⁴.
Sadiquallah, FCPS, M.Sc (CEH)⁵

ABSTRACT
Background: In last few years frequent changes have been made in the learning of special educational systems. The motive behind these evolutionary amendments was the obligation of the people who had a support and are keen to go side by side with other people who are dedicated to work in other countries. These efforts are hampered by lack of data for policy planning to address the difficulties of the visually impaired students in special education schools.

Objective: To determine the common difficulties faced by visually impaired students in blind schools of KPK province of Pakistan.

Methods: It was a cross sectional study. Data was collected in blind schools of KPK province between April and December 2016. Seven special education schools from seven districts were visited which were located in Peshawar, Swabi, Mardan, Swat, DI Khan and Abbottabad districts. Questionnaire containing likert scale was filled which had questions regarding satisfaction in mode of instruction, barriers in instruction and difficulties in orientation and mobility. Data was analyzed on SPSS version 20.

Results: Out of 150 students with visual impairment interviewed 41 female and 109 male students. The mean age of the students in schools was 12.48 ± 2.4 years. The sample includes 48% students legally blind, 42% students partially sighted and 10% students were blind. The major difficulties faced include barriers in education, teacher’s mode of instruction, mobility and orientation. Only 32% of the students were having teaching material in Braille. All of the students 100% did not have KPK text book in Braille. A good number 62% of the students did not have computer access in their schools. 86% were having an opinion that their teachers fully assess them in learning. 63% were reported that they do not feel comfortable in class environment during lessons and it need to be modified. 98% of the students hesitate to go to teacher’s office when they were stuck, therefore teacher’s student relation needs to be making comfortable. 54 % were of the opinion that the teaching material is not good enough. 52% were not given supportive transport for pick and drop. 71% reported that they did not have easy access to toilets in the school. A significant count of visually disable students 93% respond reported that that they were deprived of specialized trainer.

Conclusion: The visually impaired students of blind schools of KPK are facing problems such as barriers in acquisition of reading material in Braille, in soft and recorded form, some of the difficulties they were facing in mode of instruction and mobility and orientation. There is lack of stationeries (Braille printed books), lack of visual readers, teacher’s vacant posts and difficulties in taking exams and transport etc.

Key words: Visual impairment, Special Education Schools, Mode of Instruction, Orientation and Mobility.

INTRODUCTION:

Visual Impairment is defined by Center for Disease control and Prevention (CDC) as visually impaired person whose eye sight cannot be corrected to normal level. Thus it is the functional limitation of eye or visual system.¹ World Health Organization refers that burden of visual disability is a universal issue.² WHO Statistics shows 285 million people with visual impairment, Of them 39 million are blind and 246 have low vision worldwide, 90% live in developing countries.²

Visually impaired children constitute 2-3 % of the population hence their problems should be explored in a better way and the impact of these difficulties on the social economic life of the visually impaired students should also be demonstrated to the public health decision and policy makers. More studies are needed to determine the extent of the problems such as barriers in special education, methods of teaching and mobility and orientation in more details.
One who cannot perform certain tasks due to visual impairment is "visually disabled". Special education is an approach of education which is specifically designed for the special students to meet the varied requirements of children with special needs. It is also known as Special needs education or aided education in which students with disabilities are educated according to their special needs. It has been universally recognized that education is a basic human right since the Universal Declaration of Human Rights in 1948. In light of declaration a program was adopted by UNESCO in 1951 that deals with the processes for valuing the right to free and compulsory education.

Literature acknowledges that for successful learning in special education, incorporation of new technologies is of immense importance. Worldwide both developing and developed countries are solving academic problems in special education by integration of modern technologies. Visually disabled students are most likely to be successful in special education system where qualified staff is available to fulfill their special educational needs. An appropriate move toward, availability, usability and e-learning atmosphere are vital to assess students with visual disabilities who are easily approaching higher education. But it is not enough. It is the need of the hour to have a more reasonable understanding of the consumers in their daily situation.

Some broad issues of visually disabled students are identified in literature are access, equity, and equality of education. It is not an issue to provide support to the visually disabled students but the issue is of receiving equal access to education and make them a good social person of our society. It is a question of once behavior towards the visually impaired person in terms of facial expressions, and body gesture which are silent communication.

It’s important to keep in mind that educational goals are equally important to make visually impaired person ready for social competence, effective communication, employability, and personal independence. However, to achieve these goals, visually disabled students require definite interventions and modifications in their educational programs. Blindness is considered as the most severe public health problem because its impact on the social and economic wellbeing of an individual is worthless. Globally blind person are not being treated in a good manner. The negative perceptions about the visually impaired people results in social isolation and refusal of the blind from society.

Previous studies that carried out shows different anticipated results in the developed world where other indicators for health and education are good too. The training and facilitation of blind students in special education systems are according to standard innovative techniques hence overcoming the barriers in special education system. In Pakistan the scenario is different; the attention is given to treatment of different causes of blindness rather than reforms for rehabilitation of blindness hence very less literature is available in social and rehabilitative aspect. The socio and rehabilitative services are not given the due attention in literatures. Due to those medical treatment and efforts for irradiating blindness by vision 2020 the prevalence of blindness is reduced to 0.9% according to National Survey for blindness in 2003. Despite of these efforts barriers in special education system is left unexplored.

The research is helpful for teachers and policy planners to address the problems of the visually impaired students in special education schools. It provides baseline evidence for the educational needs and planning to fulfill these needs. The study is step toward the sustainable developmental goal 4 which is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

**METHODS AND MATERIALS**

A cross sectional study was carried out from March, 2016 to August, 2016 to identify the difficulties of students with visual impairment in blind schools of Khyber Pakhtunkhwa Pakistan. The study was conducted in special education schools of Khyber Pakhtunkhwa, one of the four provinces in Pakistan. There were seven blind schools in different districts of the province located at Peshawar,Charsadda,Mardan,Swabi,Swat and DI Khan. Total strength in these seven schools was 175 but due to absentees 150 students were interviewed in the study.

All the visual impaired students registered in the daily attendance sheet of special education schools of KPK and those who have their consent form approved were included. The visual impaired students who were mentally disabled too were excluded from the study. Those who were absent on the day of data collection were also excluded. All the blind schools were considered as sample from the province which
was seven in number in different districts of the province.

Research and ethical approval was secured and obtained from advance scientific research board and ethical approval committee of Khyber Medical University Peshawar. Approval was obtained from social welfare department of KPK. Presence of the principal of the school was assured before starting of the school visit to sign informed written consent on behalf of their school children parents before starting of data collection. Detailed interview was conducted with each student separately with the help of blind school instructor in a separate room arranged for this survey. Data were collected from April 1st 2016, to May 31st 2016. Student personal socio demographic data and questionnaire was recorded by each student separately. In each school separate comfortable room was selected for interview of each student. All the students with visual impairment were included in the study and all those who were absent on that day or not properly communicating or mentally retarded too were excluded from the study.

All the students were interviewed and questionnaire was filled from lower grade to higher grade to ensure the exact participatory response rate of the students of each school. A list of the children was taken from the registered book of the school. The data was collected on pre-designed questionnaires during field work and all the data forms were kept safety. Data were entered into data base/MS-Excel and analyzed by SPSS software version 20.

RESULTS
Table 1 shows age wise distribution of study population. The mean age of the study population was 12.48 ± 2.4 years.

Table 1: Age wise distribution of study population.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-10</td>
<td>33</td>
<td>22%</td>
</tr>
<tr>
<td>11-15</td>
<td>111</td>
<td>74%</td>
</tr>
<tr>
<td>16-20</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure 1 shows gender wise distribution of study population. The study population was comprised of 72.67 % (109) boys and 27.33 % (49) girls.

Table 2 Category of visual impairment of study population

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Blind (VA &gt;6/60)</td>
<td>72</td>
<td>48%</td>
</tr>
<tr>
<td>Partially sighted (VA 6/18-6/120)</td>
<td>63</td>
<td>42%</td>
</tr>
<tr>
<td>Blind (VA &gt;6/120)</td>
<td>15</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3 Distribution of visual impairment in students in gender.

<table>
<thead>
<tr>
<th>BLIND CATEGORY</th>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Blind</td>
<td>53 (48.6%)</td>
<td>19 (46.3%)</td>
</tr>
<tr>
<td>Partially sighted</td>
<td>41 (37.6%)</td>
<td>22 (53.7%)</td>
</tr>
<tr>
<td>Blind</td>
<td>15 (13.8%)</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>109 (100%)</td>
<td>41 (100%)</td>
</tr>
<tr>
<td>P Value</td>
<td>0.024</td>
<td></td>
</tr>
</tbody>
</table>
Difficulties Faced by Visually Impaired Students in Blind Schools of Khyber Pakhtunkhwa (KPK)

Table 4 Frequency Distribution of the responses by the students about barriers in education:

<table>
<thead>
<tr>
<th>Response of students facing in Barriers in education</th>
<th>Yes 65%</th>
<th>To some extent 10%</th>
<th>No 25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only 32% of the students with visual impairment were having teaching material in Braille. With Gender X2P Value= 0.000 With Category of VI X2P Value= 0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All of the students 100% in the blind schools of province do not have Khyber Pakhtunkhwa text book in Braille.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All of the students with visual impairment 100% were not provided with any Audio device/Audio Books/Visual aids/ Magnifiers/ Telescope or other viewing devices that they need.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A large number of students 77% were not awarded any financial scholarships on the basis of their disability. With Gender X2P Value= 0.002 With Category of VI X2P Value= 0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A good number 62% of the students do not have computer lab and 55% do not have computer teacher in their schools. With Gender X2P Value= 0.016 &amp; 0.024 With Category of VI X2P Value= 0.000 &amp; 0.220 respectively.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56% of the students with visual impairment were computer illiterate With Gender X2P Value= 0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All the students 100% reported that they do not have laptops with Joint Access with Speech JAWS software for their learning purpose.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A vast number of students with visual impairment 59% (majority of girls) were not encouraged enough to participate in activities like extra curriculum, sports and recreation With Gender X2P Value=0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Frequency Distribution of the responses by the respondents about teacher’s mode of instruction:

<table>
<thead>
<tr>
<th>Response of students in satisfaction of Teachers mode of instruction</th>
<th>Yes 52%</th>
<th>To some extent 28%</th>
<th>No 25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A vast majority of the students 87% opined that they are satisfied by their teacher’s way of teaching in Braille. With Gender X2P Value= 0.002 With Category of VI X2P Value=0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A good number of students 63% were reported that they do not feel in class environment during lessons and it need to be modified. With Gender X2P Value= 0.000 With Category of VI X2P Value= 0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98% of the students with visual impairment hesitate to go to teacher’s office when they are stuck. Therefore teacher’s student relation needs to be making comfortable. With Gender X2P Value=0.000 With Category of VI X2P Value=0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almost half of the students 54% were of the opinion that the teaching material which they are provided need to them are not good enough.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A large number of the students with visual impairment 86% were of the view that their teachers fully assist them in learning With Gender X2P Value= 0.002 With Category of VI X2P Value= 0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65% of the students were not being frustrated when they do not understand Braille and eventually make used to it With Gender X2P Value= 0.000 With Category of VI X2P Value=0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 Frequency Distribution of the responses by the respondents about mobility and orientation:

<table>
<thead>
<tr>
<th>Response of students in Mobility and Orientation</th>
<th>Yes 72%</th>
<th>To some extent 18%</th>
<th>NO 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost half of the students with visual impairment 52% were not given supportive transport for pick and drop. With Gender X2P Value= 0.012 With Category of VI X2P Value= 0.012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A vast number of students with visual impairment 93% respondent that they do not have specialized trainer in the school who could train them in mobility and orientation. With Gender X2P Value= 0.270 With Category of VI X2P Value= 0.035</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A good number of students with visual impairment 86% answered that they are not provide with white cane and other assistive devices in mobility.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Majority of the students 76% responded that they do not have any assistant or coach in playing area. With Gender X2P Value=0.000 With Category of VI X2P Value=0.019.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large number of students 71% reported that they do not have attendants or any arrangement for easy access to toilets in the school With Gender X2P Value= 0.005 With Category of VI X2P Value=0.000.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only 34% of the students with visual impairment need modification in school environment to be barrier free regarding mobility and orientation With Gender X2P Value= 0.036 With Category of VI X2P Value=0.051.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All of the students with visual impairment 100% reported that they do not have any specialized walking track in school and they use the same route as by normal or sighted people.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION:

It is of vital importance that for appropriate education the accessibility, usability, availability of electronic learning environment should be provided. Students who are visually handicap can gain the ability to achieve their education under similar environment and with equal guidance as enjoyed by other students who are normal. Still it’s of vital importance to have a more clear understanding of difficulties that student’s
face that are visual handicap.

This present study throws light on the neglected and unexplored major public health issue of our society. To best of our knowledge this was first time in Therefore in conclusion it is recommended that visually impaired children constitute 2-3 % of the population, so their problems should be explored in a better way such type of study which identifies difficulties faced by students with visual impairment in blind schools of KPK The present study has many anticipated results. Like other disabilities, the study on students with visual impairment were facing problems like barriers in acquisition of reading material in Braille, stationary, some of the difficulties they were facing in mode of instruction and mobility and orientation. These students are experiencing problems of following and understanding teaching instructions, lack of trained teachers, assistance inside and outside the classroom. These finding supports the study of M. Safder, M. Muhammad, S. Akhter et al and Fuller, M., Bradley, A. & Healey, M.

On the issue of mobility and orientation the facility of transport is available to very less number of students. The schools lack of proper trainer who could train in orientation and mobility. These findings are consistent with the results of a study conducted by Haugann. The results threw light on different problems of visually impaired students in blind schools like the inadequate Braille printed books especially of local text board, lack of visual aids, teachers vacant post (computer and mobility and orientation) taking exams in one method and problems in mobility and orientation. The same findings were also reported by Fuller, Healey, Bradley & Hall in a study on “obstacles of visually impaired persons”. Barriers faced by visually impaired students like inaccessible scarce and quality teaching materials and low emotional level and anxiety in content adaptation also mentioned by Gill. This study has concentrated on issues to do with teaching, learning, barriers in teaching and provision of a learning environment that was considered likely to be more generalizable and supports Fuller et al. It is quite proof from the study that while designing a special education school/curriculum the need assessment should be done and the needs of the students should be kept in consideration. It gains support from Burgstahlers.

CONCLUSION:

The impact of these difficulties on the social economic life of the visually impaired students should also be demonstrated to the public health decision and policy makers. Therefore in conclusion it is recommended that visually impaired children constitute 2-3 % of the population, so their problems should be explored in a better way. More studies are needed to determine the extent of the problems such as barriers in special education, methods of teaching and mobility and orientation in more detail.

REFERENCES:

Risk Factor for Dry Eye Syndrome,
(A Hospital based Case-Control Study)

Junaid Faisal Wazir FCPS,MPH,M.Sc (CEH)¹, Fahad Ghayyor B.Sc(Opt),² Aimal Khan B.Sc (Opt),³ Zahid Jadoon.M.Sc(Epi)⁴ Sadiqullah M.Sc(CEH),FCPS⁵

ABSTRACT:
Objective: To investigate risk factors for dry eyes syndrome in a hospital based population.
Material and Methods: It was a hospital based case-control study conducted in Hayatabad Medical Complex Peshawar from January 2nd 2017 to June 30th 2017 in which age and sex matched population was enrolled with cases and controls of ratio 1:2 with 55 cases and 110 controls from the respective families. Both the cases and controls were thoroughly examined with the help of slit lamp and were under gone various ophthalmological tests for dry eyes (measurement of tear film breakup time, Schirmer test, and corneal fluorescein staining). The data including demographic characteristics and lifestyle habits were collected using a questionnaire. The results were analyzed by different statistical tests using SPSS version 20.
Results: The risk factors showed significant association of dry eyes syndrome were the following with diabetes (odds ratio OR 1.608; 95% confidence interval CI, 1.003 to 1.9824), Depression, hepatitis, connective tissue diseases, roccacea and contact lens wearer etc.

INTRODUCTION:
Dry eyes syndrome is an ocular condition which is characterized by disorder of tear film deficiency in tear production or excessive evaporation.¹ The three layers an outer lipid, middle aqueous and inner mucin layer form pre-corneal tear. Any disturbance in these layers causes keratinization of the corneal and conjunctival epithelium.² Dry Eyes can also be found in association with systemic diseases, including Sjogren’s syndrome, Lupus and Stevens Johnson’s Syndrome. Dry eye syndrome is associated with many causes like inflammatory diseases, environmental conditions, hormonal imbalance and contact lens wearer.

Systemic diseases also causes dry eyes which include diabetes, thyroid disease, rheumatoid arthritis and systemic lupus erythematosus can also lead to dry eye. People taking medicines for systemic diseases are also associated with dry eyes these include diuretics, antihistamines, antidepressants, psychotropics, cholesterol lowering agents, beta-blockers and oral contraceptives.³,⁴

Symptoms of dry eyes are inevitable these include persistent dryness, mild irritation, burning, pain, redness and visual reduction. Managing the dry eyes syndrome one should always concern about the cause and severity. To replenish the tear film deficiency artificial tears inform of viscous gel/drops/ointments are used. Topical antibiotics may be needed in some cases as well. Meibomian gland disease need eyelid hygiene and warm lid compresses, together with topical medicines.⁵,⁶

Dry eyes syndrome has several exposures and were significantly associated with diabetes, post-traumatic stress disorder, and significant risk in general population. The general population may take potentially protective factors like food rich in vitamins and fatty acids to protect the dry eyes syndrome.

Dry Eyes Syndrome is considered as public health problem.⁷,⁹ Ophthalmological practitioners daily faces the patients coming with the complaints of dry eyes.¹⁰ The prevalence of dry eyes varies from 10.8% to 57.1%.¹¹⁻¹⁵ Many factors contribute to this variation in the prevalence which include no standardization of the type of selected patients for the study, tool for the study, objectivity of the tests used and dry eyes diagnostic criteria. The aim of the study is to determine the risk factors for dry eyes syndrome in a hospital based population in Peshawar district of KPK. The study will provide baseline evidence in the proper management of dry eyes syndrome by overcoming the risk factors for the disease.

Hepatitis (OR, 3.124, 95% CI, 1.432 to 5.477), Connective tissue disease (OR, 2.135, 95% CI, 1.371 to 2.711), Antihistamines(OR, 2.140, 95% CI, 1.216 to 2.146), Antidepressants (OR, 1.762, 95% CI, 1.061 to 2.547), Benign prostatic hyperplasia (OR, 3.713, 95% CI, 2.676 to 4.126), Acne Rosacea (OR, 2.467, 95% CI, 1.912 to 4.20), Postmenopausal estrogen therapy (OR, 1.112, 95% CI,
Post-traumatic stress disorder (OR, 1.323, 95% CI, 1.003 to 2.024).
Head & Neck radiotherapy (OR, 5.716, 95% CI, 2.016 to 13.673).
Contact lenses (OR, 2.126, 95% CI, 1.266 to 3.413), and Video display terminal exposure for more than 6 hrs/d (OR, 1.174, 95% CI, 1.421 to 3.268.)

Potentially protective factors against dry eye syndrome were:
- Vitamin supplements (OR, 0.916, 95% CI, 0.518 to 0.972).
- Fatty acid rich diet (OR, 0.520, 95% CI, 0.312 to 0.746).

METHODOLOGY:
It was a case control designed study of 1:2 ratios. Research and ethical approval was secured from the Advanced Scientific Research Board (AS&RB) and Ethical approval Committee of Pakistan Institute of Community Ophthalmology HMC Peshawar. Proper informed consent was obtained from all the participants before the start of the study. The demographic and clinical data of the patients were collected and recorded using a questionnaire. Total 55 patients were recruited who had received treatment for dry eyes syndrome at the ophthalmology department Hayatabad Medical Complex (HMC) Peshawar from January to June 2017. The criteria for the diagnoses of the dry eyes were made on the basis of criteria defined by International Dry Eye Workshop. Controls (n= 110) were recruited among the family members of the included cases with similar ages (± 1.5 years) with a ratio of 1:2 and the cases and control were matched both age and sex. General history of systemic diseases with emphases to dry eye were recorded on the questionnaire. Both the cases and controls were thoroughly examined with the help of slit lamp and were under gone various ophthalmological tests for dry eyes (measurement of tear film breakup time, Schirmer test, and corneal fluorescein staining).

The questionnaire Ocular Surface Disease Index (OSDI) containing five point likert scales was used to collect the data for a weeklong recall period. The score ranged from 0 to 100, with higher scores indicating more severe symptoms. The questions asked relating the sensitivity, grittiness irritation red and painful eyes, and effects of environmental triggers.

Those patients were defined positive for dry eye syndrome that has positive result of the Schirmer test, or ocular surface staining in either eye. The tear film breakup time of less than or equal to 5 seconds or Schirmer I test results (no surface anesthesia) of less than or equal to 5 mm/5 min. secondly tear film breakup time of more than 5 seconds and less than or equal to 10 seconds or Schirmer I test results (no surface anesthesia) of less than 5 mm/5 min and less than or equal to 10 mm/5 min, along with positive conjunctival and corneal fluorescein staining. Those patients who were having ocular infections, extensive corneal or conjunctival pathology, contact lens users and those who had undergone extra ocular or intra ocular surgery within six months of the study were excluded.

The questionnaire was filled by face to face interview by the researcher. The interview was conducted twice within the period of one week. It was aimed to eliminate all the biases especial recall bias. The response was graded accurate when same response was obtained in both the interviews. The tool contained questions regarding demographic characteristics, clinical data, medical and surgical history, and individual lifestyle habits. The medical history included hypertension, thyroid, disease, diabetes mellitus, hepatitis, stress disorder, depression, and post-traumatic obstructive sleep apnea. The medications history included anti-hypertensives, antidepressants, anxiolytics, anti-histamines, postmenopausal estrogen radiation therapy for the head and neck, vitamin supplements, and other drugs. The habits history was asked regarding contact lens wearing duration, computer work hours, television and other visual display terminal use. The results were analyzed by different statistical tests using SPSS version 20. All data were expressed as mean ±SE. Regression test was applied to calculate X2 value, p value, odds ratio, and 95% confidence interval. A p value less than 0.05 were considered significant.

RESULTS:

<table>
<thead>
<tr>
<th>Characteristics of the Cases and Controls under Study</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample (n)</td>
<td>55</td>
</tr>
<tr>
<td>Controls</td>
<td>110</td>
</tr>
<tr>
<td>Ratio (Cases: Control)</td>
<td>1:2</td>
</tr>
<tr>
<td>Mean Age (Years)</td>
<td>51.41±9.61</td>
</tr>
<tr>
<td>Gender (Male: Female)</td>
<td>2:4</td>
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<tr>
<td>Mean Age (Years)</td>
<td>52.70±9.95</td>
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</table>

Age wise distribution of Cases and Controls under study:
(Data is expressed in Mean + SD in Year)

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<tr>
<th>Age Ranges</th>
<th>Male(n=75)</th>
<th>Female(n=90)</th>
<th>Total(N=165)</th>
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<tr>
<td>15-34</td>
<td>20.26±2.93</td>
<td>21.14±2.26</td>
<td>20.78±2.06</td>
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<tr>
<td>35-54</td>
<td>41.05±2.66</td>
<td>42.10±2.11</td>
<td>42.10±2.73</td>
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<tr>
<td>55-74</td>
<td>60.12±2.15</td>
<td>61.35±2.36</td>
<td>61.35±2.51</td>
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Risk Factor for Dry Eye Syndrome, (A Hospital based Case-Control Study)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cases</th>
<th>Controls</th>
<th>P Value</th>
<th>Odds Ratio</th>
<th>OR</th>
<th>95% CI</th>
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<td>18.5-24.9</td>
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<td>60</td>
<td>0.218</td>
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<tr>
<td>&lt; 18.5</td>
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<td>1.26</td>
<td>0.90-2.01</td>
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<td>&gt; 25.0</td>
<td>20</td>
<td>24</td>
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<td>39</td>
<td>74</td>
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<td>1.608</td>
<td>1.003-1.982</td>
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<td>16</td>
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### Risk Factor for Dry Eye Syndrome, (A Hospital based Case-Control Study)

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<td>93</td>
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<td>17</td>
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<td>71</td>
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<td>0.916</td>
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<td>18</td>
<td>39</td>
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<tr>
<th>Food rich in Fatty Acids</th>
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<td>No</td>
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<td>78</td>
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Multivariate logistic regression analysis of risk factors for Dry Eye Syndrome:

<table>
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<tr>
<th>Variable</th>
<th>Wald X2</th>
<th>P Value</th>
<th>OR Value</th>
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<tr>
<td>Diabetes</td>
<td>4.523</td>
<td>0.0316</td>
<td>1.309</td>
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<tr>
<td>Rheumatoid Arthritis</td>
<td>35.129</td>
<td>0.0001</td>
<td>2.186</td>
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<td>Benign Prostatic Hyperplasia</td>
<td>34.916</td>
<td>0.0000</td>
<td>3.792</td>
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<td>Hepatitis C</td>
<td>10.173</td>
<td>0.0001</td>
<td>3.314</td>
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<td>Acne rosacea</td>
<td>16.259</td>
<td>0.0001</td>
<td>3.717</td>
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<td>PTSD</td>
<td>4.891</td>
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<td>Post Menopausal Estrogen therapy</td>
<td>6.471</td>
<td>0.0045</td>
<td>8.1776</td>
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<td>Radiation</td>
<td>16.613</td>
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<td>7.2161</td>
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<td>Use of Anti Histamine</td>
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<td>Use of Vit Supplements</td>
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<td>Use of Food rich in Fatty acid</td>
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<td>VDT exposure &gt;6hrs</td>
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<td>0.0052</td>
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<tr>
<td>Use of contact lens</td>
<td>7.127</td>
<td>0.0015</td>
<td>2.2758</td>
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### DISCUSSION:

Dry eye syndrome itself causes many ocular complications therefore ophthalmologists and optometrist should be aware of its extent. A thorough history, investigations and tests are required for the management of the disease. It is important to investigate the risk factors associated with dry eye syndrome. Apart from age and sex some other important risk factors which leads to dry eye syndrome are usually ignored. In study we identified some other independent risk factors for dry eye syndrome. Diabetes which no doubt causes irreversible blindness (diabetic retinopathy) is also associated with dry eye syndrome. In old age people having diabetes are at high risk of developing dry eye syndrome this is because of peripheral neuropathy, loss of corneal sensation and less tear production. Another risk factor associated with dry eye syndrome is exposure to video display terminal (VDT) for more than 6 hours daily. The person who watches VDT for more than 6 hours daily its blinking duration decreases from 20-25 blinks per minute to 5-10 blinks per minute. This decrease affects the uniformity of tear film over cornea.

The present study identified that connective tissue disorder is another risk factor for dry eye syndrome. In this disease the body immune system fails to distinguish between the foreign antigens and self antigens thus targeting the eye tissue to autoantibodies, leading to the ocular manifestations of Dry eye syndrome. The present study findings are persistent to those findings of Nagao et al who found that hepatitis C patients are more prone to suffer from dry eye syndrome than hepatitis B. This may be because the hepatitis C virus is found in tears of the patient which that the virus can cause lymphocytic infiltration of the lacrimal gland and also the drug used for treatment of Hepatitis C alter the tear surface dynamic.

In radiation therapy damage occur to lacrimal glands therefore dry eye syndrome is closely associated with patients treated head and neck radiations. The present study shows that both the anti histamines and estrogen replacement therapy are risk factors for dry eye syndrome. The use of antihistamine reduces the secretion of the lacrimal gland and goblet cells. More recent studies have shown that estrogen replacement therapy may lead to the degeneration of the lacrimal gland and reduction in tear secretion, thereby increasing the risk of Dry eye Syndrome. Previous studies have shown that consumption of food rich in vitamins and fatty acids is protective against dry eye syndrome. These findings are persistent with those of present study.
Previous studies have focused on the cross sectional analysis of the dry eye syndrome. Those studies focused on the epidemiological data of dry eye syndrome. We believe that the present study has provide base line evidence for further prospective, multicenter studies aimed at developing planning and guidelines for the management of dry eye syndrome and helping the practitioners for educating the general public regarding the risk factors to avoid dry eye syndrome.

**CONCLUSION**

The present study has identified the previously significant risk factors for dry eye syndrome in general population. The study also confirms that the general population may take food rich in vitamins and fatty acids to protect the dry eyes syndrome.

**REFERENCES:**


Retinal Disorders: Demographic Patterns & Types

Muhammad Zubair Masud FCPS¹, Siddiquullah Khan FCP., M.Sc², Mohammad Kashif BVS (Optometry)³

ABSTRACT

Purpose: To determine the demographic patterns and types of retinal disorders in patients presenting at Naseer Teaching Hospital, Peshawar.

Study: One year cross sectional descriptive study

Place and duration: Eye department, Naseer Teaching Hospital, Peshawar.

Materials and Methods: Relevant demographic and clinical data was recorded. All patients seen in the eye OPD had documentation of visual acuity at presentation, findings on dilated fundus examination, slit lamp biomicroscopy and diagnosis. Specialized Investigations such as Fundus Fluorescein Angiography (FFA) and ocular coherence tomography (OCT) were performed.

Results: A total of 382 patients comprising 7.2% of the total patient load in one year had retinal pathologies during the one period of study. Males were 225 (58.9%) while females 157 accounted for (41%) of the retinal disorders. The mean age was 46± 20 years. More than half 56% of the patients were aged 50 years and above. Diabetic retinopathy was the leading retinal disorder seen in 38% followed by retinal detachment in 10% and retinal vascular abnormalities in 8% of patients. Optical coherence tomography (71%) and Fundus Fluorescein Angiography (52%) were the leading investigations performed.

Conclusions: Retinal diseases remain an important cause of ophthalmic consultation and visual loss. Males were more than females. Diabetic retinopathy, retinal detachment, vascular diseases, retinitis pigmentosa and age related macular degeneration were the leading retinal disorders in our centre.

Key words: Diabetic retinopathy, retinal detachment, visual loss

INTRODUCTION:

Retinal diseases are the major cause of blindness in wealthy countries¹. In developing countries the leading cause of avoidable blindness are cataract and glaucoma². Retinal disease has had a low priority in prevention of blindness programs in developing countries mainly because retinal diseases were considered an uncommon cause of blindness in the developing world³. Diseases affecting the retina vary in types and frequencies depending on the geographic location. The causes include congenital and developmental disorders, inflammations, vascular, age related degenerative conditions, heredity and other disorders due to effect of systemic diseases like diabetes mellitus and hypertension.

Vitreo-retinal diseases should be given importance and priority equivalent to cataract and glaucoma surgery in the elimination of avoidable blindness in developing countries. There is a huge impact of increasing retinal blindness secondary to retinal disorders in Pakistan. Therefore, more need for screening and awareness of retinal disorders disease is required at an early stage.

The impact on quality of vision varies in magnitude depending on the type and severity of the condition. The equipments required for evaluation, diagnosis and treatment of retinal disorders are expensive to procure and maintain⁴. According to the Pakistan National Survey for blindness and visual impairment done in year
2002-03, posterior segment diseases accounted for 3.4% of total blindness and visual impairment.

MATERIAL AND METHODS:

Ophthalmology department at Naseer Teaching Hospital has an established eye care clinic where all patients with different ophthalmic diseases are seen on a weekday basis. These patients come from the neighboring rural areas and from other health care centers in the nearby catchment areas. The eye clinic also offer diabetic retinopathy screening service to all the diabetics sent in routinely from the Medical/Endocrinology unit of our hospital. The Ophthalmology department unit offers medical retinal services including intra-vitreal injections while patients requiring lasers and vitreoretinal surgical interventions are referred to other centers where vitreoretinal surgical services are provided. Approval was obtained from the ethics and research committee of our center.

The data over a one year period from July 2015 to June 2016 was collected. Record obtained included demographic characteristics, visual acuity at presentation, and final diagnosis after detailed dilated ocular examination with binocular indirect ophthalmoscope and slit lamp biomicroscopy with +78D lens. Visual acuity was graded according to WHO guideline with ≥ 6/18 as normal, <6/18 to > 3/60 as visual impairment and < 3/60 to no light perception as blindness. Data was analyzed using Statistical Package for Social Sciences 19 (SPSS 19.0 version)

RESULTS:

A total of 5300 patients visited Naseer Teaching Hospital, Peshawar, from July 2015 to June 2016, of which 382 (7.2%) were having retinal pathologies. Out of these 382 patients, 225(58.9%) were males while 157 (41%) were females, (Figure 1). The mean age of the patients was 45.5 years (SD=16.7). The minimum age of the patient was 11 years while the maximum age was 91 years. Among males the average age was 47 years while in females it was 44 years. It appeared that the conditions are more common in 40 to 65 years age group.

Diabetic related retinal conditions were the most common cause (39.8%) followed by retinal detachment (17 %) and retinal vascular abnormalities in (14) % patients. Distributions of different diseases are shown in (Table 1). The investigations required were Optical Coherence Tomography (71%), Fundus Fluorescein Angiography (52%) and colored fundus photographs being the two leading investigations ordered while B scan and Indocyanine green angiography the least ordered investigation.

![Figure 1](image_url)

**Table 1**

<table>
<thead>
<tr>
<th>Retinal Disorders</th>
<th>Number (%)</th>
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<tbody>
<tr>
<td>Diabetic Retinopathy</td>
<td>147 (38.4%)</td>
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<tr>
<td>Retinal Detachment/ Breaks</td>
<td>43 (11.2%)</td>
</tr>
<tr>
<td>Branch retinal vein occlusions</td>
<td>15 (3.9%)</td>
</tr>
<tr>
<td>Central retinal vein occlusions</td>
<td>13 (3.4%)</td>
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<tr>
<td>Vasculitis</td>
<td>09 (2.3%)</td>
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<tr>
<td>Retinitis pigmentosa</td>
<td>23 (6%)</td>
</tr>
<tr>
<td>Age related macular degeneration</td>
<td>20 (5.2%)</td>
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<tr>
<td>Central Serous Chorioretinopathy</td>
<td>18 (4.7%)</td>
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<tr>
<td>Posterior vitreous Detachment</td>
<td>15 (3.9%)</td>
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<tr>
<td>Traumatic Macular Scar</td>
<td>14 (3.6%)</td>
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<tr>
<td>Optic atrophy</td>
<td>13 (3.4%)</td>
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<tr>
<td>Anterior ischemic optic neuropathy</td>
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<tr>
<td>Macular dystrophy (Stargadts)</td>
<td>09 (2.3%)</td>
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<tr>
<td>Retinoblastoma</td>
<td>08 (02%)</td>
</tr>
<tr>
<td>Full thickness macular hole</td>
<td>07 (1.8%)</td>
</tr>
<tr>
<td>Traumatic Vitreous Hemorrhage</td>
<td>06 (1.5%)</td>
</tr>
<tr>
<td>Pathological Myopia</td>
<td>06 (1.5%)</td>
</tr>
<tr>
<td>Retinal Coloboma</td>
<td>03(0.72%)</td>
</tr>
<tr>
<td>Hypertensive retinopathy (Grade 4)</td>
<td>02 (0.5%)</td>
</tr>
</tbody>
</table>

DISCUSSION:

There were 382 patients constituting 7.2% of the total 5300 outpatients who presented to the eye care center within the one year period of study. This implies that on the average one out of every twelve patients seen in our eye center had some form of retinal disorder. The retinal disease pattern noted is comparable
A study from Malaysia has reported retinal diseases to be responsible for 12% of patients presenting to outpatient department of eye units. We can therefore say that retinal diseases are not as uncommon as they had been perceived to be. The male to female ratio was 1.2:1. The higher male attendance of hospitals for healthcare in developing countries contributes to the male preponderance and access.

Diabetic retinopathy was the leading retinal disorder in this study having been diagnosed in 38% of the total retinal cases. Visual loss from Diabetic retinopathy has been predicted to have a likelihood of an upward trend with the maturing epidemic of diabetes unless there is an improvement in early detection and treatment. This warrants timely screening, evaluation, treatment, follow up and education for diabetic related conditions. Retinal detachment represented 11% of retinal diseases in this study as opposed to only 7% in Nepal and 11% in Malaysia. However this is in close to the findings from Ethiopia where retinal detachment accounted for the second largest group (16.5%) of diseases. Retinal detachment surgeries at an early stage with restoration of useful vision are reported to be successful in developing communities.

Retinal vascular disorders, the third leading retinal disorder in our study accounted for 8% of cases of unilateral blindness at presentation, among these retinal vein occlusions (RVOs) are the third most common blinding vascular retinal disorder after diabetic retinopathy and are a frequent cause of loss of vision. Retinitis pigmentosa in this study accounted for 5.9% of cases of bilateral blindness 42.2% of the cases were blind at presentation while 57.3% had low vision. It was found to be one of the major causes of bilateral blindness and visual impairment in South East Nigeria. The high degree of visual loss in patients with this condition has been related to the long duration of the disease and age of the patients at presentation.

Age related macular degenerations, central serous retinopathy, full thickness macular hole, Posterior vitreous detachment, macular scar, anterior ischemic optic neuropathy, optic atrophy and Stargardt macular dystrophy, pathological myopia were also common disorders found among our patients. All these disorders contribute to the burden of blindness and visual impairment through various mechanisms especially when there are delays in presentation and treatment. It is therefore not too surprising to find out that about 12% of our patients had to be referred for optical low vision aids. All others benefited from one intervention or the other ranging from drugs (28.9%), Intravitreal anti-VEGF (33%), Laser (23.8%) and surgical intervention in (10.4%) of cases.

CONCLUSION:

Considering the enormous magnitude of retinal disorders as revealed in various studies in different parts of the world, and the lack and high cost of investigative facilities, we would like to emphasize that vitreo-retinal diseases should be given importance and priority in the elimination of avoidable blindness in developing countries as has been successfully performed for cataract, glaucoma, trachoma and corneal opacity from vitamin A deficiency. There is a huge impact of increasing retinal blindness secondary to retinal diseases especially Diabetic retinopathy in Pakistan. There is a more need for screening and awareness of the disease at an early stage, accessible comprehensive eye care services and establishment of human resources.

REFERENCES:

INTRODUCTION

Dry-eye disease (DED) is characterized by insufficient lubrication of the ocular surface. A deficiency of one or more of the tear-film layers (aqueous, mucin or lipid) is involved either due to low tear production (aqueous deficiency) or poor tear quality (evaporative loss) involving meibomian gland dysfunction. The prevalence of DE is from 6.7% (among women ages 49 to 89) to 28.7% (for both sexes, age 50 years and older) had DE. The prevalence of DE is from 6.7% (among women ages 49 to 89) to 28.7% (for both sexes, age 50 years and older) had DE. The prevalence of DE is from 6.7% (among women ages 49 to 89) to 28.7% (for both sexes, age 50 years and older) had DE. The prevalence of DE is from 6.7% (among women ages 49 to 89) to 28.7% (for both sexes, age 50 years and older) had DE. The prevalence of DE is from 6.7% (among women ages 49 to 89) to 28.7% (for both sexes, age 50 years and older) had DE. The prevalence of DE is from 6.7% (among women ages 49 to 89) to 28.7% (for both sexes, age 50 years and older) had DE.

Population-based studies suggested that about 7.8% of American women and 4.7% of men aged 50 years and older had DE. There is permanent end of menstruation and fertility. During this period, ovaries stop making eggs and produces less estrogen and progesterone. Historically, researchers blame low estrogen levels for the increased rates of DE in older women. Recent studies have suggested that androgen deficiency is the main cause of evaporative dry eye, tear film instability and the meibomian gland dysfunction. Androgens regulate the immune system and secretory functions of lacrimal gland. Androgens regulate the immune system and secretory functions of lacrimal gland. Androgens regulate the immune system and secretory functions of lacrimal gland. Androgens regulate the immune system and secretory functions of lacrimal gland.
Dry Eye Disease and its Association with Menopause

Glands. Women taking only estrogen are 70 percent more likely to have dry eye and those taking estrogen and progesterone have a 30 percent higher risk of developing the condition. Epithelial cells of the lacrimal gland, meibomian gland, conjunctiva and cornea contain messenger RNAs (mRNAs) for steroidogenic enzymes, such as 17 β-HSD, aromatase and 5 α-reductase. The higher prevalence of dry eye in women suggests that sex hormones may have a role in this condition. This review aims to present this evidence.

MATERIAL & METHODS

992 willing patients over 40 years of age were screened for DED. All patients who suffered from diseases related to DE, such as diabetes mellitus, autoimmune diseases, liver/renal disease and women using hormone replacement therapy (HRT), corticosteroids or other drugs were excluded. Baseline demographics were recorded including age, educational level, employment status as well as a detailed medical history and information on lifestyle factors. Dry eye questionnaire administered by a trained interviewer while (TBUT), Schirmer test, corneal fluorescein staining (CFS) and Slit lamp examination of the lids was performed by a single surgeon under same physical conditions.

The perimenopausal symptoms were obtained from a questionnaire survey. TFBUT <10 seconds, ST <10mm after 5 minutes, corneal fluorescein stainings and abnormal lid appearances were included in diagnostic criteria.

RESULTS

In this population, 49% (486/992) were symptomatic, defined as reporting one or more dry-eye symptoms often or all the time (table-1). 288 (59.2%) were urban and 198 (40.7%) belong to rural areas. 43% were housewives, 31% were Federal employees, 26% were laborers of low income group. Among these women, 238 (24.0%) were premenopausal, 357 (36%) perimenopausal and 396 (40%) postmenopausal. Commonly seen DE symptoms in these women were burning/foreign body sensations 60.7% and the hormone-related changes in these women were 67% hot flashes/sweats, 62% sleep disturbances, 51% mood changes and 43% fatigue. Somatic and psychological symptoms were complained by perimenopausal and postmenopausal women while urogenital symptoms were present in the postmenopausal women (table-2).

Among those who were symptomatic, 75.3% (366/486) had a low TBUT, 60.6% (295/486) had a low ST result, 58.8% (286/486) had abnormal anatomic features of the meibomian glands and 51% showed CFS.

We have seen that age adjusted prevalence was more for older women (table-3). Of the 49% women having dry eyes, 32% had mild, 12% moderate and 5% severe dry eyes. Also our results showed that DED was more common in 26% laborers with low income group.

Table 1: Symptoms of dry eye

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Symptoms</th>
<th>Never time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rarely</td>
</tr>
<tr>
<td>1.</td>
<td>Burning</td>
<td>20%</td>
</tr>
<tr>
<td>21%</td>
<td>22%</td>
<td>1%</td>
</tr>
<tr>
<td>2.</td>
<td>FB sensation</td>
<td>24%</td>
</tr>
<tr>
<td>21%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>3.</td>
<td>Crusting</td>
<td>68%</td>
</tr>
<tr>
<td>10%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>4.</td>
<td>Redness</td>
<td>43%</td>
</tr>
<tr>
<td>12%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>5.</td>
<td>Grittiness</td>
<td>63%</td>
</tr>
<tr>
<td>8%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>6.</td>
<td>Photophobia</td>
<td>52%</td>
</tr>
<tr>
<td>9%</td>
<td>6%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table-2 Age adjusted Menopause symptoms with duration

<table>
<thead>
<tr>
<th>Age group(years)</th>
<th>Psychological Symptoms</th>
<th>Somatic Symptoms</th>
<th>Urogenital Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-50</td>
<td>40%</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td>39%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51-60 yr</td>
<td>66%</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>42%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61-70 yrs</td>
<td>57%</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-80 yrs</td>
<td>25%</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Age adjusted prevalence of DED

<table>
<thead>
<tr>
<th>Age group(years)</th>
<th>x Number</th>
<th>DED Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-44</td>
<td>104</td>
<td>16</td>
</tr>
<tr>
<td>15.33%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### DISCUSSION

The role of menopause in DED is not well understood, but many women who experience menopause or who are post-menopausal suffer from dry eye symptoms. The DED mechanism includes aqueous tear deficiency, excessive evaporation and inflammation. DED symptoms are common in postmenopausal women and the presence of hormone receptors in ocular surface regulate tear film function. Dry eye is a common symptom in older, post-menopausal women with decreased estrogen levels. About 6 million have moderate to severe symptom of dry eye compared to 3 million men, according to the US National Women’s Health Resource Center (NWHRC).

The symptomatology screening questionnaires like Dry Eye Questionnaire (DEQ) and the Perimenopause symptoms questionnaire were selected because they are readily available and easy to use. Most patients have mild to moderate DE symptoms in this study like foreign body sensation, burning, blurring, stinging, grittiness, photophobia, tired eyes and contact lens intolerance. In this study, the commonly reported symptom was burning sensation 243 (60.7%) and the least reported symptom was lids stuck together in the mornings 97 (24.2%). Similar to other study.

In this study, the mean age at menopause was 51.38 ± 2.28 years which is higher than other studies. In Malaysia, the mean age of menopause was between 49.4 to 51.1 years, in Singapore (49.1 years) and in Thailand (48.7 years).

In our study, the main menopausal symptoms were 67% hot flashes/sweats, 62% sleep problems, 51% mood changes and 43% compared to other studies reporting 45% to 75% of these symptoms. Same result was noted in other study in Malaysia by Dhillon et al. (53%) and Ismail (57%). From our study, 43% perimenopausal women experience muscular and joints discomfort, physical and mental fatigue and sleeping problems (Table 3) similar to other study. In this study perimenopausal women suffered vasomotor symptoms more compared to menopausal group of women. Possible explanation is estrogen fluctuation during this phase. Our findings were similar to other studies where 75% of perimenopausal women experienced vasomotor symptoms. These perimenopausal symptoms lead to meibomian gland dysfunction (MGD) through hormonal imbalance and absence of blinking.

In this study worldwide MGD is the leading cause of DE disease and is responsible for over two-thirds of all DE cases. In one study MGD accounted for 78% of DE patients. In Asian populations > 40 years of age, the incidence is found to be 46.2% to 69.3%.

In our study 60.6% (295/486) had a low ST result. This was supported by other studies among postmenopausal women showing decreased tear production and stability. It is interesting in our study that 39% of premenopausal women also reported similar symptoms as physical and mental exhaustion, anxiety, joint/muscular discomfort and depressing mood. This could be explained as most of these symptoms could also result from other physical, health and age related problems.

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Basic research showed that sex hormone levels affect the lacrimal and meibomian glands. Androgens regulate meibomian gland gene expression and lipid production. The low androgens with age result in impaired lipid synthesis in meibomian gland cells, contributing to MGD in old age. It is interesting in our study that 39% of premenopausal women also reported similar symptoms as physical and mental exhaustion, anxiety, joint/muscular discomfort and depressing mood. This could be explained as most of these symptoms could also result from other physical, health and age related problems.

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Some studies claim a reduction of DED symptoms with hormone replacement therapy (HRT) but Women’s Health Initiative, which studied 25,665 women reported high risk of dry eye disease in women using HRT especially estrogen. Some studies showed a greater DED incidence in women on HRT compared to those who are not taking the treatment. In our study we have also found that the prevalence of mild dry eye was maximum (32%) and that of severe dry eye was least (5%) according to Dry Eye Workshops (2007) recommendations.1

CONCLUSION

This study concluded that the balance of sex hormones (i.e., estrogens and androgens) is important in determining the risk of dry eye disease. Dry eye disease and our modern lifestyle are interlinked DED is not only a growing public health problem but economic burden also.

REFERENCES

ABSTRACT

Background. Blindness due to corneal opacity (11.8%) is second to cataract surgery (51.5%) in Pakistan. Corneal transplant surgery, is the only solution to reduce avoidable blindness due to corneal disorders. In 1961, the Pakistan Eye Bank society started the campaign for donation of corneas in Karachi, but the response was very poor to the ratio of 1:70

Material and Methods: A total of 100 patients from 50 patients who received corneal graft i.e., two members of each patient, were recruited for this cross sectional study. The study assessed willingness or refusal to corneal donation.

Result: Amongst the participants 93% agreed for donation and 7% did not agree to donate the cornea due to their own belief.

Conclusion: There is a dire need to establish corneal banks in every teaching hospitals for the purpose of receiving donations of cornea and helping for surgery. Involvement of community volunteers, doctors, NGOs is important to create awareness regarding the corneal donation movement in the country. It will not only be a great help to restore the vision of the corneal blinds, in order to bring them into the main stream of normal and healthy people.

Key words. Willingness, Refusal, Corneal donation.

INTRODUCTION:

According to the WHO, 4% of the world’s 39 million blind people suffer from corneal opacity manly due to trachoma, injuries, infection and lack of ophthalmic facilities to treat the condition well in time.[1]. The corneal blindness in Pakistan after cataract (51.5%) is second to cataract surgery (51.5%) in Pakistan. Corneal transplant is the only solution to reduce avoidable blindness due to corneal disorders. In 1961, the Pakistan Eye Bank society started the campaign for donation of corneas in Karachi, but the response was very poor to the ratio of 1:70.

Throughout the world maximum numbers of WHO member countries are engaged in organ transplant activities.[3]. The idea of corneal transplant was mentioned in eighteenth century by French man GP De Quengsy. Reisinger give the idea of replacement of scarred cornea with living tissue and used the term of Keratoplasty. Von Hippel in 1886 transplanted a lamellar graft from a rabbit’s cornea into a young girl’s eye resulting in visual improvement from hand movement to 20/40, and he also invented the circular trephine[4]. Literature reported that in developed countries, the decision to donate an organ is affected by multiple factors such as relational ties, religious beliefs, previous exposure to a health care facility, cultural and family influences.[5]. A study reported that 90% people were
To Investigate the Knowledge, Awareness & Willingness for Corneal Donations in KPK

willing for registration to donate cornea except only 10%.[8] Different communities have developed multiple approaches for corneal donation. For instance, a study reported that 80% were willing to sign a donor card except 25% of respondents.

In 2012 about 184,576 corneal transplants were performed in 116 countries. These were procured from 283,530 corneas and stored in 742 eye banks. The United States has the highest transplantation rate followed by Lebanon and Canada[9]. Today the need is more as compared to the availability of corneal graft, that is one cornea is available for 70 needed person[9]. According to the most recent WHO global data on the causes of blindness (2002), ‘corneal opacities’ affected 1.9 million people (5.1% of the total number of blind people). If other conditions causing blindness through corneal pathology are included, such as trachoma, injuries, vitamin A deficiency, ophthalmia neonatorum, and onchocerciasis, the number would be significantly higher than 5.1%. Moreover, there are probably tens of millions more who are blind in one eye from corneal disease[9].

The latest high success in transplantation is attributed to eye banking, storage techniques, ocular pharmacology, equipment, and modern surgical techniques[10]. Globally, ‘corneal transplant is one of the most common transplant procedures[11]. Although approximately 100,000 procedures are performed worldwide each year, some estimates report that 10,000,000 people are affected by various disorders that would benefit from corneal transplantation[12]. Many countries are importing corneas from Sri Lanka, Nepal, Iran, USA and other countries. A report in March 2017 from Sri Lanka Eye Donation Society showed that among the importing countries, the most prominent recipient country is Pakistan,[13] According to a study Egypt and Japan have received over 8000 and 6000 corneas, respectively. In Sri Lanka itself, citizens have first access to free corneas. Almost 900,000 people have signed up to donate their eyes through the Sri Lankan Eye Donation Society[14].

In 1961 Pakistan Eye Bank Society and Spencer’s Eye Hospital have started its campaign for corneal donation in Karachi, In 1952, Prof. Ramzan Ali Syed (Lahore), Prof. Mahmood Ali Shah (Dow Medical College, 1952, and Dr. SMH Rizvi 1964 (Spencers Eye Hospital Karachi) were the pioneers in the field of corneal grafting surgery. In 1966 the first ever local eye donor cornea was grafted at Spencers’ Eye Hospital Karachi through the continued generous donations of Dr. Hudson Sylva, Chairman of the International Eye-Bank of Sri Lanka. The Eye Bank Society, under the dynamic leadership of Mr. Iftikhar Hussain, a known philanthropist extended its campaign to other parts of the country.

Some of the known personalities in Pakistan, like Lt. Gen. Fazle Haq (from KPK), Gen. Zia-ul-Haq (President) & poet Ahmed Fraz, Abdul Sattar Edhi, a known social worker and many from various fields, after pledging donation of their eyes, have given great support to the corneal donation movement. To-day the corneal grafting surgery is carried out in almost in every teaching hospital of the country.

Looking to the need of corneal graft and its high success rate we designed this study to find the willingness of the people whose relatives are blind due to corneal diseases and are in need of corneal graft.

MATERIAL AND METHOD:

This qualitative content analysis was conducted to describe refusal and willingness for corneal donation and expenses on importing of corneal graft. A total of 100 relatives of 50 patients, two member of each patient were selected by purposive sampling. The inclusion criteria were having at least two elders from the family and willingness to describe personal thoughts. The majority of participants in this study were educated and all of them were able to read and write. Data was collected by semi-structured interviews and focus group discussion. Interviews were performed in the outpatient department of Ophthalmology Department of Hayatabad Medical Complex Peshawar. The average interview time was 15 minutes for both members. 50 groups (two in each group) we held a meeting with 83 male and 17 female, the female member were mixed and were accompanied by a male member of the patient in each group. We recorded the participants’ interactions as a data resource, in addition, the researcher also acted as facilitators during the group discussion.

Before the initiation of the study, the subjects were explained about the study protocol and aims, their right to withdraw at any time, and also the anonymity and confidentiality of data. They were then asked to sign written informed consent forms. The performance was made simple and the willingness and unwillingness for corneal donation was recorded. We also recorded the reason for willingness and unwillingness.

Inclusion criteria: All the patient and their relatives who used the graft were interviewed.

Exclusion criteria: Private surgery outside from hospital and those who were not willing for participation in this study.

RESULT:

We took the response of 100 persons from patients’ relative regarding willingness and unwillingness about the donation of corneas. In this study 93% of the participants emphasized the importance of corneal graft. However, 7% were against the donation of cornea. Among the female 14% were willing to donate their corneas and 3% were not. This shows the willingness for registration to donate cornea except only 10%.[8] Different communities have developed multiple approaches for corneal donation. For instance, a study reported that 80% were willing to sign a donor card except 25% of respondents.

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To Investigate the Knowledge, Awareness & Willingness for Corneal Donations in KPK

Table 1: Gender distribution of 50 patients relatives

<table>
<thead>
<tr>
<th>S. No</th>
<th>Gender</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>79</td>
<td>79%</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>17</td>
<td>14%</td>
</tr>
<tr>
<td>3</td>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2: Willingness of 50 patients relatives

<table>
<thead>
<tr>
<th>S.No</th>
<th>Wilingness</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>79(79%)</td>
<td>14(14%)</td>
<td>93(93%)</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>4(4%)</td>
<td>3(3%)</td>
<td>7(7%)</td>
</tr>
<tr>
<td>3</td>
<td>Total</td>
<td>83(83%)</td>
<td>17(17%)</td>
<td>100(100%)</td>
</tr>
</tbody>
</table>

DISCUSSION:

In this study Table 1 show the gender distribution of 50 patients’ relatives. The willingness in favor and against is shown in Table 2, which show 93% willingness in favor of corneal donation. The high numbers of corneal donation (3000 per year from Sir Lank is because of their culture background and their belief has helped the corneal organization to thrive for donations. A study from Ethiopia reported 57.9% people were willing and the main reason given for being willing to donate (73.7%) was the feeling that they will be pleased to help the blind. The main reason for unwillingness (59.4%) was the belief that donation of human parts after death will be a desecration of the human body.

A study from Singapore reported that 67.0% of participants were willing to donate their corneas. Reasons for willingness to donate corneas, 92.9% is a noble deed to bring the blind to the enlightened world (47.8%) as expressed by the ethnicity (Chinese) and religion (Christians,) were associated with increased willingness to donate corneas. Greater knowledge and increased altruistic values were also associated with increased willingness to donate corneas.

Other study reported from India that majority (87%) of students were willing to donate their eyes. 62% students reported that donors’ who have pledged before death can only donate as the consent of elders or relatives is necessary. The willingness in my study is higher as compared to most of the studies, the reason may be that the doctors explained the excellent result and the only best available option for restoration of eyesight. The main reasons against refusal of donation on their religious belief, unawareness, commercialized usage of cornea and last of the desecration of human body.

This study show Fig 1 and 2 that the percentage of male is more as compared to female for donating the cornea. There may be multiple reason but generally it has been observed that female are more reluctant for corneal donation. A study from Malaysia also reported less number of female as compared to male for corneal donation which is near to our study.

Many famous people including the late Sri Lankan president J.R. Jayawardene, have donated their eyes upon death and grafted to two Japanese recipients. Al-Shifa Trust Eye Hospitals reported keratoplasty in over 1500 patients with corneal opacities in the last 10 years. Layton Rehmatullah Benevolent Trust (LRBT) reported 202 corneal transplant in 2015/2016.

The National Fatwa Council of Malaysia has
allowed organ donation under the conditions, that the health of donor should not be affected, body should not be disfigured, it should not be done for monetary gains and for major health and life benefit to the organ recipient[^27]. There is a need for large scale study to prepare a comprehensive report on all aspect of corneal transplantation.

CONCLUSION & RECOMMENDATIONS:

Public is ready to donate cornea but need proper arrangement throughout the hospitals/eye banks. Proper corneal donation movement be carried out in every hospital and academic institutions to make the people aware of the rehabilitation of the blinds. Media and the Government should play an important role in helping the organizations in carrying out their campaigns.

Hospitals should be well equipped to undertake the corneal surgery. Teaching of donations of cornea should be a part of the curriculum in all teaching institutions. Hospitals should be prepared with trained emergency team for the removal of eyes in urgency at any time. In this connection special telephones be provided in the emergency departments.

All hospitals should display charts and banners to exhibit the importance of donations after death. Involvement of community volunteers, health workers, doctors from other specialty of the same hospital, NGOs for the success of the movement.

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23. Published in Dawn, July 10th, 2016
ARTICLE

ABSTRACT

Objective: To determine the frequency of clinical urogenital anomalies responsible for primary male infertility presenting in infertility clinic.

Material and methods: This descriptive cross sectional study was conducted at the Institute of Kidney Diseases and Hayatabad Medical Complex, Peshawar from September 2014 to September 2015.

Results: There were total of 186 patients included in this study who are selected between age groups 15-50 years. Minimum age of patient was 17 years and maximum age was 50 years. Mean age and SD = 35±4.5 years was calculated. Age group 21-30 years contained highest no of patients, which was 71 (38.17%) and second most frequent group was 31-40 years which contains 55 (29.5%) patients. Most frequent anomaly was varicocele, which was present in 45 patients, i.e., 24% of total. Second anomaly was hydrocele which was found in 26 (14%) patients and the least anomaly was hypogonadism found in 9 (5%) patient.

Conclusion: In our study it was shown that among urogenital anomalies with which patients present to infertility clinics, varicocele was the most common cause.

Keywords: Infertility, varicocele, cryptorchidism, hypospadias and urogenital anomalies.

INTRODUCTION

According to World Health Organization ‘Infertility is the inability of a couple in the reproductive ages to achieve pregnancy following twelve months of regular mating’. About 84% of couples in general population are expected to conceive within one year and about 92% within two years.

Over the years, infertility has been on the increase in both males and females. Infertility affects 15% of all couples, in which approximately half are due entirely to the female factor, 20% due to the male factor and the remaining 30% involving a combination of both. The increase in male infertility however has become a source of global concern. Approximately 8% of men of reproductive age seek medical attention for infertility problems. Of these, up to 10% present with a reversible cause affecting their fertility potential.

Varicocele was the most common cause amongst urogenital anomalies in cases of infertility. Other causes could be genetic factors, congenital hypogonadotrophic gonadism, congenital absence of vas deferens, primitive testicular failure, idiopathic infertility, hormonal and immunological problems, chromosomal aberrations, depression and family marital problems.

The causes of male infertility are widely varied, and are best evaluated by an expert in male reproductive health. Some causes of male infertility can be identified and reversed (or improved) with specific surgery or medication, while other causes can be identified but not reversed. Varicocele accounts for, 35% of cases of primary male infertility and is considered to be the most common cause of male infertility.

The etiology of impaired sperm production and function can be related to factors acting at pre-testicular, post-testicular or directly at the testicular level. According to Csilla Krausz primary testicular failure accounts for about 75% of all male factor infertility, genetic factors can be identified in about 15% of cases (congenital hypogonadotrophic gonadism, congenital absence of vas deferens, primitive testicular failure). Despite progresses, mainly in the field of genetics, the
etiology in infertility due to genetic causes is still unknown in about 50% cases and it is termed “idiopathic infertility”.

According to a study by Sandro presentation of male patients to infertility clinic are varicocele 26%, obstruction 15%, cryptorchidism 14%, testicular failure 14%, idiopathic 12%, genetic defect 7.9%, infectious 3%, hormonal and immunological problems 2.3%, ejaculatory dysfunction 1.2% and cancer 0.5%.

The frequency of chromosomal aberrations in the general population is approximately 0.6%. However, karyotype abnormalities are reported in 2%-14% of males presenting with infertility

For some men, failures during mating begin as a vicious cycle of fear and anxiety leading. Partners may also develop arousal difficulties because of anxiety or distress. Erectile dysfunction which is one of the causes of infertility may be due to psychological or physical stress. The stress of the non-fulfillment of a wish for a child has been associated with emotional squeal such as anger, depression, anxiety, marital problems and feelings of worthlessness. Partners may become more anxious to conceive due to social isolation. Marital discord often develops in infertile couples, especially when they are under pressure. Couples with diminished self-esteem due to infertility.

MATERIALS AND METHODS

This Descriptive cross sectional study was conducted on 186 patients at the Institute of Kidney Diseases and Hayatabad Medical Complex, Peshawar from September 2014 to September 2015. Consecutive sampling as Cryptorchidism-14% Margin of error-5, Confidence interval-95%. Inclusion criteria was all male patients with diagnosis of infertility more than six months and age group 15-50 years. Exclusion criteria was all cases with incomplete information (e.g. Medical history, Social history and Occupation) required were excluded and Those patients who could not complete their investigations (e.g. Full blood count, Seminal fluid analysis, Pelvic ultrasonography).

The study was conducted after approval from hospitals ethical and research committee. All patients meeting the inclusion criteria were included in the study through OPD. The purpose and benefits of the study was explained to the patients and a written informed consent was obtained. All the patients were worked up with complete history, clinical examination and investigations to rule out confounders and bias in the study results. All the procedures were done by the researchers himself and all the above mentioned information including name, age and gender address was recorded in a predesigned preform.

Data was analyzed using SPSS version 10. Frequency and percentages were calculated for categorical variables like Varicocele, Cryptorchidism and Hypospadias. Mean ± S.D. was calculated for continuous variables like age duration of infertility. Common congenital anomalies were stratified. Results were presented as tables and charts. post stratification were done through chi square test keeping p-value <0.05 significant.

RESULTS

There were total of 186 patients included in this study who were selected between age groups 15-50 years. Only those patients were included in studies who had infertility and were screened for urogenital anomalies by physical examination at infertility clinic of the Institute of Kidney Diseases and HMC, Peshawar. Minimum age of patient was 17 years and maximum age was 50 years. Mean age and SD = 35±4.5 years was calculated. Age was divided into 4 groups for sake of simplicity and understanding. Age group 21-30 years contained highest no of patients, 71 (38.17%) and second most frequent group was 31-40 years 55 (29.5%) patients. This is explained in Table No.1.

Most frequent anomaly was varicocele, which was present in 45 patients 24% of total. Second anomaly was hydrocele which was found in 26 (14%) patients and the least anomaly was hypogonadism found in 9 (5%) patient (Table No.2).

In Table No.3 urogenital anomalies were stratified among duration of infertility and shows P = 0.0439, which showed statistically significant difference is present in urogenital anomalies being presented more with duration of infertility category.

There was no statistical difference among age groups in Varicocele and others group (ejaculatory duct obstruction, immotile cilia syndrome, bilateral Anorchia and congenital absence of bilateral vas deference) Table No 4, while there was statistical significant difference among age groups in Cryptorchidism and Hypospadias.

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Number of patients</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20 years</td>
<td>25</td>
<td>13.44%</td>
</tr>
<tr>
<td>21-30 years</td>
<td>71</td>
<td>38.17%</td>
</tr>
<tr>
<td>31-40 years</td>
<td>55</td>
<td>29.56%</td>
</tr>
<tr>
<td>41-50 years</td>
<td>35</td>
<td>18.8%</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table No 2. Urogenital anomalies presented with infertility distribution

<table>
<thead>
<tr>
<th>Anomalies</th>
<th>Number of patients</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicocele</td>
<td>45</td>
<td>24%</td>
</tr>
<tr>
<td>Cryptorchidism</td>
<td>15</td>
<td>8%</td>
</tr>
<tr>
<td>Hypospadias</td>
<td>11</td>
<td>6%</td>
</tr>
<tr>
<td>Others (obstructive causes, hydrocele, hypogonadism and idiopathic causes)</td>
<td>115</td>
<td>62%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>186</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table No 3. Stratification of urogenital anomalies among duration of infertility

<table>
<thead>
<tr>
<th>Anomalies</th>
<th>&lt;5 years</th>
<th>5-15 years</th>
<th>&gt;15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicocele</td>
<td>16</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>Cryptorchidism</td>
<td>9</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Hypospadias</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Others (obstructive causes, hydrocele, hypogonadism and idiopathic and genetic causes)</td>
<td>16</td>
<td>53</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td><strong>91</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

P value is 0.0439, showing that there is significant difference in different urogenital anomalies when stratified among duration of infertility.

Table No 4. Stratification of Varicocele with respect to age

<table>
<thead>
<tr>
<th>Age group</th>
<th>Yes</th>
<th>No</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20 yrs</td>
<td>5</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>21-30 yrs</td>
<td>17</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>31-40 yrs</td>
<td>15</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>41-50 yrs</td>
<td>8</td>
<td>27</td>
<td>0.9054</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>45</td>
<td>141</td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION**

Male infertility refers to a male’s inability to cause pregnancy in a fertile female. In humans it accounts for 40-50% of infertility. It affects approximately 7% of all men. Male infertility is commonly due to deficiencies in the semen, and its quality is used as a surrogate measure of male fecundity.

An estimated 10-15% of couples are considered infertile, defined by the World Health Organization (WHO) as the absence of conception after at least 12 months of unprotected mating. In American men, the risk correlates to approximately 1 in 25. Low sperm counts, poor semen quality, or both account for 90% of cases; however, studies of infertile couples without treatment reveal that 23% of these couples conceive within 2 years, and 10% more conceive within 4 years. Even patients with severe oligospermia (< 2 million sperm/mL) have a 7.6% chance of conception within 2 years.

Varicocele incidence in the general male population is roughly 15% by physical examination, and this increases to 35–40% in men with primary infertility and up to 75-81% in men with secondary infertility because of the progressive testicular damage of varicocele on seminiferous tubules and hence spermatogenesis.

In our study incidence of varicocele was 24%. Out of which highest age group in which it occurs is 21-30 years (p = 0.00). The second most common age group was 31-40 years. In another study incidence of varicocele was 14%. In the World Health Organization study, the incidence of varicocele was 25.4% in men with abnormal semen and 11.7% in men with normal semen.

The relevant theories to the pathogenesis of varicocele and associated male infertility are scrotal hyperthermia, hormonal dysfunction, increased or decreased testicular blood flow rates, reflux of renal or perirenal toxic metabolites, testicular venous hypertension and hypoxia of the tubuli seminiferi secondary to venous stasis. Cryptorchidism is a common birth defect regarding male genitalia. In unique cases, cryptorchidism can develop later in life, often as late as young adulthood. About 3% of full-term and 30% of premature infant boys are born with at least one undescended testis.

In our study patients having cryptorchidism were 8% of total sample size, in which 80% were have cryptorchidism on left side and 20% on right side. However, about 80% of cryptorchid testes descend by the first year of life (the majority within three months), making the true incidence of cryptorchidism around 1% overall.

Hypospadias are among the most common birth defects of the male genitalia (second to cryptorchidism), but widely varying incidences have been
reported from different countries, from as low as 1 in 4000 to as high as 1 in 125 boys. Due to variations in the reporting requirements of different national databases, data from such registries cannot be used to accurately determine either incidence of hypospadias or geographical variations in its occurrences.

In our study hypospadias occur in about 6% of patients in which most common age group that was affected is 41-50 years (p = 7.46). Most common type of hypospadia that is distal-anterior = 70%, intermediate = 20% and proximal-posterior=10%. In 8% of hypospadias there was associated cryptorchidism, in 12% inguinal hernia and in 80% congenital penile curvature as well. After stratification of urogenital anomalies among age groups it was evident that these defects are more prevalent in aged patients range from 28-45 years and likewise increase with age.

Aging has an indirect effect in relation to mutations on the X chromosome which are passed to daughters at risk for having sons with X-linked diseases. A 2009 review focusing on the effect to children said that the absolute risk for genetic anomalies in offspring were low, and in conclusion “There is no clear association between adverse health outcome and paternal age but longitudinal studies are needed.” In one study, a German physician, was the first person to hypothesize that non-inherited cases of achondroplasia could be more common in last-born children than in children born earlier to the same set of parents. Although Weinberg “made no distinction between paternal age, maternal age and birth order” in his hypothesis, by 1953 the term “paternal age effect” had occurred in the medical literature on achondroplasia.

A review of the literature by Kidd et al determined that older men had decreased pregnancy rates, increased time to pregnancy, and increased sub-fecundity (i.e., infertility of a couple at a given point in time). Increasing paternal age may also increase the risk of reproductive failure, which has led some researchers to compare age 40 to the «Amber Light» in a man’s reproductive life.

CONCLUSION

In our study it was shown that among urogenital anomalies with which patients present to infertility clinics, varicocele was the most common cause, however further studies should be done on larger scale to see the relation between these anomalies and infertility.

Recommendations: Studies should be done on genetic and hormonal factors which are the most frequent cause, which was not done in this study, these studies will bring awareness and may prevent infertility in future.

REFERENCES

Platelet Rich Plasma in Androgenic Alopecia: Prospective Analysis of 40 Male Patients with Failed Medical Treatment for Hair Restoration

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Peshawar Institute of Medical Sciences, Peshawar

ABSTRACT:

Background: Androgenic alopecia (AA) is highly prevalent and is a source of significant psychosocial problems in young to middle age males. Platelet rich plasma (PRP) therapy is a promising evolving therapy. However the data regarding its efficacy is scarce.

Objective: Our aim was to determine the efficacy of PRP therapy in male patients with AA over the course of six months.

Method: Prospective non-randomized study of 6-month duration was done on male patients of age between 18-50 years, having AA of Hamilton-Norwood grade II to V. These patients either had failed medical treatment or had suboptimal results. They had stopped medical treatment more than 6 months ago. Hair pull test was used at baseline and every 4 weekly interval for 12 weeks. It was used as the primary assessment method for hair fall. Three treatment sessions of PRP were done, one month apart. Patients were assessed in terms of increased hair thickness on gross examination, increased hair density on scalp photography, improvement in hair pull test and patient satisfaction at the end of a three-month period from last session.

Results: 40 male patients with mean age: 34.5 ± 3.8 years; 35% grade II, 50% grade III and 15% were grade IV according to Hamilton-Norwood classification. The baseline pull test showed 15.3 ± 2.4 hairs while baseline hair count was 72.4 ± 10.5 hairs/cm². The end of treatment pull test showed 4.6 ± 1.4 hairs and hair count was 151.8 ± 15.5 hairs/cm². 47.5% of patients reported high satisfaction rates while 37.5% reported satisfaction with the results, making a collective 85% patients reported satisfaction with the results.

Conclusion: PRP therapy is a safe and effective treatment modality for hair augmentation and hair restoration in patients with androgenic alopecia. The minimal invasiveness further improve its scope as a treatment modality for hair restoration. Patients who fail medical therapy for hair restoration are ideal candidates for PRP therapy.

Keywords: Androgenic alopecia, platelet-rich plasma, hair loss, hair restoration

INTRODUCTION

Androgenic alopecia (AA) is a highly prevalent hair loss condition primarily affecting the adult age groups in both males and females.¹ Over the course of history, numerous treatment modalities were introduced to either restore the weakening hair to their natural thickness and growth, or to replace them with newer follicles by surgical implantation.²,³

Platelet rich plasma (PRP) therapy is a safe and effective treatment modality for hair augmentation and hair restoration in patients with androgenic alopecia (AA). The minimal invasiveness further improve its scope as a treatment modality for hair restoration. Patients who fail medical therapy for hair restoration are ideal candidates for PRP therapy.

A search for minimally invasive, effective and cheap treatment with less adverse effects has shown that autologous platelet rich plasma (PRP) is an ideal treatment modality which fulfils the above criteria of a safe and effective treatment.⁴

Kabir Y et al⁵, in an epidemiological study has reported that androgenic alopecia nearly affects 50% of males till they reach 50-years of age and a similar and increased likelihood of its being affecting the
psychosocial well-being of a person, warrants further research for efficacy and safety of newer treatment modalities including autologous PRP therapy.

PRP is prepared from a sample of patient’s blood by centrifugation. An estimated 500,000 to 1,000,000 per liter of platelets is considered current standard. The release of multiple growth factors such as insulin-like growth factor (IGF), vascular endothelial growth factor (VEGF), platelet derived growth factor (PDGF), epidermal growth factor (EGF) and interleukin-1 (IL-1) from the alpha granules of platelets promote hair follicle growth.7,8

In vitro studies have shown that hair follicles treated with PRP resulted in rapid growth and differentiation into active stages. Increased fibroblast growth factor-7 (FGF-7) as well as enhanced expression of ERK (extracellular signal-related kinase) has been reported to enhance growth of the dermal papillae.9 Despite the ongoing research, there is scarcity of clinical validation of the outcome of patients purely in AA. We present our experience with the use of PRP in AA from our local perspective. Since the medical treatment for AA is costly, has variable results and frequently associated with significant side effect, PRP treatment will translate in the availability of a new cost-effective method for hair augmentation and restoration.

METHODS

This is a prospective quasi-experimental case series of 40 male patients who were treated between January and July 2017 at the department of Medicine and Allied, Pak International Medical College, Peshawar. The study was commenced after obtaining permission from the hospital ethical committee and taking informed consent from all patients before undergoing any invasive procedure.

We included male patients between age 18 to 50 years with a confirmed diagnosis of AA who previously had failed or unsatisfactory medical treatment (at least 6-month ago) for hair restoration and were seeking further treatment. Patients were treated on outpatient basis. A detailed clinical history and physical examination supported by baseline investigations were performed. Patients with other dermatologic disorders resulting in hair loss, coagulopathies or those who were on anticoagulants, hypothyroid, iron deficiency anemia and related nutritional problems were excluded.

All procedures were performed by a single consultant dermatologist under local anaesthesia observing full aseptic measures. The hair-pull test was performed at the baseline visit before the PRP therapy. The pull-test included grasping a bunch of hair between the index finger and the thumb; by applying gentle but firm pull for about 2 to 3 seconds. The test was applied thrice in a single sitting and the mean hairs pulled were calculated. Extracted hair were counted and this area of the scalp was marked with an indelible ink marker. Hair growth, hair density and quality of hair was evaluated in all areas of the scalp and especially in the PRP treated areas. The planned area of scalp was prepared with application of a local anaesthetic cream (2% lignocaine) 30 minutes before application of 2% chlorhexidine solution.

Patients’ blood was obtained from a peripheral vein (20 cc) in sodium citrate containing vacutainers. A two-step centrifugation was performed. In step 1, the tubes were centrifuged at 1500 revolutions per minute (rpm) for 5 minutes. The middle or ‘buffy coat’ layer was separated and was transferred into another tube. A second centrifugation was performed for 15 minutes at 2500 rpms. The settled platelets were loaded in a syringe (1 cc, insulin syringe) containing one part of calcium chloride. A total of 5 cc of PRP was used in a single session depending upon the balding area with a rate of 0.5 mL per square centimeter.

Data was analyzed using SPSS version 22.0., significance levels was kept at 0.05. Paired samples t-test was performed to ascertain mean difference between pre- and post-treatment hair indices.

RESULTS:

A total of 40 male patients (mean age: 34.5 ± 3.8 years, range: 26 – 40 years) were included in the study. 14 patients were grade II, 20 patients grade III and 6 patients in grade IV of the Hamilton-Norwood male pattern hair loss classification. 16 patients had frontal hair loss, 18 had hair loss in parietal region and 6 patients had hair loss in the vertex.

The baseline hair-pull test was positive in all patients, with a mean number of 15 ± 2.4 hairs. At the end of the study, the pull test was negative in 37 patients with a mean number of 4.6 ± 1.4 hairs. This means that our success rate with regard to negativity of the pull test was 87.1%.

The preoperative hair count per square centimeter (cm²) on photographic analysis was 72.5 ± 10.5 hairs/cm², while postoperative hair count at the end of the follow-up was 151.8 ± 15.5 hairs/cm² (p < 0.0001). The paired samples test showed significant difference for per square centimeter hair count in pre- and postoperative states as well as for pre- and postoperative pull test. Table 1 This analysis shows that there was a mean growth of 79.3 hairs over the course of the three months of follow-up and an improvement of 10.7 hairs per pull test. These results show significant differences and suggest the positive response of androgenic alopecia to PRP therapy alone. On patient satisfaction survey, the median score was 4 (range: 2 – 5) on a five-item Likert scale. The overall patient satisfaction survey is presented in Table 2. No significant complications of PRP therapy were reported.
Platelet Rich Plasma in Androgenic Alopecia: Prospective Analysis of 40 Male Patients with Failed Medical Treatment for Hair Restoration

Table-1 Paired samples t-test with mean difference, 95% confidence intervals and p values

<table>
<thead>
<tr>
<th>Paired samples</th>
<th>Mean</th>
<th>SD</th>
<th>Mean Difference</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preop Hair Count / cm²</td>
<td>72.4</td>
<td>10.5</td>
<td>79.3</td>
<td>74.1 to 84.5</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Postop Hair Count / cm²</td>
<td>151.7</td>
<td>15.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preop Hair Pull test</td>
<td>15.3</td>
<td>2.4</td>
<td>10.7</td>
<td>9.8 to 11.6</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Postop Hair Pull test</td>
<td>4.6</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SD: Standard deviation
95% CI: 95% Confidence interval

during the study period.

Table-2 Satisfaction levels in patient survey

<table>
<thead>
<tr>
<th>Satisfaction level</th>
<th>Patient responses</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Not Satisfied)</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 (Less satisfied)</td>
<td></td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>3 (Neutral/Mixed)</td>
<td></td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>4 (Satisfied)</td>
<td></td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>5 (Highly Satisfied)</td>
<td></td>
<td>19</td>
<td>47.5%</td>
</tr>
</tbody>
</table>

DISCUSSION

Pattern hair loss in males is very common. The aetio-pathogenesis is multifactorial, however, dihydrotestosterone (DHT) is the chief mediator. This has led to the development of medical therapies targeting the testosterone converting enzymes in the scalp. 5-α reductase enzyme inhibitors include finasteride which is a common drug used for AA. Its chief side effects include relative impotence which is quite distressing and is one of the most common reasons for discontinuing this drug. Similarly, minoxidil topical is used and is reported to improve hair growth and thickness. However, the therapy usually requires longer times and reported success rates for hair restoration are variable between less than 30% to 70%. AA is associated with significant psychological distress and lower self-esteem. Patients usually present with depression and loss of social interests. Autologous PRP is an answer to most worries of the patients as well as dermatosurgeons, which include shorter treatment length, efficacy, lower incidence of side effects and lower costs.

Autologous PRP is reported to significantly improve hair growth. Various authors have reported encouraging results with regard to increase in hair density, hair counts and pull test results. A study by Khatu and co-workers have shown improvement in terms of hair pull test in more than 80% of their patients which is similar to our findings of 87% during the three-month period. Similarly, Betsi and colleagues have shown 90% negative pull test following autologous PRP with a mean of three hairs. In the present study, the mean number of hair after pull test at the end of follow-up was 4.6 hairs.

In another randomized placebo controlled trial, Gentile and colleagues have reported that PRP therapy improves all parameters of hair growth, reduction in fall rates, increased hair density as well as histological evidence of optimal epidermal thickness, number of follicular units and enhanced cellularity when evaluated using the Ki67 index. This study has shown that the effects of PRP are incremental and the improvement in hair parameter is sustainable for up to 2 years. Gkini and co-workers had shown that hair counts and density starts improving at six weeks and remains so for at least one year thereafter. Similar results have been shown by Kang and associates in a prospective study with increase in indices and counts such as hair density, hair thickness and mean hair counts. The findings of our study are in agreement with these findings.

The limitations of this study are smaller sample size and shorter follow-up interval. Further large scale studies evaluating the role of PRP in a randomized trial will be beneficial for enhanced evidence base regarding PRP therapy in AA.

CONCLUSION:

PRP therapy is a safe and effective treatment modality for hair augmentation and hair restoration in patients with androgenic alopecia. The minimal invasiveness further improve its scope as a treatment
modality for hair restoration.

REFERENCES

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Intraocular Parasite Infection. (Bacterial uveitis)

A 17-year-old boy from rural area presented to the hospital with a 3-week history of decreased visual acuity and pain in the right eye. This patient was infected with a trematode or fluke, which was seen on slit lamp examination moving freely in the anterior chamber.DD., Bacterial uveitis, Viral keratitis, Angle closure glaucoma, Optic neuritis

Intraocular Parasite Infection. Courtesy NEJM UK

*******************************************************
The Frequency of Various Complications of Indwelling Ureteric Stents in a Tertiary Care Centre of KPK

ABSTRACT

Objectives: To determine the frequency of various complications of indwelling ureteric stents.

Materials & Methods: It is a hospital based, non-probability consecutive, cross sectional study in the OPD of Urology Department, Lady Reading Hospital, Peshawar from 5 Aug' 13 to 5 Aug' 14. 166 patients were enrolled during the study.

Results: In all patients where ureteral stenting was done were studied. Majority of the patients were male 90, female 76. Double-J stents (DJS) was done for obstructive uropathy. The most common cause of obs. uropathy was stone disease. Complications like flank supra-pubic pain, dysuria, haematuria sec. stone formation, stent encrustation and displacement were seen in 13.8%, 13.2%, 9%, 7.8%, 5%, and 4.2 respectively.

Conclusion: It is concluded from our study that although ureteral stenting is an easy, effective and lifesaving procedure but is not free of complications. Certain precautions and guidelines should be observed.

Key Words: Ureteral Stenting, Obstructive Uropathy, Complications, double-J stents (DJS)

INTRODUCTION

Ureteral stents are widely used in many urological procedures; stent serve many functions other than relief of obstruction e.g after diagnostic and therapeutic endoscopic procedures.1 The indications for ureteral stents have expanded with the progress of surgical procedures and techniques.2 It is now more than 30 years that ureteral stents have been used for urinary calculi. With its widespread use, the number of possible complications has increased.3 Pain, bladder irritative symptoms, and fever are usually signs of early complications related to double-J stents(DJS) late complications are more troublesome.4

Ureteral stents are used to prevent or relieve ureteral obstruction e.g, calculi, strictures, congenital anomalies, uretero pelvic junction (UPJ) obstruction, iatrogenic injuries.5 Several studies describe the symptoms related to ureteral stents and their respective estimated incidence: irritative voiding symptoms including frequency (50-60%), urgency (57-60%), dysuria (40%), incomplete emptying (76%), flank (19-32%) and supra-pubic pain (30%), incontinence, and hematuria (25%) are included.5 Diamino et al., described stent encrustation (24.5%), stent migration (9.5%) and secondary stone formation (8.3%) as the serious complications.

Ureteral Stenting is a safe emergency procedure for preventing and relieving obstructive uropathy. Dysuria, Flank and suprapubic pain which is the most common complication of double-J stents (DJS). In view of complications like hematuria, stent encrustation and stent migration, the use must be restricted to selected cases and routine use should be avoided. Moreover, close follow up to detect complications and their timely removal through counseling is necessary, otherwise it could be fatal for the patient.

Complications associated with the use of ureteric stents are mechanical in nature and augmented by duration of indwelling period.7 The rationale of this study is to determine the exact frequency of common complications among our target population after Ureteric Stenting for obstructive uropathy. This study will provide us with local magnitude of these complications and the results of this study will be then shared with other local urologist to make them aware of the problem. Moreover if the common complications rate comes out to be significantly lower or higher than the available data in the literature then it will lead to reconsideration of the existing guidelines for the Ureteric Stenting according to our own circumstances, and thus help improve patient care in terms of morbidity/mortality and reducing financial burden on the health care facility.

Obstructive uropathy is one of the most common problem faced by urologist and is associated with significant morbidity and mortality.8 It refers to the obstruction of urinary tract located anywhere from the renal tubules (crystals) to urethral meatus leading...
to increased pressure within the collecting system of kidney resulting in destruction of renal parenchyma.\textsuperscript{10} It occurs at all ages from infancy to elderly. In most cases it presents with classical signs of flank pain, fever and renal dysfunction.\textsuperscript{9} Depending on associated sepsis, degree and duration of obstruction, damage to the kidney may vary from mild to severe. When the obstruction is of short duration it is said to be acute. Most often this is secondary to stone disease. Obstruction that develops slowly and is long lasting is said to be chronic, as in congenital uretero-vesical abnormalities and retroperitoneal fibrosis. Renal interstitial fibrosis is a common finding in patients with long term obstructive uropathy. Causes of obstructive uropathy could be extramural or intraluminal.\textsuperscript{10} In adults, the incidence and causes of urinary tract obstruction vary with age and sex of the patient. In young and middle-aged males, acute obstruction secondary to renal calculi is more than 50%. In females of age >50 years, on the other hand, pelvic cancer is an important cause of obstructive uropathy. In the older age group, urinary tract obstruction is more common in male, resulting from prostatic hypertrophy or malignancy.\textsuperscript{13}

A number of diagnostic modalities are available in order to reach an appropriate management decision like, laboratory tests, Intravenous urography, antegrade urography, retrograde pyelography, ultrasound, radionuclide studies, perfusion pressure flow studies, and cystourethroscopy.\textsuperscript{14} It is in acute obstruction that excretory urogram is of greatest value. The maintenance of renal blood flow and glomerular filtration rate combined with slow (obstructed) intratubular transit of urine means that input exceeds output and the diagnostic dense nephrogram is produced.

Delayed pictures will usually show a dilated pelvi-calyceal system or ureter down to the level of the obstructing lesion. If ureteric visualization fails to occur, retrograde uretero-graphy will delineate the anatomy and site of obstruction. Ultrasound, examination by computed tomography, and antegrade studies are likely to be needed. Gamma-camera renography may be useful to establish an objective baseline of divided renal function and to monitor its response to conservative or surgical management. Routine laboratory evaluations, such as blood urea or blood urea nitrogen, serum electrolytes, serum creatinine concentration, creatinine clearance, or maximum urinary concentrating ability, rely on measurements of total excretory and concentrating capability of renal system.\textsuperscript{15,16} All these techniques are in clinical practice and are undergoing continuing scientific evaluation. They represent an impressive and considerable advance in accurately assessing over 80% of patients who before their availability, represented a huge clinical problem.\textsuperscript{17,18}

Obstructive uropathy can be treated by retrograde ureteral stenting with the help of cystoscopy.\textsuperscript{9,17,19} Cystoscopic passage of stents require spinal or general anesthesia whereas ureteral catherization may induce ascending pyelonephritis.\textsuperscript{20} Even with appropriate placement of ureteral stents irritative bladder symptoms may occur in 80%-90% of patients. Vesicoureteral reflux is inevitable with a stent insitu. In a report of voiding-cysto-urethrography >80% of patients were shown having retrograde ureteral reflux. Similarly other complications of ureteral stenting are haematuria, pyuria, mal-positioning and migration. Occlusion of stent is one of an irreversible complication after insertion into the urinary tract which may result from haematuria related to technique.\textsuperscript{21}

MATERIALS & METHODS:

Objectives: To determine the frequency of various complications of indwelling ureteric stents in urinary obstruction.

Sample Size: Using WHO sample size calculator, where confidence level=95, absolute precision=4.2%, proportion of secondary stone formation. (P) =8.3%\textsuperscript{7} the sample size=166

Inclusion Criteria: Patients presents with obstructive uropathy, patient of either gender. patient of age above14yrs

Exclusion criteria : Patient with pyonephrosis diagnosed on ultrasonogram, patients of pediatric age.

All the above factors are confounders and will make the study results biased if included.

Data collection procedure: Before start of the study, permission from the hospital ethical committee was obtained. The study was conducted at Out Patient Department, Urology Unit of Lady Reading Hospital, Peshawar. An informed written consent was obtained from the patient. All the above mentioned information recorded in a pre-designed performa. Strictly exclusion criteria was followed to control confounders and bias in the study results.. A complete history was obtained followed by examination and routine set of investigation were done in all patients, they were followed after one month for consecutive two months. All the analysis were done in SPSS 10.0. Mean + Standard deviation were computed for numerical variables like age. Frequencies and percentages were computed for categorical variables like gender and complications (dysuria, flank and supra-pubic pain, hematuria, encrustation, stent migration and secondary stone formation) are stratified among age and gender to see the effect modifiers. All the results are presented in the form of table and charts.

RESULTS

During the study period from August 2013 to August 2014 a total of one hundred sixty six patients in whom ureteral stenting was done were studied. All of the patients were followed up and no patient lost to follow-up. In our study patients were enrolled who underwent ureteral stenting for various indications. The age ranged with mean is 43± 10.0 (Table 1)
The indication of stenting included impacted renal stones is 50 cases, ureteric stone in 40 cases, both renal and ureteric stones 20 cases (causing obstructive uropathy for which DJS was passed through cystoscopy); and open surgery i.e. pyeloplasty 15, pyelolithotomy 10 and endoscopic surgical procedures i.e. URS-ICL in 8 cases. In my study frequency of complications were seen as; dysuria (13%), flank and suprapubic pain (13.8%), haematuria, (9%) stents migration (4.2%), stent encrustation (7.8%) and secondary stone formation (5%). Dysuria, flank and suprapubic pain were most common complication, present in 23 patients, other most common complication was hematuria seen in 15 patients and stent encrustation. Total of patients presented with this problem was 13. Stents migration was the least common of all complications in this study. This complication was seen in seven of patients.

When all the complications were stratified according to gender groups, flank and suprapubic pain was the most common complication among male group, followed by sec. stone formation, least common is stent migration. Table 2. It was also noted that complications were most common among ages between 20-40. Table 3.

<table>
<thead>
<tr>
<th>TABLE 1 Mean age of patients</th>
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<td>Age</td>
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<table>
<thead>
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<th>TABLE 2 Frequency of complication by gender</th>
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<tr>
<td>Complications</td>
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<tr>
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<tr>
<td>Dysuria</td>
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<td>Flank@supra pubic pain</td>
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<td>Secondary stone formation</td>
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<th>TABLE 3 Frequency of common complications by age</th>
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<td>Complications</td>
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<td>Dysuria</td>
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RESULTS

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The indication of stenting included impacted renal stones is 50 cases, ureteric stone in 40 cases, both renal and ureteric stones 20 cases (causing obstructive uropathy for which DJS was passed through cystoscopy ); and open surgery i.e pyeloplasty15 pyelolithotomy 23, ureterolithotomy 10 and endoscopic surgical procedures i.e URS-ICL in 8 cases. In my study frequency of complications were seen as; dysuria(13%) flank and suprapubic pain, (13.8%) haematuria, (9%) stents migration(4.2%), stent encrustation(7.8%) and secondary stone formation. (5%). Dysuria, flank and suprapubic pain were most common complication, present in 23 patients, other most common complication was hematuria seen in 15 patients and stent encrustation. Total of patients presented with this problem was 13. Stents migration was the least common of all complications in this study. This complication was seen in seven of patients.

When all the complications were stratified according to gender groups, flank and suprapubic pain was the most common complication among male group, followed by sec. stone formation, least common is stent migration. Table 2. It was also noted that complications were most common among ages between 20-40. Table 3.

DISCUSSION

The DJS have become one of most basic and valuable tool in urological practice. Obstructive uropathy ultimately ends in urosepsis, pain and renal failure. The department of Urology of LRH is one of the busiest centers of urology in KPK. This is tertiary care hospital; patients are referred here from all over the province and Afghanistan. The strength of our study was that larger sample size as compare to most of the studies conducted in the past.

The weakness of this study was not a randomized control trial and was hospital based study. All the complications of DJS already mentioned in the literature were not included in this study e.g. injury to the ureter, incontinence and stenturia as we rarely come across such complications. The study sample doesn’t belong to one group of disease rather we took patients with different diseases causing obstructive uropathy.

The Stents were inserted in 166 patients age range in our study was 18 to 70 years. In the study conducted by Pensota MS, Rasool M, et al age range was from 20 to 80 years with mean age of 43 years122 ± 9.65 years. In the study conducted by Memon NA, Talpur AA, et al, age range was 18 to 95 mean age was 35 years7. Whereas in our study it was 43±10. The most common indication of ureteral stenting in our study was impacted kidney and ureter stone, i.e 110 cases. While complications were most common among patients ranges from 20-40 may be due to that large number of patients in this age group.

In the study of Pentosa MS et al the most common indication was obstructive uropathy due to renal and ureter stones, eighty out of hundred cases were of renal and ureteric stones.122 It is similar to our study. In another study conducted by Memon NA, et al from November’ 2002 to November’ 2005 it was stone disease which was also main indication. Frequency of flank and suprapubic pain and dysuria were the two most common complication, it was present in 23 patients, second most common was hematuria, it was in fifteen patients, it may be due to mucosal injury to ureter either by Stent or during endoscopic procedures. Stents encrustation present in 13 patients, stent migration was least commonly seen in 7 patients.

In study conducted by Nawaz et al reported common complications observed after DJS were stents encrustation(10.5%), stent migration,(3.5)% and stent breakage(4.5)%26 In the study of Pentosa MS et al 2007 irritative voiding symptoms (13%) hematuria(11%) stents encrustation(5%), secondary stone formation(5%) stent migration,(2%)25. The results of these studies are almost comparable with our study. The incidence of stents encrustation and stone formation in this study was little lower than in my study, this may be due to short duration of stent placement as it is of 3 months study only.

In another study conducted by Memon NA et al in 2007 irritative voiding symptoms including frequency (4.2%), dysuria (4.2%), flank and suprapubic pain (5%) and hematuria(2.5%) stents encrustation(17.5%), secondary stone formation(8.3%) stent migration,(2.5%)7 This higher rate of stents encrustation secondary stone as compared to our study probably was due to longer duration of study(2002 to 2005 duration). In another study conducted by Ringel A et. Al., there was stent fragmentation in 10% of cases, and stent migration in 8.2% of cases.

In comparison to my study dysuria and flank pain as a complication of DJS in the international literature is 40%and (19-30) % respectively, which is contrary to our local and national study. This difference may be due to higher incidence of UTI in advanced countries but need further investigation. Stent migration is one of the less common complications of DJS which was found 4.2% in our cases, while the frequency of stent migration in international literature is higher i.e., 8-9.5% it may be because of different types of DJS in the studies. Our study is implicated on all the urologists, nephrologists who are working in tertiary care hospitals, general surgeons and GPs who
are working in rural areas, coming across the common ailment of obstructive uropathy with or without sepsis.

CONCLUSIONS AND RECOMMENDATIONS

Ureteral Stenting is a safe emergency procedure for preventing and relieving obstructive uropathy dysuria, flank and suprapubic pain is the most common complication of DJS in our setup. The second common complication is hematuria, the third is stent encrustation and the least common complication is stent migration. However, we recommend that their use must be restricted to selected cases and routine use should be avoided, as they are not free of complications. Moreover, close follow up of stented patients is essential for early detection of complications and a lot of stress should be paid on the counseling of the patients regarding stents complications and their timely removal in order to avoid stent encrustation which could otherwise be highly fatal for the patient. Reconsideration of the existing guidelines for the DJS placement is advised to adequately minimize complications, thus help reduce the morbidity of the patients’ as well as the economic burden on the healthcare facilities. Further multicenter, randomized control trials are suggested to get better view of the frequency of common complications their causes and different management approaches.

REFERENCES

ABSTRACT:
Background: Malaria is a life threatening infectious disease and in severe cases is associated with calamitous complications. It is usually manifested with abnormalities in various hematological indices with anemia and thrombocytopenia being the most frequent ones. The present study throws light on the frequency of thrombocytopenia in patients suffering from P. Vivax and P. Falciparum malaria and provides comparison with the available literature worldwide.

Methodology: The study was carried out as cross-sectional study at OK Diagnostic Lab & Research Center in Peshawar from October 2013 to October 2016.

Result: All malaria parasite (MP) positive cases reported during the study period were included making a total of 136 MP positive cases. Platelets counts in all these patients were analyzed according to WHO criteria. Thrombocytopenia was defined as platelet count of < 150 × 10^3/cmm. Among 136 MP positive patients, 74 (55.4%) had associated thrombocytopenia on peripheral blood smear.

Conclusion: Thrombocytopenia was associated with P. vivax infection in 71.4 % cases in contrast to P. falciparum infection, whereas 26 % cases had associated thrombocytopenia (p = 0.01).

Keywords: Malaria, thrombocytopenia, P. falciparum, P. vivax, Khyber Pakhtunkhwa

INTRODUCTION:

Malaria is considered to be a life threatening infectious disease and in severe cases is associated with calamitous complications. The existence of this disease could be traced back to 2700 years BC in China (5) and historians have even reported Alexander to be a victim of it during the battle of Mesopotamia in 4th century BC (2, 3). The disease is caused by infection with a parasitic unicellular organism of genus Plasmodium, that gets injected into the human bloodstream through a bite of female Anopheles mosquito (4). Traditionally four species of Plasmodium including P. falciparum, P. vivax, P. ovale and P. malariae have been known to be causing infections in humans (5). However another species, P. knowlesi that causes malaria in macaques (6), has been reported to cause malaria in humans (7) and since 2004, increasing data is being published with regards to an increase in its incidence in various Southeast-Asian countries (8).

Malaria is frequently associated with various hematological abnormalities like thrombocytopenia is associated with P. vivax infection in 71.4 % cases while only 26 % of P. falciparum patients had thrombocytopenia. According to WHO estimates, 40 % of world population is at risk of developing malaria (5). Studies have reported a global incidence of 300-500 million cases per year with an associated 2 million deaths per annum (5, 9). Likewise in Pakistan, the disease plays havoc with lives of millions per year and local literature reveals higher mortality rates among infants, children and pregnant women (5). The National Malaria Control
Program of Pakistan has reported a six fold increase in the incidence of P. falciparum malaria that now comprises of 42% of all malaria cases reported in the country (32). Therefore in addition to being a major public health issue (13-15), the disease significantly adds to the country’s economic burden.

In addition to typical features including high grade fever, shivering, vomiting and jaundice (3) malaria is frequently associated with hemolytic anemia, hemoglobinuria and varied degrees of thrombocytopenia (3, 11, 15, 18), with cerebral malaria and renal failure being the most dreaded complications (3). Although various studies have reported thrombocytopenia in association with malaria as a common finding (3, 11, 16, 18), its correlation with the type of malaria and various hematological parameters has not been evaluated extensively in large studies. In view of paucity of data from Pakistan, we have attempted to throw some light on the platelet counts of patients suffering from malaria by analyzing and correlating the counts and comparing them with the available literature worldwide.

METHODS & MATERIALS:

This study was conducted as cross-sectional study analyzing all the Malaria Parasite (MP) positive peripheral blood smears of cases reported at OK Quality Diagnostic Lab and Research Services Center in Peshawar from October 2010 to October 2013. OK Quality Lab is a welfare diagnostic center that receives patients from across the city including the main tertiary referral centers. Blood samples of all the patients referred for peripheral blood smear were drawn through venipuncture, by professional staff, into a 3.0 mL EDTA tube and were also analyzed for malarial parasites with conventional microscopy and the indices including platelets counts, were determined by using Hematology Analyzer Sysmex X P 100 Japan along with manual confirmation on microscopy. All individuals who possessed MP positive peripheral smears were included in the study and for each patient; records were analyzed for age, gender and species of malarial parasite involved. The cut off criterion for platelets was < 150 × 103/cmm.

All the data was analyzed using SPSS version 17.0 and the means of different scale variables were analyzed and compared using Student’s t-test and ANOVA test (depending upon the variable groups). Similarly all the non-parametric variables were analyzed using Chi-square test of independence ($\chi^2$). Results were considered statistically significant when p-value < 0.05, at 95% level of significance. Extensive literature search was done using PubMed database and Google Scholar while references were cited using Endnote X1 library.

RESULTS:

A total of 136 malarial parasite (MP) positive patients were included in the study of which 72 (52.9%) were males and 64 (47.1%) were females with male to female ratio of 1.12:1. The mean age of patients was 25.8 ± 18.44 years (range 0.6-75 years). Out of total 136 cases, 77 (56.6%) were positive for P. vivax malaria, 50 (36.8%) for P. falciparum malaria and 9 (6.6%) patients had mixed parasitama including both P. vivax and P. falciparum malarial parasites. However, male to female ratio did not vary significantly across different malarial species, p = 0.84, $\chi^2 = 0.958$. Mean of platelet count (167 ± 108 × 103/mm3) was within normal range.

Overall, thrombocytopenia was present in 74 (54.4%) patients. In addition, their relative frequencies did not vary significantly with gender, p > 0.05 (Table 2). Interestingly, thrombocytopenia was more common in patients having P. vivax infection (71.4 %) as compared to P. falciparum (26 %) and mixed parasitemia (66.7 %) with p = 0.0001.

Mean platelet count in P. vivax malaria was 135.8 ± 89.4 × 103/cmm as against P. falciparum and mixed species infection, where the mean platelet count were 222 ± 118.7× 103/cmm and 141.8 ± 70.5 × 103/cmm respectively. ANOVA test showed the difference to be statistically significant with F = 11.5, p < 0.0001. (Table 4).

DISCUSSION:

Malaria typically affects blood indices in various ways with anemia and thrombocytopenia being the frequent associated hematological outcomes (28, 19). Studies have reported thrombocytopenia as a sensitive marker for malarial diagnosis in presence of acute febrile illness having sensitivity of 60%, specificity of 88% (20, 21) and a positive and negative predictive value of 86% and 100% respectively (22). Although the exact mechanism of thrombocytopenia in malaria is still a topic of extensive worldwide research, studies have considered IgG-mediated platelet destruction (23) sequestration in spleen, oxidative stress and abnormalities in platelets’ structure caused by the invasion of parasite, as possible explanations (11, 16, 18, 24, 25). Others have considered abnormalities in coagulation system and decreased production of hematopoietic growth factors by liver as contributing factors (18, 26). Researchers have also suggested thrombocytopenia as a result of consumption by disseminated intravascular coagulation (DIC) and peripheral platelet destruction induced by P. falciparum, although the latter mechanism has not been systematically evaluated in P. vivax malaria (18, 27-30).

Mild to severe thrombocytopenia should alert the possibility of malarial infection (33), with thrombocytopenia being a frequent complication of P. vivax infection (29). Kochar DK et al. (24) has shown the association of thrombocytopenia with P. vivax mono-infection as more significant when compared to thrombocytopenia in P. falciparum mono-infection (OR=2.335 [95% CI; 1.72 - 3.16], p < 0.0001). In the present study, overall 54.4 % of our patients suffering from malaria showed thrombo-
Frequency & comparison of Thrombocytopenia in Patients Suffering from P. Vivax and P. Falciparum

Table 2: Gender-wise relative frequencies of different hematological variables in MP positive patients

<table>
<thead>
<tr>
<th>Variables</th>
<th>WHO cut-off levels (19)</th>
<th>Males† n = 72</th>
<th>Females‡ n = 64</th>
<th>Frequency (%)</th>
<th>Chi-square (χ²)</th>
<th>P – value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platelet count (×10³/cmm)</td>
<td>&lt; 150</td>
<td>36</td>
<td>38</td>
<td>74 (54.4)</td>
<td>1.2</td>
<td>0.27</td>
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<td></td>
<td>≥ 150</td>
<td>37</td>
<td>22</td>
<td>62 (45.6)</td>
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<td></td>
</tr>
</tbody>
</table>

† Cut-off level for males ‡ Cut-off level for females * Significant at 95% level of significance

Table 3: Relative frequencies of thrombocytopenia among different malarial species

<table>
<thead>
<tr>
<th>Variables</th>
<th>WHO cut-off levels (19)</th>
<th>P. falciparum n = 50 (%)</th>
<th>P. vivax n = 77 (%)</th>
<th>P. falciparum &amp; P. vivax</th>
<th>Frequency (%)</th>
<th>P – value</th>
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</thead>
<tbody>
<tr>
<td>Platelet count (×10³/cmm)</td>
<td>&lt; 150</td>
<td>13 (26)</td>
<td>55 (71.4)</td>
<td>6 (66.7)</td>
<td>74 (54.4)</td>
<td>&lt; 0.001</td>
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<tr>
<td></td>
<td>≥ 150</td>
<td>37 (74)</td>
<td>22 (28.6)</td>
<td>3 (33.3)</td>
<td>62 (45.6)</td>
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</tr>
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</table>

† Cut-off level for males ‡ Cut-off level for females * Significant at 95% level of significance

Table 4: Mean values of platelets count across different malarial species

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>P. falciparum Mean ± SD</th>
<th>P. vivax Mean ± SD</th>
<th>P. falciparum &amp; P. vivax Mean ± SD</th>
<th>ANOVA (F)</th>
<th>P – value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platelet count (×10³/cmm)</td>
<td>222 ± 118.7</td>
<td>135.8 ± 89.4</td>
<td>141.8 ± 70.5</td>
<td>11.5</td>
<td>&lt; 0.001*</td>
</tr>
</tbody>
</table>

* Significant at 95% level of significance

Table 5: Means of platelets count in MP positive males and females

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Males Mean ± SD</th>
<th>Females Mean ± SD</th>
<th>Student’s T-test</th>
<th>P– value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platelet count (×10³/cmm)</td>
<td>180.1 ± 107.7</td>
<td>154.2 ± 107.1</td>
<td>1.40</td>
<td>0.16</td>
</tr>
</tbody>
</table>

* Significant at 95% level of significance

m: months; NA: non-available; P.f.: Plasmodium falciparum; P.o.: Plasmodium ovale; P.v.: Plasmodium vivax; y: years

Table 7: Review of various studies, estimating thrombocytopenia in patients having malarial infection (II)

<table>
<thead>
<tr>
<th>References</th>
<th>Study Site</th>
<th>Age range</th>
<th>Species</th>
<th>Thrombocytopenia % (criterion; mm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ali et al. (Present study)</td>
<td>Pakistan</td>
<td>7 m – 75 y</td>
<td>P.f./P.v./mixed</td>
<td>Thrombocytopenia %</td>
</tr>
<tr>
<td>Mohanty et al. (1997) (64)</td>
<td>India</td>
<td>All ages</td>
<td>P. falciparum</td>
<td>26 (&lt; 150,000)</td>
</tr>
<tr>
<td>Gonzalez et al. (2000) (65)</td>
<td>Colombia</td>
<td>All ages</td>
<td>P. falciparum</td>
<td>39 (&lt; 150,000)</td>
</tr>
<tr>
<td>Jadhav et al. (2004) (10)</td>
<td>India</td>
<td>All ages</td>
<td>P. falciparum</td>
<td>33.6 (&lt; 150,000)</td>
</tr>
<tr>
<td>Marques (2004) (66)</td>
<td>Brazil</td>
<td>&gt; 15 y</td>
<td>P. falciparum</td>
<td>79 (&lt; 150,000)</td>
</tr>
<tr>
<td>Lacerda (2007) (16)</td>
<td>Brazil</td>
<td>&gt; 18 y</td>
<td>P. falciparum</td>
<td>71.8 (&lt; 150,000)</td>
</tr>
<tr>
<td>Tan et al. (2008) (46)</td>
<td>Thailand</td>
<td>Pregnant women</td>
<td>P. falciparum</td>
<td>34 (&lt; 75,000)</td>
</tr>
<tr>
<td>Shaikh et al. (2009) (3)</td>
<td>Pakistan</td>
<td>All ages</td>
<td>P. falciparum</td>
<td>71.8 (&lt; 150,000)</td>
</tr>
<tr>
<td>Ranjan et al. (2012) (67)</td>
<td>India</td>
<td>5 – 72 y</td>
<td>P. falciparum</td>
<td>88.6 (&lt; 150,000)</td>
</tr>
</tbody>
</table>
cytopenia. This was comparable to results from various other studies [18], highlighting the fact that a persistent normal platelet count is a highly unlikely laboratory finding in malaria (Table 6). Out of total 77 cases having P. vivax infection, 71.4 % patients had P. vivax associated thrombocytopenia (Table 3). These figures were in good agreement to studies done by other investigators showing P. vivax associated thrombocytopenia in; 60.8 % by Alercim [24], 63 % by Khan et al. [26], 65 % by Rodríguez-Morales et al. [26], 77.1 % by Silva [27], 82 % by Srivastava et al. [28], 85.1 % by Oh et al. [39], 87.6 % by Rodriguez-Morales et al. [26], 88.8 % by Kumar and Shashirekha [29] and 93.3 % by George and Alexander [41]. On contrary, studies like Rodriguez-Monrale et al. [42] and Gonzalez et al. [43] have shown P. vivax associated thrombocytopenia in 58.9 % and 55.9 % cases respectively.

According to our study, only 26 % cases with P. falciparum infection had associated thrombocytopenia. Although this was in good agreement with studies like Casals-Pascual et al. [44] and Tan ae al. [45], showing P. falciparum related thrombocytopenia in 34.4 % and 34 % cases respectively; others have reported much higher frequencies! This includes; 40.5 % by Murthy et al. [46], 49 % by Maina et al. [47], 51.8 % by Noronha [48] and 85 % by Prasad et al. [49]. Table 7 shows studies, with comparable results, estimating malaria associated thrombocytopenia in both P. falciparum and P. vivax infections.

CONCLUSION:

According to our study, malaria is frequently associated with various hematological abnormalities. Thrombocytopenia was associated with P. vivax infection in 71.4 % cases while only 26 % of P. falciparum patients had thrombocytopenia (p = 0.01).

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Frequency & comparison of Thrombocytopenia in Patients Suffering from P. Vivax and P. Falciparum


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<td>2</td>
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<td>Waqas Majeed</td>
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<td>Gujrat , Gujranwala , Sialkot</td>
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<td>LHR DIV(Sheikhupura+Kasur+Sahiwal+Okara)</td>
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<td>Agha Sagheer Ahmad</td>
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<td>03037770152</td>
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<td>13</td>
<td>Sajid Ali Shah</td>
<td>Quetta</td>
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<td>14</td>
<td>Khalid Mehmood</td>
<td>Karachi</td>
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<td>15</td>
<td>Abdul Farhan</td>
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Comparison of Suture Vs Staple Closure of Skin following Open Cholecystectomies in terms of Surgical Site Infections

Muhammad Kalim FCPS¹, Qaiser HayatMBBS², Tariq Ijaz FCPS³, Farrukh Ozair ShahFCPS⁴ Prof. Mazhar Khan FRCS , Dip(Neurology)⁵

Department of Surgery, Hayatabad Medical Complex, Peshawar,

ABSTRACT

Objective: To compare suture versus staple closure of skin following open cholecystectomies in terms of surgical site infection.

Design: Randomized controlled trial study

Duration and Place of Study: 12 months duration from 10/01/2016 to 10/01/2017 which was conducted at Surgical Department, Hayatabad Medical Complex, Peshawar.

Patients and Methods: A total 250, (125 each group), patients were included in the study by using confidence interval of 95% and power of the test as 80% under WHO sample size calculations with 4% surgical site infections for vertical mattress and 14% for stapling. Moreover, non-probability consecutive sampling technique was used for sample collection.

Results: In this study mean age in Group A was 44 years with SD ± 2.77. Where mean age in Group B was 46 years with SD ± 3.12. In Group A (35%) patients were male and (65%) patients were female. In Group B (32%) patients were male and 85(68%) patients were female. Group A (staples) was effective in 92% patients whereas Group B (suture) was effective in 85% patients.

Conclusion: Our study concludes that staples are more effective than sutures in closure of skin following elective open cholecystectomy in terms of prevention of surgical site infection.

Key Words: Suture, staple closure, open cholecystectomies, surgical site infection.

INTRODUCTION

An open cholecystectomy is generally performed through right subcostal incision to remove the gall bladder. It is a commonly performed surgery in any surgical unit. For skin closure, surgical sutures are commonly used for surgical wounds.¹,²,³ Other new methods of surgical wound closure are staples and adhesive strips, staples are commonly used for skin closure after open gastrointestinal surgery. Many studies have compared both Staples and skin sutures in both Obstetrics and Orthopedic surgery but their effectiveness in post open cholecystectomy wounds closure is still deficient.⁴,⁵

Surgical site infections are the skin and subcutaneous tissues involvement by pathogenic organisms after surgery, which on the basis of deep fascia involvement are divided into superficial and deep infections¹. Infectious process above the fascia constitute superficial surgical site infections.⁶-⁸ both the superficial and deep wound infections are treated primarily by wound exploration and drainage of the infected material ⁹. Systemic antibiotic therapy according to culture and sensitivity reports may be needed when there is extensive surrounding cellulitis (>2cm from the wound margins) or if the patient is immune-compromised. Infectious process involving the deep fascia which necessitate an evaluation for possibility of deep surgical space infections ⁹,¹⁰.

Staples are more effective than sutures in closure of skin following elective open cholecystectomy in terms of prevention of surgical site infection.

Open Cholecystectomy is a commonly performed surgical procedure in our set up and wound closures are mostly done by surgical residents. Owing
to different surgical techniques, conditions of the patient and operation theatre, wound infection is the most common complication following wound closure. The aim of our study was to compare the efficacy of staples versus suture wound closure following open cholecystectomies in our local population in terms of wound infection. This will provide the best method of surgical wound closure with low infection rate and then these results will be shared to other local health professionals for formulation of future guidelines.

MATERIALS AND METHODS

This randomized controlled trial study of 12 months duration was conducted at Surgical Department, Hayatabad Medical Complex Hospital, Peshawar from 10/01/2016 to 10/01/2017. sample size was total 250, 125 each group, 95% confidence interval and 80% power of the test under WHO sample size calculations with 4% surgical site infections for vertical mattress and 14% for stapling infections for vertical mattress.

All Patients with age range of 18-70 years of both gender were included and also All symptomatic patients undergoing elective Cholecystectomy with no evidence of peritonitis. While Perforated viscous with localized or generalized peritonitis, Immuno-compromised, Diabetic mellitus patients and patients on steroids and pregnant patients were excluded from this study.

Approval was obtained from hospital ethical and research committee. Patients requiring open cholecystectomies were admitted through outpatient department for surgery. Patients fulfilling inclusion criteria were included in the study. Detailed history, clinical examination, routine investigations were done in each case pre-operatively. Informed written consent was obtained. Patients were divided into two groups using lottery method. Open cholecystectomy was done on elective list by the surgeon who was not informed about the study. Surgeon performing surgery would scrub himself properly from hands to elbows with povidine for at least 3 minutes. Every patient’s full abdomen would be scrubbed with povidine solution twice and left to dry for at least 5 minutes after which patient would be properly covered with sterile towels.

At the completion of surgery wound closure was in layers by absorbable suture till subcutaneous layer skin would be closed with either staple or suture material Polypropylene 2/0. Before and after skin closure, wound were washed with povidine solution and normal saline and in the last sterile dry dressings were applied over the wound. In group A and B, staples were used for skin closure while in group B skin closure was done with interrupted vertical mattress fashion with polypropylene 2/0.

Each patient in the study received only three doses of intravenous 1 gram Ceftriaxone injection, first dose was given at the time of induction of anaesthesia and the remaining 2 doses were given in next 24 hours in 1gm doses with 12 hours interval. Then switched the patient to oral antibiotics i.e., Moxifloxine 400mg 1 Tab OD for 5 days with other analgesic and antacid. Fluid intake was orally allowed after 12 to 24 hours, once the patient passed flatus and on abdominal auscultation, bowel sounds were audible. Wound was inspected for any signs of infection on 2nd, 5th and 10th post-operative day, which was recorded as surgical site infection. It was identified by clinical and subjective evidence of all of the following signs and symptoms: pain in the wound by history while redness, swelling and/or purulent discharge from the wound clinically, with or without fever 100°F or more. Sutures/staples was removed from 8th to 12th post-operative day. Patients were followed up for at least one month to look for the development of any signs of post-operative wound infection. Patients were instructed to immediately come to ward in case of wound infection or development of any other related problem with cholecystectomy in between follow up visits. All the particulars of data were entered in a predesigned proforma exclusion criteria was strictly followed to control bias and confounders in the study. Data was entered and analyzed by statistical program SPSS version 20.

RESULTS

This study was conducted at Surgical Department, Hayatabad Medical Complex Hospital, Peshawar in which a total 250 (125 each group) patients were observed to compare suture versus staple closure of skin following open cholecystectomies in terms of surgical site infection.

Age distribution among two groups was analyzed as in Group A, 16(13%) and 38(30%) patients were in 18-30 years and 31-40 years respectively while 31(25%) and 25(20%) patients were 41-50 years and 51-60 years respectively. In the age group of 61-70 years, there were 15(12%) patients. Mean age of patients in group A was 44 years ± 2.77SD. In Group B, patients in the age group of 18-30 and 31-40 years were 19(15%) and 38(30%) respectively while 34(27%) and 22(18%) patients were in age groups of 41-50 and 51-60 years. There were 12(10%) patients were in age group of 61-70 years. Mean age of patients in group B was 46 years ± 3.12SD.

Gender distribution among two groups was analyzed as in Group A 44(35%) patients were male and 81(65%) patients were female. Whereas in Group B 40(32%) patients were male and 85(68%) patients were female. Efficacy among two groups was analyzed as Group A (staples) was effective in119(92%) patients and was not effective in 10(8%) patients. Whereas Group B (suture) was effective in 106(85%) patients and was not effective in 19(15%) patients. Stratification of efficacy with respect to age and gender is given in table No 2,3

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DISCUSSION

Cholelithiasis is a condition in which stones are formed in the gall bladder. They can form in any part of the biliary tract. Gallstone disease is very common in the middle age and put more economical health burden. Gallstones are mainly composed of cholesterol monohydrate crystals (approximately 80%) while the remaining 20% are composed of calcium bilirubinate called as pigment stones

In our study mean age in group A was 44 years ± 2.77SD and in group B was 46 years ± 3.12SD. In group A (35%) patients were male and (65%) patients were female. In Group B (32%) patients were male and (68%) patients were female. Group A (staples) was effective in 92% patients Whereas Group B (suture) was effective in 85% patients. Kanegaye J T et al had compared staples to sutures for skin closure and found a lower rate

### TABLE NO 1. Efficacy (n=250)

<table>
<thead>
<tr>
<th>EFFICACY</th>
<th>GROUP A</th>
<th>GROUP B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective</td>
<td>115 (92%)</td>
<td>106 (85%)</td>
</tr>
<tr>
<td>Not effective</td>
<td>10 (8%)</td>
<td>19 (15%)</td>
</tr>
<tr>
<td>Total</td>
<td>125 (100%)</td>
<td>125 (100%)</td>
</tr>
</tbody>
</table>

Group A: staples  
Group B: suture  
Chi Square test was applied in which P value was 0.0754

### TABLE NO 2. Stratification of efficacy w.r.t age distribution

<table>
<thead>
<tr>
<th>AGE</th>
<th>EFFICACY</th>
<th>GROUP A</th>
<th>GROUP B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>Effective</td>
<td>15</td>
<td>16</td>
<td>0.3768</td>
</tr>
<tr>
<td></td>
<td>Not effective</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>16</td>
<td>19</td>
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<tr>
<td>31-40 years</td>
<td>Effective</td>
<td>36</td>
<td>34</td>
<td>0.3948</td>
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<td></td>
<td>Not effective</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>38</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>41-50 years</td>
<td>Effective</td>
<td>28</td>
<td>30</td>
<td>0.7862</td>
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<tr>
<td></td>
<td>Not effective</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Total</td>
<td></td>
<td>31</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>51-60 years</td>
<td>Effective</td>
<td>23</td>
<td>18</td>
<td>0.2966</td>
</tr>
<tr>
<td></td>
<td>Not effective</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>25</td>
<td>22</td>
<td></td>
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<tr>
<td>61-70 years</td>
<td>Effective</td>
<td>13</td>
<td>8</td>
<td>0.2141</td>
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<tr>
<td></td>
<td>Not effective</td>
<td>2</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
<td>12</td>
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</tr>
</tbody>
</table>

Group A: staples  
Group B: suture

### TABLE NO 3. Stratification of efficacy w.r.t gender distribution

<table>
<thead>
<tr>
<th>GENDER</th>
<th>EFFICACY</th>
<th>GROUP A</th>
<th>GROUP B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Effective</td>
<td>40</td>
<td>31</td>
<td>0.0896</td>
</tr>
<tr>
<td></td>
<td>Not effective</td>
<td>4</td>
<td>9</td>
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<tr>
<td>Total</td>
<td></td>
<td>44</td>
<td>40</td>
<td></td>
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<tr>
<td>Female</td>
<td>Effective</td>
<td>75</td>
<td>75</td>
<td>0.3416</td>
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<td></td>
<td>Not effective</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>81</td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>

Group A: staples  
Group B: suture
of surgical site infections for Intra-cutaneous (4%) than for stapling (14%). Ranaboldo C. Jet al16 compared these two methods of wound closure in orthopedic surgery and concluded that regarding wound complications, there was no difference between the sutures and staples groups with relative risk of 0.77 and confidence interval of 0.52 – 1.14. In a meta-analysis conducted by C Lavazzo et al17 and 12 studies were included which showed that the rate of wound infections were significantly lower in the groups in which staples were used compared with the group(s) in which sutures were used for wound closure with the odds ratio of 2.06; 95% Confidence interval CI was 1.20 to 3.51. In these studies they found the wound infection rates were lower in staples compared with sutures.

On the other hand, Sagar Gupta et al18 compared suture and stapler in open abdominal surgery regarding wound infections. This study was conducted over 2 years and has showed that incidence of post-operative wound infection was lower with skin staples. They compared the infection rates at different post-op days, the infection rates with stapler and suture on 3rd day were 6% and 16%, on 7th day 14% and 28%, on 14th day 10% and 20%. On 30th day no patient was having infection. In a systemic review, mata analysis of six studies including 5 RCTs and one prospective cohort study by Smith T.O. et al19, the risk of wound infection or separation was two times higher in staple closure when compared with sub-cuticular suture closure in 684 patients i.e. 13.4% and 6.6% respectively, with a pooled Odd Ratio of 2.06 and 95% confidence interval of 1.43 to 2.98. Similarly, Tuuli MG et al20 concluded that in terms of wound infection, the sub-cuticular sutures were superior over skin staplers. The wound infection in staples surgery was 7.1% and 0.5% for suture with a p value less than 0.001, relative risk of 14.1 and 95% confidence interval was 1.9-106. On follow up at 4-6 weeks, 87.9% patients, the cumulative risk of the primary outcome was 14.5% for staples and 5.9% for suture with a p value of 0.008, relative risk of 2.5 and 95% confidence interval of 1.2-5.0. In a recently conducted randomized control trial evaluating skin closure techniques, Eaton AC et al21 found that wound complications have conflicting results. In their study, a total of 877 women from 5 trials were included. Both wound separation rates were higher with staples. The pooled odds ratio was 4.01, p value was significant (less than .0001). The composite wound complication in staples have a pooled odd ratio of 2.11 and p value was significant i.e. 0.003.

CONCLUSION

Our study concludes that staples are more effective than sutures in closure of skin following elective open cholecystectomy in terms of prevention of surgical site infection.

REFERENCES


Factors affecting uptake of Childhood Immunization through EPI in the Province of Khyber Pakhtunkhwa, Pakistan

M. Nabeel Rashid MBBS1, Mazhar Ali MBBS2, Ahmad Ali MBBS3

ABSTRACT

Background: Immunization prevents significant amount of childhood deaths around the globe. Pakistan is vaccinating children through EPI since 1978 against 9 diseases and is facing difficulties in achieving goal of vaccine coverage due to multiple reasons. Researches reveal that human resource, poor equipment and training of health care personnel are important factors for successful Immunization program.

Objective: The objective of this study is to identify factors that affects uptake of vaccines in children of age 12-23 months in Malakand District.

Material and Methods: This is a cross sectional study which was conducted in Malakand between March-May 2015. A total of 208 mothers having children of age 12-23 months were interviewed through structured questionnaire. Total 10 (five rural and five urban) Union Councils of district Malakand were selected through random sampling.

Results: About 77.4% children were found fully immunized and 59.2% were against Measles vaccines (two doses only). It was found that children who had siblings with incomplete immunization were less likely to be completely immunized.

Conclusion: This study showed that LHW home visits, vaccination status of siblings and the perception that it contains forbidden material in it was found as significant barrier to immunization. Rural areas had more coverage of vaccination than urban areas. Programs of health education and community mobilization which mainly targets mothers will have positive effects.

Keywords: EPI (expanded program on immunization), CI (confidence interval), OR (odd ratio) PDHS (Pakistan demographic health survey), OPV (oral polio virus vaccine) LHV (Lady Health Workers), VPD (Vaccine preventable disease)

INTRODUCTION:

Immunization can be defined as the process whereby a person is made immune or resistant to infectious diseases by the administration of a vaccine. It arouses the body’s own immune system to defend the individual against the communicable diseases. In this process a small amount of attenuated or killed virus or bacteria or bits of lab-made protein that replicate in body which helps producing antibodies against that organism. These antibodies help to prevent infection in future by that same organism.

It not only prevents disease in children but also prevents others from getting contact with the diseases. Vaccines can prevent deaths, disabilities and ensure timely schooling of children by keeping them healthy. These diseases pose serious life threats to life in children and immunization is saving 2.5 million lives each year around the globe.

Vaccination status of siblings, and the perception that it contains forbidden material in it was found as significant barrier to immunization. Rural areas had more coverage of vaccination than urban areas. Programs of health education and community mobilization which mainly targets mothers will have positive effects.

Vaccines are most cost effective public health intervention against childhood diseases. Future generations may also be saved by eradicating Vaccine Preventable Diseases (VPD) like smallpox. Immunization of children saves cost on disease and caring disability and is ensured lifelong health benefits. Among VPDs case fatality rate of Diphtheria is 5-10% which can go up to 2%. However cases of diphtheria started to decline from 1980s. This rate is continuously declining around the world due to improved vaccination status. According to (WHO, 2015) statistics the cases have declined from 11625 in the year 2000 to 4680 in the year 2013 around the globe.
Factors affecting uptake of Childhood Immunization through EPI in the Province of Khyber Pakhtunkhwa, Pakistan

ported in Pakistan in the year 2000 were only 13 while in 2013 it were 183.

Pakistan has all the five types of Hepatitis (A, B, C, D, and E). The prevalence of Hepatitis B is about 3% in Pakistan. WHO estimates that about four million people in Pakistan are exposed to Hepatitis B. It can be easily prevented by vaccination (WHO, 2013). It also transmits from mother to new born easily in up to 90% cases. Polio is a big challenge for Pakistan. Afghanistan and Nigeria are the only countries having polio cases in the world. EPI in Pakistan is giving Oral Polio Vaccines (OPV) to children under five years of age in any country. About 11 cases were reported so far in KPK last by July 2015. In the year 2014 cases increased by 70% as compared to 2013 and 68 cases were reported in the year 2014 in KPK.

Developing countries are more vulnerable to greater mortality because of low access to immunization and low resistance to disease due to poor nutrition where 23% deaths of children under five occurs in first month of life. Preventable diseases cause deaths of 3 million babies in developing countries.

MATERIAL AND METHODS:

A cross sectional study was conducted in between March-July 2016 in 10 UCs, 5 urban and 5 rural Tehsils of Swat Ranizai of District Malakand, KPK Pakistan. Sample size calculated for this study was 197, rounded to 217 with 10% inflation rate by using this formula

\[ n = \frac{z^2 \times p(1-p)}{d^2} \]

Where, \( p = 0.52, q = 1-p \) with confidence interval 90%, 0.1% of precision value and design effect of 2.26, whereas the total number of households in selected rural UCs were 11142 rural and 11415 urban according to EPI data March 2015. For household selection, in geographic center of selected area was spanned to select first house randomly. An adjacent house was approached for sample until required sample size was obtained. Mother of each child present in the compound was interviewed through structured questionnaire. All questionnaires were translated in local language. Descriptive statistics (percentages, mean, SD) was used to describe the data. Results were reported in percentages, tables and charts for different variables according to nature of variable.

The outcome variable “immunization status of vaccine” is nominal in nature. Chi square test was applied to check any statistical association between independent and dependent variables. Results were reported in tables and charts. Logistic regression analysis was performed to assess the association between independent variables and outcome variable. Odds ratios (OR) and 95% confidence interval (CI) were calculated.

RESULTS:

A total of 208 mothers were interviewed during the study. Out of the total 106 (51%) were un-educated, 43 (20.7%) had primary, 22 (10.6%) had middle, 27 (13%) had matric and only 10 (4.8%) were above matric education. 53 (25.5%) were living in single family while 154(74%) were from joint families. The majority of mothers 200 (96%) were house wives and only 8 (3.8) mothers were employed as teachers. Mostly, source of information to mothers about vaccination were LHWs (78, 37.5%), followed by child vaccination card (62, 29.8%) and hospital/vaccination center for (59, 28.4%). Mother’s age ranged from 17-42 years. Age were grouped as 17-25, 26-30, 31-35, 36-42 years. There were 86 (41.3%) of age 17-25, 64 (30.8%) of age 26-30, 38 (18.3%) of age 31-35 and 20 (9.6%) were from group 36-42 years. According to EPI report, out of 208 children 95(45.7) were male (49 rural and 46 urban) and 113(54.3) were female (58 rural and 55 urban). The ages of children were grouped in 4, about 68(32.7%) were of aged 13-15 moths, 62(29.8%) were of age 16-18 months, 34(16.3%) 19-21 months and 44(21.2%) were of age 22-23 months.

Vaccination status of children was reviewed by two methods i.e., from mother follow up recall about children immunization status and immunization cards of 195(93.75%) children. About 62% of children had completed vaccination of Measles 2nd dose and for BCG was 96.6% as shown in figure 1.

Figure 1.Antigen specific coverage on basis of mothers’ follow up recall and vaccination card

Result showed that overall 77.4% children were found fully immunized with vaccines recommended.
Factors affecting uptake of Childhood Immunization through EPI in the Province of Khyber Pakhtunkhwa, Pakistan

Rural areas had higher coverage (83.2%) than urban areas (71.3%). Immunization in male children was observed less (74.7%) than female children (79.6%).

Parents who have negative perception of effectiveness of vaccination are .36 times less likely to partially immunize their children [OR 0.36(95% CI=0.15, 0.85)]. Complete immunization of children was 45.5% less in

<table>
<thead>
<tr>
<th>Variable</th>
<th>Crude OR</th>
<th>CI</th>
</tr>
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<tbody>
<tr>
<td>Father education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Un educated</td>
<td>2.90</td>
<td>1.27-6.63</td>
</tr>
<tr>
<td>Educated</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mother Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Un educated</td>
<td>1.76</td>
<td>0.90-3.42</td>
</tr>
<tr>
<td>Educated</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Area of residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>.50</td>
<td>0.26-0.98</td>
</tr>
<tr>
<td>Urban</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Gender of children</td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.33</td>
<td>0.69-2.54</td>
</tr>
<tr>
<td>female</td>
<td>1</td>
<td></td>
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<tr>
<td>Vaccination card of children</td>
<td></td>
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<tr>
<td>Present</td>
<td>0.45</td>
<td>0.16-1.32</td>
</tr>
<tr>
<td>Not present</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Vaccination cause sterility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>.30</td>
<td>0.09-1.04</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>It contains Haram material</td>
<td></td>
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<tr>
<td>Yes</td>
<td>2.99</td>
<td>1.37-6.60</td>
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<td>1</td>
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<td>0.06-1.31</td>
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<tr>
<td>No</td>
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<td></td>
</tr>
</tbody>
</table>

In this context mothers were asked to identify reasons they perceive why people are not immunizing their children, only 19.2% mothers responded. About 17.8% mothers mentioned that it contains some forbidden constituents (according to their belief), same percent has fear of fever after vaccination (17.8%) which causes disruption in daily routine of mothers. About 14.9% were with view that it contains medicine that can cause sterility in their children.

Univariate logistic regression analysis between perceived barriers and immunization status of children age 12-23 months in district Malakand, KPK. In univariate logistic regression, education level, vaccination of siblings, LHWs visit to home, perception of effectiveness of vaccine, perception of immunization permission, according to their belief or absence of male family member at home, were found to significantly associated with outcome variable with p= value of 0.05 and below.

Children of uneducated parents were 2.9 times more likely to be partially immunized [OR 2.9(95% CI=1.27, 6.63)], and the chances of partially immunization were found 0.24 times more in those who have siblings with complete immunization [OR 0.23(95% CI=0.09, 0.60)]. Children of those families where LHW did not visit, were 0.35 times less likely to be partially immunized [OR 0.35(95% CI=0.18, 0.69)].

Children of uneducated parents were 2.9 times more likely to be partially immunized [OR 2.9(95% CI=1.27, 6.63)], and the chances of partially immunization were found 0.24 times more in those who have siblings with complete immunization [OR 0.23(95% CI=0.09, 0.60)]. Children of those families where LHW did not visit, were 0.35 times less likely to be partially immunized [OR 0.35(95% CI=0.18, 0.69)].

A logistic regression ascertained the effect of LHWs visits to homes, perception according to their belief, vaccination status of siblings on the likelihood that children of age 12-23 months have incomplete immunization. Results were considered as significant on the basis of biological plausibility and 95% confidence interval. Children of age 12-23 months who had siblings with incomplete immunization were having about 8 times less chances of completing immunization and 7.6 times less likely to complete immunization of children due to other reasons. Homes where LHWs do not pay visits were 5.8 times more likely not to completely immunize their children.

DISCUSSION:

We found that the overall immunization coverage was 77.4% in district Malakand which was
Factors affecting uptake of Childhood Immunization through EPI in the Province of Khyber Pakhtunkhwa, Pakistan

greater than PDHS 2012-13 reported for KPK province (52.7%). Recent positive steps taken by the provincial government to childhood immunization is the real answer here. Govt of KPK successfully completed childhood immunization program Sehat ka Insaf meaning ‘Justice for Health’ in the province. In this program all EPI vaccines were administered to children under five years in KPK instead of only OPV. In our study we found that 59.1% by reviewing card and 62% by mother recall got Measles 2nd dose of vaccination. The percentage for BCG vaccine was 96% by mother follow up recall, and 92.3% by vaccination card. This difference (77.4%, 59.1%) also shows high dropout rates of Measles II (second dose) vaccine. A study in India found that on basis of maternal follow up recall child immunization status was underestimated [8], but here case is different. Less than half of mothers had cards and incomplete cards that’s why using vaccination card were also not helpful. EPI workers in Pakistan did not understand the importance of vaccination card yet. In Ethiopia core group polio survey reported those cards were present with mothers, ranges from 14.6-50% in different regions are very much less from Pakistan. There were strong association (p=0.004) between presence of card and completion of immunization. The results were consistent with a study from which they reported strong relation of vaccination documents and complete vaccination status(p<0.001). [9] Many barriers were identified in our study. The perception of mothers that it contains certain unwanted material was a major reason to decrease percentage of complete immunization from 80.24% to 57.57 %. People that are not in favor of it were about 7 times less likely to vaccinate their children.

A study from Colombia also reveals that the religious and cultural beliefs might impede vaccination from 37.4% to 5.9% as many controversies are been spread in people regarding its relevant permission[10]

Consistency in immunization of children is required. A significant association was observed between immunization status of sibling and children aged 12-23 months reported similar findings in a study done in Congo. Their results showed that out of 25.7% non-immunized children were in the early age group.[11] Lack of faith in effectiveness was also a major barrier found in our study. The findings are similar to a study from North India found that lack of understanding in effectiveness of immunization was the reason of non-immunizing for 21.7% of respondents. Health care worker and government must increase awareness in public to make it an effective program.[12]

Absence of male family member at home at time of immunizing children was found to be an important indicator for uptake of immunization. About 37.8% of children did not complete their vaccination schedule just because of absence of male family member at home, who can accompany mother to vaccination center. In Pashtun community, mostly women do not travel alone unless accompanied by a male family members especially when the travel is a bit long. Only 18.3% of mothers reported this problem. The results showed that 81.7% of mothers took responsibility of vaccinating their children. Therefore strategies targeting for mothers will have good effects on immunization coverage in the area.

Topuzoğlu A. (2006) reported that responsibility of children immunization was left on mothers in Istanbul but women were still depending on social networks. For immunization status, vaccination card were seen, as we did not rely on mothers to follow up. Card was only acceptable with proper date or signature. However data were not cross checked with EPI centers. Cards were present with the majority of parents (92.3%). The reason may be the demand of vaccination card in school admission or fear of police against those who do not vaccinate their children. Some authors suggested that follow up was not a good enough indicator for immunization status (UNICEF). In our study on the basis of mothers follow up recall percentage of vaccination were higher than card. In recent years Govt. of KPK has started probing into refusals of vaccination.

A gender difference was not observed in our study. However a mother from Totakan village of a non-immunized child says, “It was a female child on number fourth that’s why we did not immunize her. We were disappointed on her birth.” Some other interesting barriers were noticed that mothers verbalized. A mother from Thana Khas village told that “It’s free of cost that’s why people don’t care about it”.

The results were consistent with EPI district coordinator’s opinion that social setup of rural areas helps in completing child vaccination schedule. Vaccinators from respected villages mostly know all people of village and call them for vaccination. They also call defaulter of vaccination by handing over list to LHW of that area. LHW then reminds mothers about vaccination date. A Sanou et al (2009) also reported similar findings. They said that the perception of communication problems between parents and health workers was significantly associated with complete immunization coverage. Site of child birth were not associated with immunization coverage at all. Reasons may be absence of culture of counseling of mother for vaccinating children and post natal care. Different findings were observed in a study from Burkina Faso, where child born in health facility were vaccinated more than others. The reason could be that there are different setups where baby is delivered and where children are provided vaccination in Pakistan.
CONCLUSION:

This study showed that 77.4% of the children were fully immunized within the time recommended by EPI Pakistan as per vaccination card. Vaccination status of siblings, LHWs visit to home, the perception that it contains harmful material in it was found as significant barriers to immunization. Rural areas had more coverage of vaccination than urban areas. Programs of health education and community mobilization which mainly targets mothers will have positive effects. In addition, LHWs role in immunization shall help in increasing coverage of immunization.

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Darning Technique of Inguinal Hernia Repair

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Department of Surgery, Khyber Teaching Hospital, Peshawar

ABSTRACT

Background: Inguinal hernia repair is probably the most common procedure in general surgery. Numerous repair techniques have been described to date. The Darning technique is a tissue-based technique. Though practiced in our setting, little is documented on its outcome.

Objective: To determine the outcome of natural repair of inguinal hernia in terms of infection, recurrence of hernia and postoperative pain.

Materials and Methods: This Descriptive study was done at department of surgery, Khyber Teaching Hospital, Peshawar during May 2014 to December 2016 recruiting 120 patients with inguinal hernia whose hernioraphy was done with Darning technique. Patients were re assessed for infection after 24 hours, presence of chronic groin pain and recurrence after 3 months to determine intervention effectiveness, data was analyzed with the help of SPSS 17.

Results: The mean age of patients was 35.56 years ± 12.34SD. The mean duration of surgery was 35.45 minutes ± 3.09SD. The infection noted was only in 1 (0.83%) patient, Chronic inguinal pain at 1st month was in 2 (1.67%) patients with mild intensity only. Recurrence of inguinal hernia was recorded at 3 months follow up in only 1 (0.83%) patient.

Conclusion: Darn technique for primary inguinal hernia is a safe technique with negligible postoperative complications and low recurrence rate.

Key words: Inguinal hernia, Darning, Post-Operative pain, Wound infection, Shouldice Repair. VAS (Visual Analogue Scale)

INTRODUCTION

Hernia (Greek kele hernios--bud or offshoot) was present in the human history from its very beginning1. It is estimated that 20 millions of inguinal hernia repairs are performed globally every year2. The history of open surgery for groin hernia has gone through many stages of development, and five principles of modern hernia repair developed through these periods of development: antiseptic/aseptic hernia operation, high ligation of the sac, tightening of the internal ring, reconstruction of the posterior inguinal floor, and tensionless repair3.

Success of groin hernia repair is measured primarily by the permanence of the operation, fewest complications, minimal costs, and earliest return to normal activities. This success depends largely on the surgeon’s understanding of the anatomy and physiology of the surgical area as well as a knowledge of how to use most effectively the currently available techniques and materials4.

Moloney GE in 1948 introduced Darn repair of primary inguinal hernia which is based on the same principles of strengthening or reconstructing the posterior inguinal wall like other techniques with low recurrence rate of 0.8%5. In Darn repair, a tension free lattice framework is formed, later on fibrous tissue grows into the grid and reinforces the wall. It is cheap, easily performed and results are comparable to mesh or Shouldice repair6.

Darn technique with Prolene for primary inguinal hernia is a safe technique. It has negligible postoperative complications, low recurrence rate and a cheaper procedure.

Every recurrence after a primary repair will add an extra cost to health care economics. Similarly the thought of another operation depresses the patient. Moreover, secondary or tertiary operations after previous repairs carry higher risk of re-recurrence and specific complications like testicular atrophy7. Therefore, every surgeon should know and be able to adopt a technique that is successful in daily life. The aim of our study was to find the outcome of Darn repair of inguinal hernia in terms of infection, recurrence and postoperative pain.

MATERIAL AND METHODS

This Descriptive cross sectional study was car-
ried out at department of surgery Khyber Teaching Hospital, Peshawar during the period of one and a half years from May 2014 to December 2016 recruiting 120 patients. The diagnosis of inguinal hernia was based on the history and clinical examination. The inclusion criteria adopted was that patients between 18 to 50 years of age with symptomatic direct and indirect inguinal hernia. Patients who were having incarcerated or strangulated hernia or minimally symptomatic or asymptomatic hernia were excluded.

Similarly Smokers, patients with positive family hernia history, collagen disease, after an appendectomy, with ascites, or with COPD have an increased risk of inguinal hernia and these were also excluded.

The patients meeting the inclusion criteria were included in the study through OPD of general surgery. The purpose, benefits and drawbacks of the study were explained to the patient and if agreed upon a written informed consent was obtained. A detailed history was taken followed by detailed physical and systemic examination. Following physical examination, cough impulse test, ring occlusion test and the test for reducibility were also performed. Hernia repair was done under general, spinal or local anesthesia as decided by surgeon, the anesthetist and condition of the patient. A skin crease approach was used following Langer’s line. Inguinal canal was opened, card swiped sac direct or indirect identified and dealt with accordingly. The posterior wall of inguinal canal was then strengthened with Polypropylene (Prolene2/0, Ethicon Johnson and Johnson) darn; a tension free darn starting with a good bite of the tough tendinous structures near the pubic tubercle and emerging out through the lateral edge of the rectus sheath with a bulky bite in between. The tension free darn was weaved between inguinal ligament and conjoined tendon. The critical medial angle was repaired in each case meticulously which is the usually recurrence hotspot. The Aberdeen knot was used to avoid a thick prolene knot at the end.

All patients were given an IV injection of cefuroxime 1.5 gm at induction of anaesthesia and 2 doses of the same were repeated postoperatively. Routinely used analgesics were used for 48 hours. All the patients were observed for 2 days and were discharged on 3rd postoperative day when their pain was tolerable and wounds were clean.

Patients were re assessed for infection after 24 hours, presence of chronic groin pain and recurrence after 3 months to determine intervention effectiveness. Pain was assessed by Visual Analogue Scale (VAS) as: Grade 0: No pain, Grade 1: Mild = 1 - 3, Grade 2: Moderate = 4 - 7, Grade 3: Severe = 8 – 10. Moderate and severe pain were considered significant. Patients were followed on monthly basis for 3 months.

All the above mentioned information including name, age, gender, address were recorded in a pre-designed proforma. Exclusion criteria were followed strictly to control confounding variables and bias in the study results. Data was entered in software SPSS version 17. Descriptive statistics was used to calculate mean and standard deviation of age. Frequency and percentage were calculated for gender, infection, pain on VAS and recurrence. The results were presented as tables and graphs.

RESULTS

The total number of patients were 120 with mean age of 35.56 years ± 12.34SD. all patients were male. There were 91(75.83%) right sided while 29 (24.17) left sided hernia. Preoperatively direct and indirect hernia were 53 (44.17%) and 67 (55.83%) respectively. General anaesthesia was given to 93(77.50%) patients, spinal anaesthesia to 20(16.67%) and local anaesthesia to 7 (5.83%) patients. The mean duration of surgery was 35.45minutes ± 3.09SD.

In our study, the infection noted was only in 1(0.83%) patient. This was observed in a 45 years male and was a superficial infection which was covered with routine oral antibiotics. Chronic inguinal pain at 1st month followed up was noted in 2 (1.67%) patients with mild intensity only. Recurrence of inguinal hernia was noted at 3 months follow up in only 1 (0.83%) patient. (Table No. 1)

<table>
<thead>
<tr>
<th>Complications</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection</td>
<td>1(0.83%)</td>
</tr>
<tr>
<td>Chronic inguinal pain</td>
<td>2 (1.67%)</td>
</tr>
<tr>
<td>Recurrence of hernia</td>
<td>1 (0.83%)</td>
</tr>
</tbody>
</table>

DISCUSSION

The various inguinal hernia repair techniques can be broadly classified into tissue-based and prosthetic methods. One major drawback of the tissue based repairs has been the amount of tension associated with most of them which is an important factor implicated in recurrence. Though tissue based, the Darning technique is believed to have an advantage over many other non-prosthetic techniques being relatively tension free as the posterior wall is repaired without forcefully opposing the tissues. An ideal inguinal hernia repair procedure should effectively deal with all range of pathologies encountered in all types of inguinal hernias whether direct or indirect, reducible or irreducible, incarcerated or strangulated and a small or big hernial defect10.

The finding that inguinal hernias were more
Darning Technique of Inguinal Hernia Repair

preponderant in the right side is in agreement with similar observations in earlier series\textsuperscript{1,12}. In our study, the infection noted was only in 1(0.83\%) patient. This was observed in a 45 years male and was a superficial infection which was covered with routine oral antibiotics. The infection rate has been reported by certain studies ranging from 0 to 15\% like 0\% by Khan JA\textsuperscript{13}, 2.5\% by Lifshutz H\textsuperscript{14}, 1.5\% by Nasir M\textsuperscript{15}, 1\% by Bhatti\textsuperscript{16}, 2.4\% reported by Farooq O\textsuperscript{16}, 1.8\% by Kingsnorth AN et al\textsuperscript{12} and 15\% by Mahesh SV\textsuperscript{18}. We adopted meticulous aseptic measures during surgery. Also the operation time was short and small amount of foreign material was used.

Chronic groin pain is currently considered an important outcome measure following inguinal hernia repair particularly as it affects the quality of life. It is defined as any visual analog score above zero, which lasts for more than 3 months\textsuperscript{19}. Chronic inguinal pain at 1st month follow up was noted in 1.67\% patients with mild intensity only. This pain persisted for 5 months and then disappeared with routine medications used on and off. In a local study by Nasir M et al\textsuperscript{15} has reported mild and patients did not require prolonged analgesia. Postoperative neuralgia has been reported 16\% reported by Bhatti AZ\textsuperscript{16}. Severe pain after groin hernia repair developed in 4 (3.9\%) patients in a study by Khalil RAE\textsuperscript{20} who developed neuralgia at the site of operations. They treated conservatively and no patients needed nerve exploration. But neuralgia was not noted in our study. We think that it was due to careful dissection of that it was due to careful dissection of neurovascular structure and care was taken to avoid entrapment of illio-inguinal nerve.

It is generally recommended that patients should return to work within a month time of an uncomplicated hernia repair. Most of the postoperative tissue strength is present in immediate postoperative phase due to use of prolene a non-absorbable suture\textsuperscript{21}. Recurrence is usually of direct type and occurs usually in the area of Hasselbach’s triangle. In our study, recurrence of inguinal hernia was noted at 3 months follow up in only 1 (0.83\%) patient, which is comparable to recurrence seen other studies\textsuperscript{22,23}. Maximum recurrences occur in the first six months which is usually due to technical errors like inadequate dissection, tension on tissues and lack of experience of surgeon\textsuperscript{18}. After six months, occupational factors or inherent collagen deficiency is responsible\textsuperscript{24}. On the other hand, No recurrence has been reported by Khalil RAE et al\textsuperscript{20}, Mahesh SV et al\textsuperscript{25}, Das AM et al\textsuperscript{26}, Zedan AM\textsuperscript{27}, Bhushan TV\textsuperscript{28}.

In our set up, less cost on operation should be the priority with maximum efficacy as the government hospitals have limited resources with the fact that inguinal hernia affects the labor class, Thus darn repair is more economic than other Mesh repair techniques.

The results of our study are not consistent with previously published trials of natural and mesh repair technique, where most of the studies had concluded that mesh repair is the best. Now a days, the most commonly performed repairs are mesh repair and laparoscopic repair but keeping in view of our results regarding infection, pain and recurrence, we still recommend Darn repair in selected group of patients. This was a pilot study and further research is needed to establish long-term effectiveness and complications of Darn repair of inguinal hernia in order to compare it with other techniques.

Short period of follow up was the potential limitation of this study as it was not possible to assess the long term outcome like recurrence of hernia.

CONCLUSIONS:

Darn technique with Prolene for primary inguinal hernia is safe technique. It has negligible postoperative complications, low recurrence rate with mimal expenses.

REFERENCES

Darning Technique of Inguinal Hernia Repair


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Intraocular Parasite Infection. (Bacterial uveitis)

An old lady with long-standing joint pain and deformities of both hands and feet suffering from Rheumatoid Arthritis, treated with acupuncture using Gold inthreading techniques for joint pain, a treatment used in acupuncture. This technique has long been used to treat joint pain. Oral and injectable gold preparations are also sometimes used.

Differential Diagnosis: Copper, Gold, Titanium, Cobalt. Silver nitrate (Courtesy. NEJM UK)

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ABSTRACT
Objective: The objective of the study was to determine the effectiveness of single layered interrupted cervical gastroesophageal anastomosis following Oesophagectomy for Oesophageal Carcinoma in a tertiary care center of Khyber Pakhtunkhwa.
Material and Methods: This study was conducted at department of Thoracic Surgery Post Graduate Medical Institute, Lady Reading Hospital Peshawar. Duration of study was 20 months (from 21st March 2011 to 20th November 2012). Sampling technique was consecutive non-probability sampling. A total of 44 patients with resectable carcinoma oesophagus were managed with interrupted gastroesophageal anastomosis.
Results: Average age was 55.32 years± 13.47. Twenty three patients (52.3%) were male. Efficacy of the anastomosis was 95.5% (4.5% leakage).
Conclusion: In the present study, single layered interrupted suture technique for constructing gastroesophageal anastomosis was found to be effective with minimal leak rates.
Key Words: Oesophagectomy, carcinoma Oesophagus, suture technique, Gastroesophageal anastomosis

INTRODUCTION
Oesophageal carcinoma is one of the 10 most common and most deadly cancers in the world.1,12 There are estimated 500,000 incident cases due to oesophageal cancer annually worldwide.12 The annual incidence in Western countries is less than 10 per 100,000, compared with more than 100 cases per 100,000 in some of the eastern countries (Central Asian Esophageal Cancer Belt).1,3 Two histological types of Oesophageal cancer are Squamous and Adenocarcinoma, with Squamous cell carcinoma responsible for more than 90% cases.3 Surgical therapy in the form of Oesophagectomy offers the best chance for cure and also provides effective palliation with relief of dysphagia.5,6 The replacement conduit of choice is stomach.7 Single layered interrupted suture technique for constructing gastroesophageal anastomosis is an effective procedure with minimal leakage.

Anastomosis is constructed either in the neck or chest.12 It can be constructed as a single or double layered; continuous or interrupted; an stapled or
hand-sewn technique. Considerable controversy exists regarding the optimum technique for gastroesophageal anastomosis. Common Complications following Oesophagectomy include anastomotic leaks and strictures, injury to the recurrent laryngeal nerve and surrounding structures, deep venous thrombosis, pulmonary, infectious and cardiac complications. Chief among the complications is the anastomotic leak with very high mortality and morbidity. Most leaks manifest within 10 days of surgery. General factors that influence the development of an anastomotic leakage include tension on the anastomosis, quality of the blood supply of the conduit, location of the anastomosis, the manner in which it was performed and surgeons' experience. The rate of anastomotic leakage varies with a range from 3% up to 30% in various studies with different techniques.

Single layered Oesophagogastric anastomosis is shown to be better than double layered anastomosis in many studies, but there are controversies regarding the technique of single layered anastomosis, giving different anastomotic leakage rates in different studies. This study was undertaken to see the effectiveness of single layered interrupted anastomotic reconstruction technique for gastroesophageal anastomosis. The objective of the study was to determine the effectiveness of single layered interrupted cervical gastroesophageal anastomosis following Oesophagectomy for Oesophageal Carcinoma.

MATERIALS AND METHODS

Setting: Department of Thoracic surgery, Post Graduate Medical Institute, Lady Reading Hospital Peshawar for 20 months (from 21st March 2011 to 20th November 2012). 44 patients were inducted in our study. It was a descriptive case series with consecutive non-probability sampling.

Inclusion Criteria: All the patients, males and females of any age group, diagnosed with resectable Oesophageal Carcinoma in the middle and lower thirds of the Oesophagus were included in the study. Exclusion Criteria: Patients undergoing Oesophageal resection for benign diseases, for example Achalasia, medical co-morbidity detected by history and past medical record as Diabetes Mellitus, Hypertension, Ischemic heart disease Previous gastrectomy as no stomach was available for anastomosis. Preoperative chemoradiotherapy as this decreases rate of anastomotic healing. Locally advanced tumours and metastatic disease detected on CT scan.

The above mentioned conditions if included would have introduced bias in the study and acted as confounders.

A written permission from the hospital ethical committee was obtained. All patients presenting to the Thoracic surgery outpatient department (OPD) of LRH with complaints consistent with oesophageal disease were worked up by investigations such as barium swallow, Oesophagoscopy and biopsy for histopathology. Those with confirmed biopsy for Carcinoma Oesophagus were worked up for staging by “CT Scan chest & upper abdomen with Intravenous and Oral contrast” and Ultrasound abdomen. Those patients found to have resectable Oesophageal carcinoma were included in the study and admitted to the Thoracic surgery ward where routine investigations was done. A written informed consent was obtained from all the patients. same preoperative care, same antibiotics at the time of anesthesia induction and in postoperative period for 10 days. Aseptic technique was adopted, preparing the operation area with Povidone Iodine solution. All the anastomoses were constructed in the neck using tabularized gastric conduit after subtotal Oesophagectomy. All the anastomoses were constructed by a senior surgeon, having got minimum of 5 years’ experience in Thoracic surgery. Nasogastric tube was put in all the patients for 5 days postoperatively. In the postoperative period all patients were monitored in the intensive care unit for minimum of 48 to 72 hours providing same quality care. Oral fluids were allowed on postoperative day.

Patients were observed for signs of leakage daily and information including name, age, gender, address was recorded on preformed proforma up to 10th postoperative day. All those patients with clinical suspicion of leak were evaluated radiologically by gastrografin swallow study for confirmation of leakage. Patients were discharged on 10th postoperative day, if indicated. Exclusion criteria were followed strictly to control confounding variables and bias in the study result. The data was analyzed, continuous variables like age were presented as Mean ± Standard deviation. Qualitative variables like gender and anastomotic leak were presented as frequency and percentages. All the results are presented as tables.

RESULTS

Total of 44 patients were observed in the present study, which were managed with single layer interrupted anastomosis. Average age was 55.32 years ± 13.47. Minimum age was 24 years and maximum 80 years. 09(20.5%) patients in less than or equal to 40 years, 11(25%) patients 41-50 years, 15(34.1%) patients 51-60 years, 08(18.2%) patients 61-70 years and 1(2.3%) patient lies between the age of more than 70 years. (Table 1) Sex wise distribution shows that 23(52.3%) were male and 21(47.7%) were female. Male to female ratio was 1:1.37. (Table 2) Efficacy table shows that 42(95.5%) patients shows efficacy while 2(4.5%) patients show no effectiveness which is statistically insignificant (Table -3).

TABLE 1: Age wise distribution in both the groups (n=44)
Among the different techniques for constructing gastroesophageal anastomosis, there is considerable controversy for the optimum technique to follow universally. Bardini R et al in his one year randomized control trial on Oesophagogastric anastomosis techniques after Oesophagectomy for carcinoma Oesophagus, had 21 patients in the group having single layer interrupted anastomosis technique. The mean age was 58.8 years which is comparable to our study having mean age of 55.3 years. This mean age is quite consistent with the fact that carcinoma oesophagus is mainly a disease of old age group. The gender distribution in my study had male predominance like observed in study by Bardini et al which is consistent with the fact that CA oesophagus is more common in males than females.

Tabatabai A et al published a prospective study in 2009 in which they studied the cervical oesophagogastric anastomotic leak after Oesophagectomy, for carcinoma Oesophagus. As observed in my study, they also had the male predominance. The anastomotic leak in their study was 11% and that in my study was 6.8%. The difference between the leak rates might be because of the fact that they had also included the patients with preoperative chemoradiation in their study which is said to increase the leak rate, that was excluded in my study. Also the sample size for the cervical interrupted gastroesophageal anastomosis in their study was double than that of my study, which might also be the contributing factor for the difference.

DISCUSSION

Surgery of the esophagus is challenging. The patients who suffer from carcinoma oesophagus are usually of old age, accompanied by weight loss because of inability to eat or because of the effects of the carcinoma, and often suffer from cardio-respiratory problems. In addition, the location of the esophagus and its distinct segmental vascularization and histological structure make the esophagus a difficult tissue to suture.

The immediate goal in the surgical treatment of esophageal cancer is to restore the patient’s feeding ability as quickly as possible. The immediate results of operation can be improved by reducing the morbidity and mortality rates. Anastomotic leakage represents a major cause of postoperative morbidity and mortality. This is usually the result of a technical fault. Technical errors can be made during the preparation and transposition of the esophageal substitute or in the performance of the anastomosis itself.

Among the different techniques for constructing oesophagogastric anastomosis, there is considerable controversy for the optimum technique to follow universally. Bardini R et al in his one year randomized control trial on Oesophagogastric anastomosis techniques after Oesophagectomy for carcinoma Oesophagus, had 21 patients in the group having single layer interrupted anastomosis technique. The mean age was 58.8 years which is comparable to our study having mean age of 55.3 years. This mean age is quite consistent with the fact that carcinoma oesophagus is mainly a disease of old age group. The gender distribution in my study had male predominance like observed in study by Bardini et al which is consistent with the fact that CA oesophagus is more common in males than females.

Lu-feng W published a randomized control trial in 2007 on Oesophagogastric anastomosis techniques after Oesophagectomy for carcinoma Oesophagus. He had 936 patients in his study of which 468 patients had single layered interrupted anastomosis. The difference in the sample size is quite high, which reflects the world’s most high prevalence of carcinoma oesophagus in Chinese population. The anastomotic leak rate was 1.9% with interrupted technique in their study while leak rate in our study was 6.8%. This apparent difference between the leaks in 2 studies cannot be explained readily but might be because of the much large sample size in their study.

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Briel JW et al retrospectively analyzed the risk factors for Oesophagogastric anastomotic leakage after Oesophagectomy. In their study they included 230 patients in whom the anastomosis was performed with interrupted suture technique and had an anastomotic leak of 14.3% in contrast to my result (6.8% with the interrupted suture technique). The reason might be the large sample size and, as against in my study, they in-
cluded the comorbid conditions and preoperative chemoradiation in their study which increases the risk of anastomotic leak.

After all the discussion with different studies it is evident that age and gender distribution was nearly the same in the said studies and our study. Also the sample size was comparable or greater in our study than in many others though some of the studies had a higher sample size than mine. Of the discussed studies, the leak rate in our study is comparable to most of the studies which favors the fact that single layered interrupted technique for cervical gastroesophageal anastomosis is an effective technique with minimal leak rate for the population under study.

CONCLUSION

Oesophago gastric anastomotic technique is an important factor which can affect the anastomotic leak after Oesophagectomy. In the present study, single layered interrupted suture technique for constructing gastroesophageal anastomosis was found to be effective with minimal leak rates which coincide with national and international data. The limitation to a relatively small sample size for the said problem might be the reason for it. This is a pilot study and a study needs to be done on a larger sample size before a final conclusion can be made.

REFERENCES

Peroneal Nerve Palsy Secondary to Prolonged Sitting or Squatting in Farm Workers.

Hidayat Ullah FCPS(Ortho),1 Muhammad Siraj FCPS (ortho)2, Umar Hayat FCPS3, Abid AliMBBS4, Muhammad Shoaib Khan FCPS5.

ABSTRACT

Background: Peroneal nerve palsy secondary to prolonged sitting or squatting is very common. It mainly occurs in farmworkers. It should be differentiated from lumbar spine disease and the treatment is usually conservative.

Materials and methods: This descriptive study was done in department of orthopedics and trauma, Khyber Teaching Hospital, Peshawar from April 2012 till April 2015.

Results: 14 Peroneal nerve palsies in 12 patients were studied. 5 patients had right and 5 had left sided peroneal nerve palsy, 2 patients had bilateral involvement. All patients were reported in crop cutting season and they recovered in 6-12 weeks.

Conclusion: Peroneal nerve palsy secondary to prolonged sitting or squatting occurs in farmworkers. Conservative treatment is usually successful.

Key points: Peroneal nerve palsy, POP (Plaster of Paris), AFO (ankle foot orthosis), compartment syndrome. MRC (Medical Research Council), NCS( nerve conduction study), EMG(electromyography) Arthrosis (Artificil limbs support), Tennil sign

INTRODUCTION:

Foot drop may be caused by peroneal nerve palsy or Lumber disc disease1, differentiating between the two is very crucial. Peroneal Nerve palsy may be either traumatic or atraumatic2-4. Traumatic peroneal nerve palsy may be due to direct trauma, iatrogenic or postural2-5. Non traumatic peroneal nerve palsy is rare, and may be caused by cysts, tumors, hematoma and intra neural ganglia2,6,7.

In popliteal fossa, sciatic nerve divides into common peroneal and tibial nerve. The peroneal nerve passes laterally over the lateral head of gastrocnemius muscle, it then passes superficially around the fibular head and neck, where it is protected only by skin and superficial fascia8-10. In this area, peroneal nerve is most prone to injury. It then passes through the fibrous arch and intra-muscular septum8,9. Here peroneal nerve is prone to dynamic compression during sports activities3. In squatting or setting cross legged, it is prone to postural compression1. Compressive forces between biceps tendon, lateral head of gastrocnemius and fibular head causes compression and tension over peroneal nerve during squatting2,8,9.

After median and ulnar nerve palsy, peroneal nerve palsy is the third most common neuropathy in the body and the lower limb10,11. Peroneal nerve palsy due to prolonged squatting is rare, and there is little literature regarding peroneal nerve palsy in farmers. The aim of this study is to evaluate the clinical manifestations and outcome of peroneal nerve palsy occurring in farmers secondary to prolonged squatting during crop cutting season.

Peroneal nerve palsy secondary to prolonged sitting or squatting occurs in farmworkers. Conservative treatment is usually successful.

MATERIALS AND METHODS:

This study was done in the department of Orthopedics and Trauma, Khyber teaching hospital Peshawar, from April 2012 till April 2015. All patients from both genders having symptoms of peroneal nerve
Peroneal Nerve Palsy Secondary to Prolonged Sitting or Squatting in Farm Workers

Palsy secondary to prolonged sitting or squatting in crop cutting season were included in the study. Patients having history of trauma or lumbar spine disease were excluded. Patient data including name, age, gender, duration of symptoms, sensory and motor deficits, and tinel sign were recorded on a preformed proforma.

Complete motor and sensory functions of leg were tested. Muscles of leg and foot were graded according to MRC grading system (table 1). Tunnel sign was noted. Patients were advised below knee backslab or ankle foot arthrosis. Patients were followed on every 2nd week for 6 weeks and then on every 3rd week. Advancing tunnel sign and motor and sensory functions were checked on every visit.

Table 1: MRC grading system

<table>
<thead>
<tr>
<th>Grade</th>
<th>Muscle power</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Muscle contracts normally against full resistance</td>
</tr>
<tr>
<td>4</td>
<td>Muscle contracts against moderate resistance over full range of motion</td>
</tr>
<tr>
<td>3</td>
<td>Movement against gravity over almost full range of motion</td>
</tr>
<tr>
<td>2</td>
<td>Muscle can move only if the resistance of gravity is eliminated</td>
</tr>
<tr>
<td>1</td>
<td>Only fasciculations are visible or palpable in the muscle</td>
</tr>
<tr>
<td>0</td>
<td>No movement</td>
</tr>
</tbody>
</table>

Results

A total of 14 cases of peroneal nerve palsy in 12 patients were studied. 9 (75%) patients were male, while 3 (25%) patients were female. Mean age of patient was 33 (22-44) years. 5 (41.7%) patients had right sided palsy, while 5 (41.7%) had left sided peroneal nerve palsy. 2 (16.6%) patients had bilateral involvement. All patients had history of sitting/squatting for >6hrs/day for >6days. Sensory deficit involving peroneal nerve distribution was present in all patients. 10 patients had motor deficit (foot drop) on presentation. Advancing tunnel sign was positive in all patients. NCS/EMG was done in all patients. Mean time of recovery was 9.75 (6-12) weeks.

Discussion

Peroneal nerve is prone to damage, mostly around fibular head and neck region. Traumatic peroneal nerve palsy may be secondary to laceration, fire arm injuries, or direct blunt trauma to the nerve. It causes acute peroneal nerve palsy. Entrapment or compression type of peroneal nerve palsy develops slowly, due to prolonged exposure of the nerve to internal or external compression. Bone spurs, fracture callus formation, ganglia, tumors and compression between the nerve plans causes internal compression. External compression may be caused by tight POP, compartment syndrome, prolonged squatting and sitting in cross legged position. Peroneal nerve palsy is usually unilateral.

Majority of peroneal nerve palsy occurs around the fibular head where the nerve is very superficial and covered only by skin and subcutaneous tissue. Moller and Kadin in their study reported that peroneal nerve compression occurred around the fibular head due to contact with a hard surface. Prolonged squatting and sitting cross legged may cause postural peroneal nerve palsy. During squatting peroneal nerve is compressed between biceps and lateral head of gastrocnemius at the top and at the bottom by the fibrous band formed by peroneus longus and fibular head. In dynamic compression, peroneal nerve is compressed during long term running or exercises that require frequent knee flexion.

In our study peroneal nerve palsy occur secondary to prolonged squatting. All patients were reported in crop cutting seasons during which the farmers squat for long duration. One study showed 3 patients developing bilateral peroneal nerve palsy secondary to squatting for more than 3 hours on daily basis. In under developed countries, peroneal nerve palsy occurs in female where child bearing is in squatting position. In a study done by Sangwan et al. 30 farmworkers developed peroneal nerve palsy, secondary to prolonged squatting. All of their patients recovered within 3-9 weeks and were treated conservatively. In another study, the mean time of recovery was 7.4 weeks. In our study, the mean time of recovery was 9.75 weeks.

In our study, males were more affected than females, which is contrary to some other studies. It might be because in our society, males work more outside in the farms as compared to the females. Right and left sided peroneal nerve palsy was similar and more as compared to bilateral peroneal nerve palsy. One study done in India showed more left peroneal...
nerve palsy as compared to right side\textsuperscript{21}. For treatment of peroneal nerve palsy, secondary to prolonged squatting/ sitting, conservative treatment for 12-16 weeks is recommended\textsuperscript{10,21}. If there is no improvement after conservative treatment, then neurolysis or operative loosening of the facial arch between the two heads of peroneus longus should be done\textsuperscript{10,22}. Indications of surgery, in case of peroneal nerve palsy secondary to prolonged squatting is, foot drop for more than 1 year, or no signs of improvement in NCS/EMG.

We treated all our patients conservatively with analgesics, Vit. B12 supplements and applying AFO or below knee backslab. All patients recovered within 6-12 weeks. None of our patients required surgical intervention or any residual sensory or motor deficit.

In conclusion, peroneal nerve palsy secondary to prolonged squatting is rare. It occurs usually in farmworkers. It should be differentiated from lumber spine disease. Conservative treatment is usually successful. If there is no recovery within 1 year, then the nerve should be explored surgically.

CONCLUSION:

Peroneal nerve palsy secondary to prolonged sitting or squatting occurs in farmworkers. Conservative treatment is usually successful.

REFERENCES:

Prevalence of Neck Pain in School Teachers of Lahore.

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University Institute of Physical Therapy, University of Lahore.

ABSTRACT
Objective: Neck pain is a major cause of disability now days. Schoolteachers are much prevalent to it as their job involves head down posture tasks for example checking of notebooks and assignments, use of computer with inappropriate posture. Moreover, writing on boards can also develop a risk of occupational related neck pain. There are a lot more reasons of neck pain such as cigarette smoking, inappropriate sleeping posture and sedentary lifestyle. This study was conducted to check the prevalence of neck pain among schoolteachers of Lahore.

Methods: It was a cross-sectional study. Data was collected from 24 different private and government schools. The sample size consisted of 1000 teachers, which were selected randomly. Information related to participant’s demographics, work characteristics, occupational factors, musculoskeletal systems and pain was collected. The data was analyzed by using SPSS 16 version.

Results: The prevalence of neck pain among teachers calculated was 16.8%. There were 75.4% were females 24.6% were males in this study. 16.8% teachers marked that neck pain disturb their daily life activities.

Conclusion Neck pain is quite associated with teaching profession. Modifiable factors included smoking, exposure to tobacco and psychological health. Non-modifiable risk factors included age, gender and genetics.

Key words: Neck pain, prevalence, disability, risk factors, teachers.

INTRODUCTION

Neck pain is becoming more prevalent in society these days. It is estimated that about 67% of every individual will suffer from neck at some point in their life(1) Musculoskeletal disorders are one of the most costly and common health concerns in both developed and developing countries. School teachers serve as an occupational group which shows a high prevalence of MSD. The most common symptom of musculoskeletal disorders which is neck pain, is common in teachers. Lately, teachers of Hong Kong unveil a higher prevalence of neck pain (68.9)(2) Studies of Epidemiology have explained that elements such as age, gender, bad posture, length of employment are highly associated with occurrence of neck pain in school teachers.

Prevalence of neck pain among primary and secondary school teachers of Lahore is 16.8% they had neck pain associated with teaching profession. Modifiable factors are smoking, exposure to tobacco and psychological health while non-modifiable risk factors included age, gender and genetics.

The percentage of secondary school teachers suffering from this health issue amounts to 69.3%(3, 4)Neck pain is a disabling condition with a procedure marked by course of remission and aggravation. Contrary to prior belief, nearly no individuals with neck pain experience full resolution of their symptoms and impairment. It is a typical modern disorder and the factors that are linked with this disease are believed to be limited physical activity, weakness of the weight-bearing muscles, sedentary life style and as well as inappropriate ergonomic postures while doing professional work. It can also be associated with road traffic accidents resulting in fractures and compression of bones. Health problems range from minor to severe aches, discomfort, pains and more serious medical conditions that require days off from work and even prolong medical treatment.(5, 6)In the head-on-neck posture, (DFC) Deep...
Prevalence of Neck Pain in School Teachers of Lahore.

Cervical Flexor muscles are considered to be important stabilizers. It has been speculated that when muscle work is affected, the balance of the stabilizers on the posterior aspect of the neck and the DCFs would be disturbed. This disturbance can result in loss of proper positioning and posture, which is then inclined to contribute to cervical impairment. According to a study which was conducted by Deen Hanifa, neck pain is not as common as low back pain, but many other studies proposed that in some industries, disorders related to neck, account for as much time off from work as low back pain. Researchers as Bergholt’s, Cote, Schouten and pica vet and Webb had also explained that neck pain has received less importance than low back pain, but it is immensely prevalent condition and their different cross-sectional studies showed that, 10-24% of the population suffered because of neck pain. Besides the above mentioned risk factors, psychosocial risk factors such as instable mental health, low job satisfaction, emotionally exhausted, job stress and high psychological job demands also appeared as possible risk factors for MSD development.

MATERIALS AND METHODS

It was a cross-sectional study with the population size of 1000 teachers working in different schools of Lahore (both government and private). Questionnaires were distributed among 1000 teachers of different primary and secondary schools of Lahore. Data was collected using self-administered questionnaire within the time duration of 3 months. According to inclusion criteria, age of participants lie within 20-60 years, both males and females teachers were included in this study. Participants excluded from this study were individuals with history of any metabolic disorder, tumor or any neurological disorder. After entering the data, it was then transferred to SPSS version 16. For quantitative data, such as gender and marital status pie charts were drawn while for qualitative data, histograms were made. Mean and standard deviation was also calculated.

RESULTS

There were total 1000 number of respondents participated in this study. Out of 1000, 168 (16.8%) had neck pain.

TABLE 1: Descriptive statistics of qualitative variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>246</td>
<td>24.6</td>
</tr>
<tr>
<td>Female</td>
<td>754</td>
<td>75.4</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>476</td>
<td>47.6</td>
</tr>
<tr>
<td>Married</td>
<td>524</td>
<td>52.4</td>
</tr>
</tbody>
</table>

Out of 1000 respondents, 246(24.6%) were male and 754(75.4%) were female while 476(47.6%) respondents were single and 524(52.4%) were married. Teachers who were teaching academic subjects were 770(77.0%), 184(18.4%) were physical education teachers while 46(4.6%) taught music. (Table-1)

TABLE 2: Descriptive statistics for pain intensity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean + standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain intensity</td>
<td>5.12 + 2.194</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

The intensity of pain was between 1-10. The mean pain intensity of respondents calculated was 5.12 + 2.194 while the minimum pain intensity was 1 and maximum was 10. (Table-2)

TABLE 3: Descriptive statistics of teaching duration

<table>
<thead>
<tr>
<th>Subjects you teach</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5yrs</td>
<td>577</td>
<td>57.7</td>
</tr>
<tr>
<td>6-10yrs</td>
<td>241</td>
<td>24.1</td>
</tr>
<tr>
<td>11-15yrs</td>
<td>103</td>
<td>10.3</td>
</tr>
<tr>
<td>&gt;15yrs</td>
<td>79</td>
<td>7.9</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The 577(57.7%) respondents were teaching from 5 years, 241(24.1%) from 10 years, 103(10.3%) from 15 years and 79(7.9%) were above than 15 years. (Table-3)

DISCUSSION

The intent of this study was to check the prevalence of neck pain in school teachers. The result of the study showed that out of 1000 teachers 168 have complained that they had experienced neck pain. That makes a sum of 16.8% out of 1000. Parallel can be drawn to other studies of Iqbal ZA et.al., where turkey teachers reported having neck pain about 42.547.9%. The neck pain prevalence of secondary school teachers of Hong Kong was been observed by Chong EY as 69.3%. According to Kurumatani N et al., The global prevalence of 2010 is about 330 million citizens, in other words almost 4.9% of the population. According to one study by Yue PY et al which is held in china, back pain, neck pain and headache, are the most common ailments of the workers in the school environment. Another study of nursery school teachers found 26.5% of them complained of neck stiffness by Chiu T, et., al
In this present study, 24 schools was randomly selected from which 1000 teachers participated. From the selected 1000 teachers, 577 teachers had a working experience from past 5 years, 241 from 10 years, 103 from 15 years and 79 had more than 15 years. The minimum pain intensity was 2, Mean of pain intensity of the participants was 5.53 ± 2.197 and maximum was 10. 63.7% (107) teachers think that their pain is due to the profession while 36.3% (61) were against of it. From 168 teachers 36 were teaching 2-3 classes per day, 58 were taking 4-5 classes, 56 were taking 5-6 classes while 18 were taking more than 6 classes per day. Another cross-sectional study of primary and high school teachers takes place in Tehran, by Darwish MA. Its sample size was 586 and the prevalence ratios were 24%, 29%, 33% and 37% from last month, last 6 month, annual and lifetime. The resemblance in the study can be due to the familiar environmental surroundings as well as relatively same educational system as they both are nearby countries. Lately teachers of Hong Kong Chiu TT, Lam PK unveilled a higher prevalence for neck pain (68.9) It is because of the inequality in the ratio of individuals who are being affected by NP is essentially due to the facilities given by the system to the teachers. There are number of risk factors, which will linked with prevalence of NP such as gender (females), age, overall health, duration of employment, daily exercise. Consequently, some occupational factors and individuals may constitute circumstances applicable for the development of NP among teachers. Furthermore, the prevalence estimate may differ because of the sample size.

CONCLUSION

The purpose of this study was to find out the prevalence of neck pain among primary and secondary school teachers of Lahore. 1000 teachers participated in this study and out of that, 16.8% had neck pain.

REFERENCES
ABSTRACT

Objective: To compare the clinical and radiological outcome between minimally invasive plate osteosynthesis, open reduction and internal fixation in distal tibial fractures.

Methods: This randomized controlled trail study was conducted in the department of Orthopedics KTH hospital Peshawar from March 2012 to Sep 2014. 22 patients presenting with closed, displaced, distal tibial fractures without ankle involvement were divided into two groups using lottery method. Group-A underwent open reduction and internal fixation (ORIF) and Group-B underwent minimally invasive plate Osteosynthesis (MIPO). A written informed consent is taken from every patient.

Results: The mean age of the patients is 42.45 ± 8.25 years in Group-A and 41.35 ± 19.56 years in Group-B (p=.699). Mean operative time was insignificantly higher in Group-B (73.90 ± 5.1 5 vs. 70.75 ± 6.10 minutes; p=.086) as compared to Group-A. Mean VAS score for post-operative pain (6.40 ± 1.05 vs. 4.45 ± .95; p=.000) and mean length of hospital stay (4.35±1.04 vs. 2.70 ± .73 days; p=.000) was significantly higher in Group-A as compared to Group-B. Ten patients in Group-A developed flap necrosis compared to 3 in Group-B (30% vs. 0%; p=.008). Five Patients in Group-A, developed wound infection in 2nd post-operative week compared to only 3 patient in Group-B ;25% vs. 5%, p=.077). On 12th postoperative week, radiological union is evident in all the patients (21%) of Group-B compared to 19 patients (80%) of Group-A, and this difference is significant (p=.035).

Conclusion: We concluded that MIPO offers the advantage of solid tissue protection thus minimizing infection and the complications without any compromise in radiological healing of distal tibial fractures.

INTRODUCTION

Management of unstable distal tibial fractures continues as a surgical challenge for orthopedic surgeons. Osteosynthesis techniques available include open reduction and internal fixation (ORIF), external fixation with or without limited internal fixation, intramedullary (IM) nailing or, more recently, minimally invasive plate Osteosynthesis (MIPO). Because such fractures result from high energy trauma with extensive soft tissue injury and the bone is already more subcutaneous in this part, soft tissue coverage is a crucial issue in such patients.6-7

Minimally invasive plate Osteosynthesis (MIPO) is associated with significantly decreased post-operative pain and length of hospital stay. It offers the advantage of soft tissue protection, minimizing infection and flap complications without any compromise in radiological healing of distal tibial fractures.

Open reduction and internal fixation adds to this soft tissue injury and results in flap necrosis and implant exposure in majority of cases which is a grave complication/ intramedullary nailing is also not an ideal choice in such patients due to concerns regarding biomechanical stability of fixation and risk of malunion or nonunion. Also, IM nailing cannot be performed when fracture line is less than 5 cm proximal to the ankle joint.5-9,13 Minimally invasive plate Osteosynthesis (MIPO) as the name implies is a minimally invasive technique which preserves vascularity of the soft tissue envelope and decreases the soft tissue complication associated with open reduction and internal fixation.5-13

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Although there was a lot of research available on clinical and radiological outcome of MIPO alone\cite{14,18} or in comparison with conventional plating in distal tibial fractures\cite{15,16,20}, yet the available evidence contained conflicting results. Furthermore, as MIPO requires special surgical skills, the purpose of the present study is to compare MIPO with conventional open reduction and internal fixation in our setup to determine the better treatment approach in future practice.

**METHODS**

58 patients presenting in the emergency of Orthopedic Department, of KTH Hospital Peshawar displaced distal tibial fractures without ankle joint involvement are included in this study, immuno-compromised patients (diabetics, HIV positive, steroid therapy), those presenting ≥ 6 hours after injury and with open fractures are excluded. Detailed history and written informed consent is taken from all the patients. Patients are randomly divided into two groups using lottery method. Group-A underwent ORIF and Group-B underwent MIPO.

A single surgical team to eliminate bias performed all the surgeries. Confounding variables were controlled by exclusion. Duration of surgery in minutes noted in both the groups from skin incision to skin stitches. Patients are followed in ward for postoperative pain at 24 hours using Visual Analogue Scale (VAS) and length of hospital stay in days. Discharge criteria is patients in bed with pain controlled on oral paracetamol 2 tabs x 8hrly. Patients are followed in outdoor weekly for wound infection and radiological union.

**RESULTS**

The mean age of the patients is 42.45±8.25 years in Group-A and 42.35+9.56 years in Group-B. There were 18 (65%) male and 11 (35%) female patients in Group-A 19 male and 10 female patients in Group-B.

However, there is no significant difference between the two groups in terms of age (p=.699) and gender (p=.736) which confirms effective randomization of study sample.

8 Patients in Group-A developed wound infection in 2nd post-operative week; 5 patients has superficial and 3 patients had deep infection. Infection settled in 2 patients with superficial infection after a course of antibiotics. The other patient acquired deep infection raising the number of patients in Group-A to 3. These 3 patients finally developed flap necrosis. The frequency of infection is lower in Group-B (5% vs, 25%; P=0.077) where only 2 patient acquired superficial infection which settled with antibiotics. 11 patients in Group-A developed flap necrosis compared to 3 Group-B (30% vs. 0%; p=.008) as shown in Table 2. In 8 patients it is partial and implant is not exposed while it is complete in 4 patients where it result in complete exposure of the implant (Fig. I). All the patients with flap necrosis are aged above 60 years.

On 12th post-operative week, radiological union was evident in 27 patients (100%) of Group-B compared to 19 patients (80%) of Group-A, and this difference was statistically significant (p=.035) as shown in table 3.

<table>
<thead>
<tr>
<th>Study Group</th>
<th>Group A</th>
<th>Count</th>
<th>Wound infection</th>
<th>Total</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A</td>
<td>Count</td>
<td>8</td>
<td>21</td>
<td>29</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>% Group</td>
<td>27.58</td>
<td>72.41</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Group B</td>
<td>Count</td>
<td>3</td>
<td>26</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Group</td>
<td>10.34</td>
<td>89.65</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>11</td>
<td>47</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>%Total</td>
<td></td>
<td>18.96</td>
<td>81.03</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Comparison of flap necrosis between the groups
In patients with distal tibial fractures, choosing the right surgical approach is of significant importance mainly due to poor soft tissue availability for implant coverage\(^6\). Conventional open reduction and internal fixation, itself damages the vascular supply of soft tissue envelope and promotes the risk of flap necrosis and implant exposure.\(^7\) MIPO in comparison saves as much soft tissue as possible minimizing these complications.\(^{10-13}\) In the present study, MIPO is associated with insignificantly longer operative time as compared to ORIF (73.90 ± 5.15 vs. 70.75 ± 6.10 minutes; \(p=.086\)).

Our results match with those of Kiriwichian (2013)\(^2\) who observed similar difference (73.90 ± 5.15 vs. 70.75 ± 6.10 minutes; \(p=.008\)) in operative time between the two techniques. Our \(p\) value of 0.896 is higher than Kiriwichian’s 0.008, which indicate instability in surgical technique. Kiriwichian observed a 20% and 100% non-union rate with ORIF and MIPO, respectively. MIPO is also associated with significantly reduced post-operative pain, (6.40 ± 1.05 vs. 4.45 ± 95; \(p=.000\)), mean length of hospital stay (4.35 ± 1.04 vs. 2.70 ± 1.73 days; \(p=.000\)) and significantly lower complication rates as compared to ORIF. However, insignificant difference is reported by Cheng et al. (2011)\(^7\) in terms of post-operative length of hospital stay between the two groups (0.896). Frequency of flap necrosis (0% vs. 30%; \(p=.008\)) and wound Infection (5% vs. 25%; \(p=.077\)) is also lower with MIPO as compared to ORIF. We observed a 20% non-union rate with ORIF as compared to 0% with MIPO. Similar difference is observed previously by Zou et al. (2013)\(^13\) in terms of union. (0% vs 4.8% \(P<.05\) and non-union (1.9% vs. 9.5% \(P<.05\)) between MIPO and ORIF.

Thus MIPO is found to be better than conventional ORIF in terms of post-operative pain, length of hospital stay, flap necrosis, wound infection and radiological union. Though it is associated with longer operative time.

A very important limitation of our study is that we only included closed and extra articular fractures and we only considered clinical and radiological outcome while function outcome was overlooked. Whether MIPO is equally safe and effective in open and articular fractures and is it also superior in terms of functional outcome is yet to be determined. Therefore such a study in future is highly recommended.

**DISCUSSION**

<table>
<thead>
<tr>
<th>Yes</th>
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</tr>
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<tbody>
<tr>
<td>Flap Necrosis</td>
<td>Total</td>
</tr>
<tr>
<td>Study Group</td>
<td>Group A</td>
</tr>
<tr>
<td>% Group</td>
<td>34.48</td>
</tr>
<tr>
<td>Group B</td>
<td>Count</td>
</tr>
<tr>
<td>% Group</td>
<td>10.34</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
</tr>
<tr>
<td>%Total</td>
<td>22.41</td>
</tr>
</tbody>
</table>

Table 3: Comparison of radiological union between two groups

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rad Union</td>
<td>Total</td>
</tr>
<tr>
<td>Study Group</td>
<td>Group A</td>
</tr>
<tr>
<td>% Group</td>
<td>65.5</td>
</tr>
<tr>
<td>Group B</td>
<td>Count</td>
</tr>
<tr>
<td>% Group</td>
<td>93.10</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
</tr>
<tr>
<td>%Total</td>
<td>44.82</td>
</tr>
</tbody>
</table>
CONCLUSION

Though associated with insignificantly longer operative time, MIPO is associated with significantly decreased post-operative pain and length of hospital stay. MIPO offers the advantage of soft tissue protection thus minimizing infection and flap complications without any compromise in radiological healing of distal tibial fractures.

REFERENCES

ABSTRACT
Objective: To evaluate the result of percutaneous pinning in displaced supracondylar fracture of humerus with two crossed K wires in children and to compare the results with the published literature.
Study design: This is a descriptive observational study.
Place and duration: This study is conducted at Orthopaedic unit KTH Peshawar, from June 2010 to June 2013 on 80 patients with displaced supracondylar fracture of humerus.
Material & Methods: Eighty patients with closed supracondylar humerus fractures admitted through emergency were included in this study. Patients above the age of 12 years, open fracture, poly trauma and undisplaced type I fracture were excluded while patients with closed supracondylar humerus type II and III fractures below the age of 12 years were included in the study. All fractures were treated with close reduction and percutaneous pinning with two crossed K wires under general anesthesia. Follow up was done for one year with assessment of radiological healing and clinical outcome that is union, joint movement, deformity neurovascular injuries.
Results: Among 80 patients, 50(62.5%) were male and 30(37.5%) female. Left side involved in 35(43.75%) patients and right side in 45 (56.25%) patients. The mean age at the time of presentation was 6.5 years. Among 80 patients 25 were type II and 55 were type III according to Gartland’s classification. Union was achieved in all patients within 3 to 5 weeks. The mean period or fracture union was 4.8 weeks. All patients got union in an acceptable position. 1 patients (1%) developed compartment syndrome. Pin site infection was the common complication and was noted in 12% patients. No deep infection was noted in these cases, and they were treated with oral antibiotics and dressing. All recovered after removal of pins. Neuro-pyrexia of the ulnar nerve was noted in 2%. No iatrogenic vascular injury was noted. Complete range of movement was achieved after 4 to 6 week. None of the patients developed loss of fixation or cubitus varus deformity. Excellent results were in 60% , good results in 39% patients, poor results in only two (2%) patient.
Conclusion: Closed reduction with two cross K wires pinning is a safe and effective method for treating supracondylar fracture of humerus and gives excellent results regarding healing and function.
Keywords: supracondylar humerus fracture, crossed K wire fixation, closed reduction.

INTRODUCTION

Supra-condylar fracture of the humerus is the most common fracture around the elbow in children (Christopher J.K. Bulstrode, 2004). Two thirds of all hospitalizations for elbow injuries in children are for supracondylar fractures (Wilkins KE, 1991) but the incidence of supracondylar fractures has yet to be documented. Supracondylar fractures accounted for only 3.3% of pediatric fracture (Landin LA, 1983), these are most common in children aged less than 10 years, with a peak incidence between ages 5 and 8 years (Hennkson B, 1966).

Closed reduction and two crossed k wires pinning is a safe and effective method for treating supracondylar fracture of humerus which gives excellent results in terms of healing and function.

These fractures in children are the result of trauma to the elbow, most often resulting from a fall from a height or related to sports or leisure activities (Wilkins KE, 1991). These fractures often require surgery and historically are associated with significant morbidity due to mal-union, neurovascular complications, and compartment syndrome (Hanlon CR. Estes WL Jr. 1954; Arnold JA et al, 1977) . As a result, controversy still exists as to what constitutes optimal management of this type of...
fracture and its complications.

Supracondylar fractures of the humerus are categorized as extension or flexion types. The extension type is the most common, accounting for 90% to 98% of the cases. It is caused by a fall on an outstretched hand with the elbow hyper extended (Minkowitz B, Busch MT, 1994). The characteristic displacement of the distal humeral fragment in extension-type injuries has been reported to be posteromedial in 90% of cases and posterolateral in 10%. The flexion-type fracture, which is caused by fall on a flexed elbow, is a rare occurrence.

There have been numerous attempts in the literature to classify supracondylar fractures. Gartland’s classification (Gartland JJ, 1959) is simple and widely used classification. In this system, type I fractures are undisplaced; Type II fractures are displaced with a variable amount of angulations, but the posterior cortex of the humerus is intact. Type III fractures are completely displaced with no cortical contact.

Patients with supracondylar fractures present with pain and swelling around the elbow. Active elbow motion is limited, and gross deformity of the arm may be seen. They have displaced fractures. Thorough examination of the limb includes evaluation of the soft tissues for severe swelling, skin lacerations, abrasions, neurovascular examination and assessment for other fractures. Patients with supracondylar fractures present with pain and swelling in the upper extremity. With type III Fractures, an S-shaped deformity of the elbow develops due to angulations and translation of the fracture fragments. Fractures of the distal humerus are the most common ipsilateral fractures that occur in conjunction with supracondylar fractures (Kasser J, Beaty J, 2006). Children who sustain supracondylar fractures with diaphyseal forearm fractures are at higher risk of developing compartment syndrome of the forearm than those with isolated supracondylar fractures (Blakemore LC et al, 2000). Similarly, patient with vascular injury even after successful repair have higher chances of compartment syndrome (Choi PD et al, 2010).

The two modern recommendations include nonsurgical immobilization for acute or undisplaced fractures of the humerus or posterior fat pad sign, for type I and closed reduction with pin fixation for displaced type II and III. Closed reduction and percutaneous pinning remains the mainstay of surgical management. Evolving management concepts include that regarding pin placement, the problems of a pulseless hand, compartment syndrome, and postero-lateral rotatory instability. They are using a crossed pin configuration to stabilize supracondylar fractures after reduction. This configuration has been shown in clinical series to be effective for maintaining reduction and has been shown in biomechanical testing (Christopher J.K. Bulstrode, 2004) to be superior to other pin configurations, including multiple lateral entry pins. However, ulnar nerve injury occurs in as many as 10% of patients

(Staggs DL et al, 2001).

**MATERIALS AND METHODS**

This is descriptive study, conducted at Orthopedic B unit KTH Peshawar, from June 2010 to March 2013 on 80 patients with closed supracondylar humerus fractures were admitted through emergency. Informed consents were taken from all patients. Patients included were children of both genders with closed displaced supracondylar fractures. Patients above 12 years of age and open fractures were excluded from the study. After receiving the patients in emergency room, proper resuscitation was done according to ATLS protocol and fractured limb was immobilized, analgesia was given and X-rays were done in both AP and LAT view.

All fractures were treated with close reduction and percutaneous pinning with image intensifier under general anesthesia. Close reduction was achieved by traction followed by flexing the elbow in pronation and pushing the distal fragment with thumb. After confirming the satisfactory reduction under C Arm, with the elbow held in flexion, one lateral pin was placed percutaneously just proximal to the capittelum in the metaphysis, and one pin was placed percutaneously anterior to the ulnar groove in the medial epicondyle. Less than one centimeter incision was given before passing the medial epicondylar pin, to avoid injury to the ulnar nerve. Pins were configured to cross proximal to the fracture site in the midline of the distal humerus. Both cortices were engaged by the wire. Tie wires were bent to prevent migration and cut close to the skin. Dressing was done and a back slab was applied.

Pre and post op antibiotics were given to all patients. Post op x rays were done and the limb was assessed for neurovascular functions. The back slab was removed the elbow was mobilized after three weeks and the wires were removed after four to six weeks. All patients were discharged after twenty four to forty-eight hours after surgery. They were followed up for clinical evaluation (carrying angle, elbow range of motion, neurovascular complications and pin tract infections) and radiological evaluation (fracture displacement, Baumann angle, humero-capitellar angle) at three to four weeks and at six months. The pins and slab were removed after three to four weeks. Active elbow ‘range of motion’ exercises were encouraged. At the end of six months period, Flynn’s criteria (Skaggs DL et al, 2001) were used to grade the result. Results were graded as excellent, good, and poor.

Grading of results according to Flynn’s criteria

<table>
<thead>
<tr>
<th>Cosmetic Factor loss of Carrying angle (degrees)</th>
<th>Functional factor loss of movement (degree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0° - 5°</td>
</tr>
<tr>
<td></td>
<td>0° - 5°</td>
</tr>
</tbody>
</table>
Percutaneous Pinning in Displaced Supracondylar Humerus Fracture with Two Crossed K-wires in Children

The data was analyzed using SPSS version 13.0. Descriptive statistic such as frequency, percentage, mean and standard deviation were used. The patients were then examined after three, six and twelve months. On each visit X-rays AP and Lateral view of the involved limb were advised to see the healing, displacement and angulations.

RESULT

Among 80 patients 50(62.5%) were male and 30(31.5%) female (Table 1). Twenty five patients were type II and 55 were type III according Gartland’s classification (Table 2). Left involved in 35 (43.75%) patients and right in 45(56.25) patients (Table 3). The mean age at the time of presentation was 6.5 years. Union was achieved in all patients within 4 to 6 weeks.

In the present study all patients got union in acceptable position except two patients where the bss of carrying angle was 10 degree. two patients (1%) developed compartment syndrome. Pin site infection was the common complication and was noted in 10% patients. In these cases here was no deep infection and they were treated with oral antibiotics and dressing. All recovered after removal of pins. Neuropraxia of the ulnar nerve was noted in 2% (Table 4). No iatrogenic vascular injury was noted. Complete range of movement was achieved after 4 to 6 weeks except one cast where the loss of moments was up to 12 degree. None of the patients developed loss of fixation or cubitus varus deformity. Excellent result was achieved in 60% and good results in 39% patients, with poor results in only two (2%) patient according to Flynn’s criteria (Table 5).

DISCUSSION

Supracondylar fractures of humerus in children often require surgery and historically are associated with significant morbidity due to mal-union, neurovascular complications, and compartment syndrome (Hanlon CR, Estes WL Jr, 1954; Arnold JA et al, 1977). As a result, controversy still exists as to what constitutes optimal management of this type of fracture and its complications. The aim of treatment is to achieve a functional and cosmetically acceptable upper limb.

Initially 86 patients were included in the study but six patients (4.76%) were lost in follow up. All these patients were from tribal areas where contacting the patients via phone was not possible. A similar study shows 18% loss of follow up (Shahab ud din et al, 2013). All fractures united within 4 to 6 weeks. The mean period of fracture union was 4.8 weeks. This is comparable to other study by Sing et al (2013).

The authors found 10% pin tract infection which was higher than the reported rate (Shahab ud din et al, 2013; Gupta N et al, 2004; Mehlman CT et al, 2001). The reason for higher rate of infection may be multiple. The wires were left outside the skin, to make their remover easier, which could increase the infection rate. Moreover, most of the patients belong to poor socio-economic groups with low literacy rate which led to poor wound care. Most of the wires were removed in the OPD without any anesthesia.

Neuropraxia of the ulnar nerve was 2% in the present study while the reported rate was up to 10% (Shahab ud din et al, 2013; Sing et al, 2013). The present low rate of ulnar nerve injury is because of the technique that was adopted, by giving small incision over
the nerve and pushing it to one side (Sing et al, 2013). Some studies claim that two lateral pin fixation is superior to two crossed pin technique but comparing to the present study shows almost equal results based on clinical outcome (Shahab ud Din et al, 2013; Sing et al, 2013). The strength of this study is its standardized protocol for reduction of fracture, pin placement and follow up evaluation of the patients. The limitations of this study were the number of patients and relatively short follow up. However, this study reinforces the conclusions of other studies regarding the use of two crossed K wires in supracondylar fracture in children.

CONCLUSION

Closed reduction and two crossed K wires pinning is a safe and effective method for treating supracondylar fracture of humerus and gives excellent results regarding healing and function.

REFERENCES

ABSTRACT
Background: Now a days, iron deficiency is very common health issue all over the world.
Objective: to estimate the haemoglobin level and to assess the frequency of iron deficiency among female students.
Methods: A cross sectional study was conducted in 200 female students was conducted through convenient sampling and data was collected from pathological laboratory reports consisting of haemoglobin level investigation performed for the survey record.
Results. The result shows that 65%; females having average age of 20-26 were found to have iron deficiency. Haemoglobin level reveal that 75% females were anaemic and only 25% were non-anaemic.
Conclusion: More than half of the girls were suffering from varying degree of anaemia and female of age 17-26 were mostly had iron deficiency.
Key Words: Haemoglobin, anaemia, frequency, estimate.

INTRODUCTION:

In anaemia, the count of red blood cells are deficient. According to World Health Organization (WHO) when Hb<130 g/L in men older than 15 years, 110 g/L in pregnant women are deficient of iron to meet up physiological requirement of the body[1] and <120 g/L in non-pregnant women older than age 15 years[2]. Every 10th female is suffering from iron deficiency anaemia all over the world. In Pakistan women of reproductive are mostly suffering from this deficiency[3]

Iron is an important component of human body. It is a co factor for enzymes in mitochondrial respiration chain, citric acid cycle and is a binding moiety for oxygen transport by hemoglobin (Hb) and myoglobin[4]. However on the other hand, cellular accumulation of iron in supra-physiologic limits, it is necessary for cells life[5]. However, a stable regulation is very necessary for cellular maintenance[6]. Due to high average of IDA in women it has become substantial health consequences, including pregnancy issues, poor educational performance, and decreased capability to do work and productivity[7].

Female of age 17-26 mostly suffer from iron deficiency anaemia. They are advised to consult their nutritionist and family physician for immediate treatment in order to normalize their haemoglobin.

According to many studies in Pakistan it is estimated that almost 70-80% female were anaemic due to iron deficiency. The purpose of this survey is to determine the haemoglobin level among the students and to identify the iron deficiency anaemia in them. They need immediate treatment and to educate them regarding the prevention of anaemia in future.

MATERIAL AND METHOD:

A total 200 students were selected during June-September 2017 from Fatima memorial hospital Lahore. A non-probability convenient based sampling was performed for this purpose. Data was collected from pathological laboratory reports consisting of haemoglobin level investigation performed for survey report record. .frequency and percentage was used to describe the descriptive data. SPSS 20.00 version was used to analyze the data.

RESULTS:

Result shows that total 200 patients serum
level has been checked in the age group of 17-26 years, 65% had low ferritin level.

Table:1 Frequency of iron deficiency anemia

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Cumulative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>55</td>
<td>75</td>
</tr>
<tr>
<td>75</td>
<td>150</td>
</tr>
<tr>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>200</td>
<td>-</td>
</tr>
</tbody>
</table>

Interpretation: The table 1 shows that 65% female had iron deficiency

Table :2 Frequency distribution of haemoglobin (g/dL)

<table>
<thead>
<tr>
<th>Haemoglobin (g/dL)</th>
<th>Frequency</th>
<th>Cumulative</th>
<th>Haemoglobin (g/dL)</th>
<th>Frequency</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 8.0</td>
<td>20</td>
<td>20</td>
<td>Greater than 12.0</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>8.0-10.9</td>
<td>75</td>
<td>150</td>
<td></td>
<td></td>
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<tr>
<td>11.00-11.9</td>
<td>55</td>
<td>75</td>
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<td></td>
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<tr>
<td>Greater than 12.0</td>
<td>200</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interpretation: Table 2 shows that 75% students had low haemoglobin level

DISCUSSION:

The result shows that 65%; females having average age of 20-26 were found to have iron deficiency. Haemoglobin level reveal that 75% females were anaemic and 25% were non-anaemic. A study was conducted on anaemia prevalence in women of age is ~30% and in pregnant women ~40%. With advancing pregnancy the frequency of anaemia increases, due to iron deficiency and hematinic vitamins (folate, vitamin B12). It cannot be fulfilled by dietary iron intake during pregnancy but require oral iron supplementation. [12]

Another study was conducted on this issue accordingly If the mother has IDA, the baby has a high risk of ID and IDA. ID and IDA have multiple side effects in both child and parents. Among pregnant women 80-90%, have iron deficiency and 38-42% develop anaemia. Consequently, the prophylactic oral iron dose should be 100 mg ferrous iron/day. It is managed with oral ferrous iron 180-200 mg/day and Hb should be checked after every 2-3 weeks to find if there is no increase in Hb, due to poor compliance and/or impaired iron absorption, or the anaemia is severe.[13]

A study was conducted by Kannan et al to find out occurrence of anaemia among females. Study revealed that 43% were mildly anaemic and others were normal. [14] A study was conducted in Sri Lanka the results of that study were exactly according to this study 80% students were anemic and had iron deficiency. [15] Another study shows that An immune-radiometric assay for human ferritin has been developed. Concentrations of ferritin in the serum of male and female controls and patients with iron deficiency or iron overload were measured.

Male controls had significantly higher mean concentration of serum ferritin as compared to females. Patients with iron deficiency had significantly lower levels than normal of either sex and patients with iron overload had greatly elevated serum ferritin concentrations. So according to this the serum ferritin concentration which reflect the iron stores of the body [16]

CONCLUSION:

More than half of the girls were suffering from varying degree of anaemia aged 17-26, they mostly had iron deficiency. The anemic girls were advised to consult their nutritionist and family physician for immediate treatment in order to normalize their haemoglobin level.

REFERENCES

ABSTRACT
Objectives: To determine the frequency of urinary tract infection in patients with diabetes mellitus.
Study design: Descriptive cross-sectional study.
Place and duration of the study: This study was conducted in Medical Out Patient Department (OPD) and Pathology Department Khyber Teaching Hospital (KTH) Peshawar from 01 November 2016 to 20th July 2017.
Subjects and Methods: After approval of ethical committee a total of 255 patients of Diabetes mellitus were included in this study, among which 94 were asymptomatic and 161 were symptomatic for UTI. All included patient were adults of more than 15 years both males and females. They were selected from medical OPD KTH Peshawar. Data was collected through structured proforma. Urine was sent for routine examination and culture/sensitivity to Pathology Laboratory of KTH Peshawar. Frequency of asymptomatic bacteriuria and symptomatic UTI was determined according to criteria.
Results: A total of 255 patients with DM fulfilling inclusion criteria among which 94 were asymptomatic and 161 were symptomatic for UTI were included in this study. The frequency of symptomatic UTI was 82.9% (50.93%) among 161 symptomatic patients. The frequency of symptomatic UTI was also higher in female patients.
Conclusion: UTI is a common health burden in patients with DM. Both ASB and symptomatic UTI are more prevalent in patients with DM. Patients with diabetes mellitus should not be treated for urinary tract infection only on the basis of Leucocyturia and urine culture should be advised.
Key words: Diabetes Mellitus, Urinary Tract Infection, Asymptomatic bacteriuria.

INTRODUCTION

Diabetes Mellitus (DM) accounts for almost 14 percent of United State (US) health care expenditures, at least one-half of which are related to complications such as myocardial infarction (MI), stroke, end-stage renal disease, retinopathy, and foot ulcers. DM is becoming very common; by 2025, its prevalence worldwide is expected to reach 5-7.6%. According to World Health Organization (WHO) survey, it was shown that in 1995 Pakistan was 8th on the list of top ten countries with high prevalence of DM and had 4.3 million people affected with DM. However it is estimated that in the year 2025, Pakistan will be 4th on the list with 14.5 million people will be affected. DM has emerged as a major health problem in Asia. The prevalence of DM in Pakistan urban versus rural areas is 6% in men and 3.5% in women against 6.9% in men and 2.5% in women respectively.

There is a strong association of DM with UTI and patients with diabetes mellitus have a higher incidence of both asymptomatic bacteriuria and symptomatic UTI. Patients with DM should not be treated for UTI only on the basis of Leucocyturia and urine culture should be advised.

DM has long been considered to be a predisposing factor for UTI and the urinary tract is the principle site of the infection in patients with DM with increased risk of complications of UTI. The mechanisms which potentially contribute to UTI in these patients are defects in the local urinary cytokine secretions (IL-8, IL-6), increased adherence of the microorganisms to the uro-epithelial cells, partly due to a changed and lowered Tamm Horsfall protein, and granulocyte dysfunction, possibly as a result of an abnormal intracellular calcium metabolism. On other-hand, hyperglycemia facilitates the colonization and growth of variety of organism. UTI is one of the most common infectious diseases encountered in the practice of medicine today. DM patients are immune-compromised because of decreased cell-mediated immune response and impaired neutrophil function and so are at increased risk for UTI, lower respiratory infection, skin and mucous membrane infection. UTI frequently occur in both type 1 and type 2 DM patients and further studies are required to study association of UTI with glycemic control of
DM.13 Urinary tract infections are quite common in DM patients and can lead to bacteremia and septicemia.12 Females with DM having pus cells more than 5 pus cells per high power field on urine microscopy; 69.7% have culture positive UTI.11 UTIs are a common problem in patients with DM, cystitis, pyelonephritis, emphysematous complications and perinephric abscesses are well recognized in patients with DM especially if blood sugar is not well controlled, so any anticipation of complications and earlier interventions are required to prevent adverse outcomes.12,13 Asymptomatic UTI often precedes symptomatic UTI in type 2 DM patients.14 In patients with emphysematous pyelonephritis, DM may be present in more than 80 percent of patients.15

The most common cause of UTI in men and women with and without DM is Escherichia coli (E-Coli). In non-diabetic male and female, the frequency of organisms causing UTI is: E-Coli 31.4% and 58.2%, Enterococcus spp. 9.4% & 6.5%, Pseudomonas spp. 17.2% and 4.7% respectively. The organisms causing UTI in diabetic female are Escherichia coli 54.1%, Enterococcus spp 8.3%, Pseudomonas spp 3.9%, while in diabetic male it is 32.5%, 9.4%, 8.5% respectively. Antimicrobial resistance among bacteria causing UTI is increasing.6

In one study it was found that a low proportion of E. coli isolates are involved in patients with UTI having DM compared to non-diabetics. In addition, the resistance of E. coli isolated from DM patients was significantly more than non-diabetic patients. DM could be considered as a risk factor for cause of UTI by organisms other than E.coli and for higher antibiotics resistance among them.16

UTIs are the frequent infections observed in clinical practice and results in a significant morbidity and high medical costs. DM alters the genitourinary system where UTI can be a cause of severe complications ranging from dysuria, organ damage and sometimes even death due to complicated UTI (pyeleonephritis). It is more widespread in women with DM than in non-diabetic women as a consequence of debilitated immune system. Patients with DM are at a higher risk developing acute pyelonephritis, renal abscess, abnormalities of bladder scarring and pyelitis. UTI is a serious clinical problem for people with DM. Hospitalization for pyelonephritis occurs 15 times more frequently in patients with DM.27

UTI is a major disease burden for many patients with DM. ASB is several-fold more common among women and acute pyelonephritis is five to ten times more common in both sexes having DM. The complications of pyelonephritis are also more common in patients with DM. These complications include acute papillary necrosis, emphysematous pyelonephritis, and bacteremia with metastatic localization to other sites. The management of UTI in patients with DM is essentially the same as patients without DM. Most infections should be managed as uncomplicated except when they occur in a milieu with obstruction or other factors that merit a diagnosis of complicated UTI. Strategies to prevent these infections and reduce morbidity should be a priority for research.18

One study showed that the prevalence of ASB was 26% in the women with DM and 6% in the control subjects (P<0.001). The prevalence of ASB in women with type 1 diabetes was 21%. Risk factors for ASB in type 1 diabetic women included a longer duration of DM, peripheral neuropathy, and macroalbuminuria. The prevalence of ASB was 29% in women with type 2 DM. Risk factors for ASB in women with DM included age, macroalbuminuria, a lower body mass index (BMI), and a UTI during the previous year. No association was evident between current glycated hemoglobin 1 concentration (HbA1c) level and the presence of ASB. The prevalence of ASB is increased in women with DM and might be added to the list of diabetic complications in patients with DM.19

UTIs are more common in patients with DM and have more complicated course than non-diabetics so early diagnosis and treatment of UTI in DM patients can reduce morbidity and mortality. Screening and workup for UTI in patients with DM is necessary. Patients with DM should not be treated for UTI only on the basis of Leucocyturia and urine culture should be advised. Diabetic patients are at a high risk of development of UTI, so it is recommended that special attention is paid to them, especially for the management of bacterial UTI.

MATERIAL AND METHODS

After approval of the ethical committee, all ethical consideration were strictly observed i.e. written informed-consent was taken from all included patients after telling them about all the benefits and risks patient identification was not disclosed. This study was conducted in medicine department KTH Peshawar from 01 November 2016 to 20 July 2017 in collaboration of Pathology Department KTH Peshawar. All adult patients both male and female having DM based on RBS and FBS who attended Medical OPD of KTH Peshawar which were symptomatic or asymptomatic for lower or upper UTI were included in this study. Thorough history and complete physical examination with signs and symptoms of upper or lower UTI were recorded in the proforma.

Confounding variables like urinary tract abnormality, patients receiving immunosuppressive therapy such as steroids and chemotherapy and urinary tract instrumentation or catheterization were controlled by strictly following exclusion criteria. Any bias was controlled through proper interview technique, data collection using pre-designed questionnaire and standardized instruments for investigations. A total of 255 patients with DM (male 96, female 159, 1:1.66) were selected for this study without any age, sex, ethnic or socioeconomic discrimination.

Urine routine examination (dipstick examination and microscopy), total leukocyte count (TLC) and differential leukocyte count (DLC) by automated blood analyzer (Sysmex) were done on all included patients. Other investigations like KUB ultrasound, blood culture and sensitivity, serum urea, creatinine, electrolytes were done on patients where indicated. In 18 patients urine was collected by in out catheterization in sterilized urine culture bottle for culture. Among 255 included patients, 237 patients collected midstream clean catch urine in sterilized urine culture bottle. These patients were educated how to collect midstream clean
catch urine samples. Sterilized urine culture bottle were provided to these patients. All urine bottles were properly labeled.

All these urine samples were sent to Pathology Laboratory KTH Peshawar for culture. Urine samples were cultured on urine culture media MacConkeys agar and cystine lactose electrolyte deficient medium for 24 hours at 37°C and then examined for growth by qualified senior microbiology technician under the supervision of Pathologist. All these investigations were done through KTH Laboratory. These investigations were carried out under the supervision of Pathologist. Data was collected through objective oriented proforma. Urine culture result was labeled as ASB (asymptomatic UTI) according to following criteria.

**Symptomatic UTI:**

Symptomatic UTI was diagnosed when in symptomatic patients (having lower or upper UTI symptoms and signs such as dysuria, urinary frequency, supra-pubic pain, lumbar pain, lumbar tenderness and systemic response such as fever) urine culture showed growth of $10^5$ to $10^4$ CFU/ml of midstream urine (clean catch urine) sample.

**Asymptomatic bacteriuria or asymptomatic UTI:** was diagnosed when in asymptomatic patients (not having lower or upper UTI symptoms and signs) urine culture showed growth of $\geq 10^5$ CFU/ml in a midstream urine (clean catch –urine) sample. Urine sample obtained by catheterization (in- out catheterization) ASB or symptomatic UTI was diagnosed when urine culture showed growth of $10^2$ to $10^4$ CFU/ml urine.

Data was analyzed by computer software program statistical package for social sciences (SPSS Version 16). Mean ±standard deviation was calculated for continuous variables like age. Descriptive statistics are presented as a percentage of the total number of the participants and it was calculated for categorical variables like gender, symptomatic and asymptomatic patients, upper or lower UTI symptoms and signs, methods of urine sampling, urine culture result and the presence or absence of ASB or symptomatic UTI. Cross tabulation was used to determine the relationship of different variables UTI and DM. Male to female ratio was calculated for gender. Data is expressed in the form of cross tabulation and graphs. of significance were applied.

**RESULTS:**

This study was done on total of 255 patients having DM fulfilling inclusion criteria who attended Medical OPD of KTH Peshawar from 01 November 2016 to 20 July 2017. Ninety six, 96 (37.6%) patients were male and one hundred fifty nine, 159 (62.4%) were female (1:1.66). Overall Age range was from 15 to 85 years with a mean of 53.01±15.29 years. Among males the age range was from 15 to 85 with a mean age of 54.87±17.03 years while in females the age range was from 16 to 81 with a mean age of 51.88±14.06 years.

**Table 6: Sex of the patient * Asymptomatic bacteriuria or symptomatic UTI Cross tabulation**

<table>
<thead>
<tr>
<th>Sex of the patient</th>
<th>Asymptomatic bacteriuria</th>
<th>Symptomatic UTI</th>
<th>culture negative</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>6</td>
<td>21</td>
<td>69</td>
<td>96</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>61</td>
<td>86</td>
<td>159</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>82</td>
<td>155</td>
<td>255</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Among 255 selected DM patients 94, (36.86%) patients were having no UTI symptoms and signs and 161, 63.13% patients were having UTI symptoms and signs. Among 161 patients 104, (64.89%) were having lower UTI symptoms and signs and 57, (35.1%) were having upper UTI symptoms and signs. Among 161 symptomatic patients 63, (39.13%) were males and 98, (60.86%) were females while among 94 asymptomatic patients 33, (35.01%) were males and 61, (64.89%) were males. Among 63 symptomatic male patients 44, (69.84%) were having lower UTI symptoms and signs and 19, (30.16%) were having upper UTI symptoms and signs. Among 98 symptomatic females patients 60, (61.22%) were having lower UTI symptoms and signs and 38, (38.78%) were having upper UTI symptoms and signs.

Among 255 included DM patients in 237, (92.9%) patients clean catch midstream urine collected by patients was sent for culture while in 18 patients urine was collected by catheterization. Urine culture was positive in 100, (39.2%) patients while urine culture was negative in 155, (60.8%) patients among 255 included DM patients. Among 96 male patients in 27, (28.12%) urine culture was positive while in 69, (71.88%) urine culture was negative. Among 159 female patients urine culture was positive in 73, (45.91%) patients while urine culture was negative in 86, (54.09%) patients.

In 94 asymptomatic DM patients ASB was present in 18, (19.15%) patients while ASB was absent in 76, (80.85) patients. Among 161 symptomatic patients symptomatic UTI was present in 82, (50.93%) patients while absent in 79, (49.07%) patients. Among 63 male symptomatic patients symptomatic UTI was present in 21, (33.33) patient while absent in 42, (66.67) patients. Symptomatic UTI was present in 61, (62.25%) patients while absent in 27, (27.55%) patients among 98 female symptomatic patients.

Among 255 included patients in this study 94 were asymptomatic for UTI and 161 were symptomatic for UTI. Urine culture was positive in 100, (39.2%) patients while urine culture was negative in 155, (60.8%) patients among 255 included DM patients. Among 96 male patients in 27, (28.12%) urine culture was positive while in 69, (71.88%) urine culture was negative. Among 159 female patients urine culture was positive in 73, (45.91%) patients while urine culture was negative in 86, (54.09%) patients.

In this study the frequency of UTI among 161 symptomatic patients was 82, (50.93%) which can be
compared with the study of Leman-Garber et al\textsuperscript{21} which shows that prevalence was 46.5\% (slightly lower than our study) and proved the association of UTI and DM. A study done in Karachi has reported the prevalence of UTI in patients with diabetes 61\% \textsuperscript{22} (slightly higher than our study) and our study is comparable with this study. The findings of our study are also comparable with the study Petal, et al, which shows prevalence of acute and chronic UTI in 31.4\% of patients with DM\textsuperscript{23} our study is also consistent with the study of Tahir et al which reported that prevalence of UTI in patients with DM is 44\%\textsuperscript{11}. In our study the female patients were predominant to acquire UTI and it is consistent with local and international studies like study by Baloch GH etal\textsuperscript{22} and Brauner et al.\textsuperscript{24}

The frequency of ASB was 18, (19.15\%) among 94 asymptomatic DM patients in this study while the reported prevalence of ASB in other previous study was 21\% in Karachi\textsuperscript{25} (Baqai etal,2003), 26\% in Nigeria (Alebiosu etal. 2003), 9.3\% in Ethiopia (Unu etal, 2002) and 19 \% in Bahrain (Hajeri, 2008). Hence our study is consistent with these local and international studies. The frequency of ASB was higher in female patients and it is consistent with other studies.\textsuperscript{18,26} In our study the frequency of symptomatic UTI and ASB was higher in the age groups from 31 to 75 years. Other studies done on UTI in DM patients had also reported that UTI prevalence increases with increasing age of patients.\textsuperscript{19,27} One study done in Iran showed that patients with DM between age group 40-49, 50-59 and more than 60 years, 19.2\%, 11.2\% and 9.2\% had ASB respectively.\textsuperscript{28}

CONCLUSION:
Patients with diabetes mellitus are at increased risk for urinary tract infections and DM is one of the predisposing condition for UTI. There is strong association of DM with UTI and patients with diabetes mellitus have a higher incidence of both asymptomatic bacteriuria and symptomatic UTI. Patients with DM should not be treated for UTI only on the basis of Leucocytouria and urine culture should be advised.

REFERENCES:
Success Rate of Ultrasound-guided Hydrostatic Reduction of Intussusceptions by Saline Enema


ABSTRACT
Objective: Objective of this study is to determine the success rate of hydrostatic reduction of intussusception by using saline enema under ultrasound guidance. It is a cross sectional study in the Paediatric Surgery Unit, Government Postgraduate Medical Institute Lady Reading Hospital, Peshawar from 28th November 2012 to 1st January 2014. It is a consecutive non-probability sampling technique and we included fifty (50) diagnosed cases of intussusception for our study.
Methods: Fifty pediatric patients with intussusceptions treated by ultrasound guided hydrostatic reduction were evaluated.
Results: The success rate of ultrasound guided hydrostatic reduction of intussusceptions in 50 patients was 78% (39). 11 (22%) patients failed to show reduction of intussusception, underwent open surgical procedure. Colonic perforation occurred in 4 (8%) patients. Two infants suffered from aspiration pneumonia because of vomiting during the procedure of hydrostatic reduction of intussusception by saline enema. There was no mortality.
Conclusions: USGHR of intussusceptions avoids radiation exposure and it is reliable and safe. Procedure. Moreover it has high success rate and minimal complications. It is a suitable method for the nonoperative treatment of pediatric intussusceptions and can be widely used as routine therapy.
Key words: USGHR, Intussusceptions, Saline enema

INTRODUCTION

Intussusception is the telescoping (prolapse) of a portion of the intestine within another immediately adjacent portion of intestine. Intussusception affects children between the ages of 3 months and 6 years of age.1 Intussusception is derived from Latin word “intus” means with in and “suscipere” meaning to receive. Intussusception occurs throughout the world where ever children are treated. There are variations in the numbers reported from many pediatric centers. China has the highest incidence rate of intussusception in the world, 500 cases per year. Intussusception occurs approximately one in 2000 infants and children. Various studies reported the incidence of intussusception to be 1.5 to 4 per 1000 live births.2

Intussusception is the commonest cause of intestinal obstruction in children. Males are affected more frequently than females. There are various types of intussusception. Idiopathic being the most common, while ileo-colic is the commonest anatomical type of intussusception.4,5

Ultrasound-guided hydrostatic reduction of intussusceptions UGSED by saline enema avoids radiation exposure. It is reliable, safe and extremely effective procedure in treating intussusceptions and has high success rate and minimal complications. It is a suitable and most promising method for the non-operative treatment which can be widely used as routine therapy.

Colicky abdominal pain, vomiting, abdominal distention, constipation, bleeding per rectum and palpable mass per abdomen and on digital rectal examination are the commonest presenting clinical features of intussusception in children.6,2 Pressure enema reduction and surgery remains the two standard methods of treatment of intussusception.7
Ultrasound guided Hydrostatic reduction of childhood intussusceptions is a well-recognized alternative method for the reduction of intussusceptions. It has gained great acceptance in recent years, as an initial procedure both for evaluation and non-operative treatment of children with intussusception.8,9 This procedure can be performed wholly within the...
ultrasound room after the diagnosis is made.

The main advantage of hydrostatic reduction with ultrasound guidance is the avoidance of ionizing radiation in contrast to fluoroscopy, which is especially important in children. Ultrasound guided hydrostatic reduction for childhood intussusception is also reliable, safe and painless. Moreover, it has high success rate and minimal complications. The success rate of ultrasound guided hydrostatic reduction of intussusception varies at different centers, but it is not less than 80%. Even 96% success rate with hydrostatic reduction of intussusception has been reported.

In our region most of the cases of intussusceptions were being dealt by invasive procedure (surgery). We aim to identify the success rate of hydrostatic reduction of intussusceptions through this study by using saline enema under ultrasound guidance. In the current study, we achieved the successful reduction of intussusceptions under ultrasound guidance 78%. The option of surgery will be adopted where it is unavoidable. The higher the success rates of reduction of intussusceptions using such a non invasive procedure was showed its superiority over more invasive procedure (surgery) and improve the management of this common condition. Some studies are quoted who adopted this non invasive procedure and got higher rate of success.

Operational definitions: Intussusception (it is the invagination of one part of intestine into another characterized by the abdominal pain, vomiting, bleeding per rectum and/or mass in the abdomen confirmed by ultrasonographic finding of donut or target sign, characteristic appearance of intussusception). Successful reduction (treatment was considered successful when there is ultrasonographic evidence of disappearance of mass with free passage of saline and air bubbles into the successive bowel together with clinical improvement of the patient on clinical assessment). Failed reduction (If the retrograde movement of the intussusceptum stops anywhere in the large bowel and/or flow of the saline stops and/or leaks through the anus despite the inflated catheter balloon. This was defined as failed reduction.)

MATERIALS AND METHODS

This study was conducted in pediatric surgery unit Government Post Graduate Medical Institute Lady Reading Hospital Peshawar for 12 months. To calculate sample size, the following formula of proportion is used.

\[ n = \frac{z^2 \times p(1-p)}{d^2} \]

n = sample size, \( z = 1.96 \) at 95% confidence level, \( p = \) proportion of success - 80%, \( d = \) absolute precision - 12%. The sample size thus calculated is 43, and making an allowance of 7.

Inclusion criteria: Diagnosed cases of intussusception both male and female from 1 month to 2 years of age. Cases of intussusception irrespective of duration of signs and symptoms of Intussusception.

Exclusion criteria: Patients with signs and symptoms of peritonitis (which indicates/suggests perforation or gangrene of the gut and needs open surgical treatment and if included in the sample will result in bias in the study results).

A written detail of the present study was presented with explanation of the commonly performed practices for the condition to the chairman of the ethical committee and approval was obtained. All patients diagnosed on the basis of clinical features of intussusception and confirmed on ultrasonographic findings of intussusception presenting to out patient department or casualty department was admitted in ward. Data was collected on a proforma. Routine investigations like screening were done as part of preparation for surgery in case of failed reduction of intussusceptions by hydrostatic method. Resuscitation with intravenous fluids, broad-spectrum antibiotics and insertion of nasogastric tube were performed.

A normal saline drip prewarmed up to 37°C was suspended one meter above the level of the patient lying supine and connected to the Foley’s catheter size 20 which was inserted into the rectum and balloon inflated with saline. Retrograde movement of intussusceptum and instilled fluid were monitored sonographically. No additional pressure was exerted other than the fluid column. Peritoneal cavity was observed for signs of perforation. Simultaneously patient was examined for abdominal distension, abdominal tenderness and general condition of the child, if the abdominal distension, tenderness increases and general condition deteriorate. The procedure was terminated and the patient was shifted to operation theatre for exploratory laparotomy.

Entry of saline in to the successive bowel confirmed by ultrasound during procedure, together with clinical improvement of the patient by clinical assessment was considered successful reduction. If retrograde movement of intussusceptum stops anywhere in the large bowel and or flow of saline stops or leaks through the anus. The procedure was terminated and was defined as failed reduction. No time limit was imposed on the duration of the procedure. In cases, whose general condition is clinically stable, a second attempt of saline reduction was carried out, if a major part of intussuscepted bowel was successfully reduced initially.

Successfully reduced patients were transferred back to the ward for observation and were not discharged until bowel motion return to normal and oral feeding is resumed. The procedure was performed by a qualified and experienced surgeon and radiologist having at least 5 years of experience in their respective fields. The exclusion criteria was followed to control bias in the study.
Data was entered in computer and was analyzed through SPSS version 10. Mean ± standard deviation were calculated for continuous variables like, age and duration of illness and pictorially was represented by histograms and applied student 't' test for significance. Frequencies and percentages were presented for the categorical variables: sex, colicky abdominal pain, vomiting, abdominal distention, constipation, bleeding per rectum, palpable mass per abdomen and procedure outcome (successful or failed), was pictorially represented as pie diagrams and Chi square test was applied for significance. Results are being presented in tables.

RESULTS

A total of 50 patients were treated by UGSED for intussusception during the study period. There were 44(88%) cases less than 12 months of age and 6(12%) were 12 to 24 months. The mean age was 8.99±0.77 (±SEM0.001 between <12 and >12 months i.e very highly significant). There were 32 (64%) males and 18 (36%) females with a male to female ratio 1.78:1 (p value =0.01 significant difference). The mean duration of illness was 29.86±2.62 hours and duration of symptoms was less than 48 hours in 90% patients(Table:1). The most common presenting features were rectal bleeding (80%), pain abdomen (78%), vomiting (72%) and palpable mass per abdomen (70%). 36% children had abdominal distension and 26 (52%) had constipation. (Table:2).

Hydrostatic reduction was successful in 78%. (Table 6). Successful hydrostatic reduction was achieved in 68%, 8% and 2% of patients with one, two and three attempts respectively. Reduction was successful in 39 patients (success rate 78%). Reduction failed in 11 patients (failure rate 22%). All patients whose intussusception did not respond to USGHR were treated subsequently by surgery. There was no mortality. Recurrences occurred in two cases (4%) with successful attempts at re-reduction. No water intoxication, during or after hydrostatic enema were noted. In 4 patients bowel perforation occurred, which were diagnosed immediately and the patients improved after surgery without any complication. The overall, surgery was required in 22.0% of patients.

<table>
<thead>
<tr>
<th>Table 1: Duration of illness (hours)</th>
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</thead>
<tbody>
<tr>
<td><strong>Duration (hours)</strong></td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>12-24</td>
</tr>
<tr>
<td>25-48</td>
</tr>
<tr>
<td>49-74</td>
</tr>
<tr>
<td>75-96</td>
</tr>
<tr>
<td>Mean±SEM</td>
</tr>
<tr>
<td>Range (12-96 hours)</td>
</tr>
<tr>
<td>P value between &lt;48 and &gt;48 to 96 hours = 0.001 very highly significant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptoms</strong></td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Vomiting*</td>
</tr>
<tr>
<td>Abdomen distension</td>
</tr>
<tr>
<td>Bleed per rectum*</td>
</tr>
<tr>
<td>Palpable mass per abdomen*</td>
</tr>
<tr>
<td>Pain abdomen*</td>
</tr>
<tr>
<td>Constipation</td>
</tr>
</tbody>
</table>

DISCUSSION

Intussusception is the most common abdominal emergency of early childhood for which nonoperative reduction is currently the treatment of choice. Kim et al described hydrostatic reduction under ultrasound guidance. It is believed to be one of the most promising methods for non-operative treatment in pediatric intussusception.

The diagnosis and non-operative treatment of intussusception have been shown to rely a great deal on radiological imaging. Since the mid-1930s, barium enema has been applied as diagnostic and therapeutic tool in many centers in developed countries. More recently, ultrasonography is used for definitive diagnosis and to guide hydrostatic reduction with saline enema.

It was only recently that routine use of ultrasonography is applied in the diagnosis. These deficiencies may be related to lack of facilities and trained personnel, which is common in many developing countries. It is important to appreciate that non-operative treatment involves an initial confirmation of diagnosis with either ultrasonography or barium enema, after excluding peritonitis. This is followed by pressure reduction with barium, saline enema, or air enema.

Barium and air enema have been the traditional means of reduction of intussusception. The use of fluoroscopy-guided air enema has gained increasing acceptance during the past several years because this technique is associated with a high success rate and a lower degree of radiation exposure than barium enema. However, both of these techniques have the disadvantage of exposing the child to ionizing radiation which is of concern to the patients and medical staff. Each technique has both advantages and disadvantages. In 1982, Kim et al first reported the performance of USGHR for the treatment of intussusception. US machine was exclusively used for reduction of intussusception in our general ward. It was available for use 24 hours/d.
It has been reported that the main disadvantage USGHR is the need for an available sonologist who is comfortable using this modality for enema guidance. In the earlier stages, because the pediatric surgeon was not familiar with the sonographic features of intussusception and had less experience, a sonologist was needed to be present with pediatric surgeons, to make the diagnosis of intussusception and to interpret the image features in different stages of the reduction. After some practice, when the learning curve stabilized, the surgeons were able to diagnose the intussusception and perform USGHR successfully.

Another point of criticism for USGHR has been that there is little information to recognize bowel perforation during reduction. As far as our experience is concerned the sonographic warning features were the presence of increased volume of fluid in the abdominal cavity, sudden decreased volume of fluid from the colon, or the presence of bowel floating in the fluid-filled upper abdominal cavity. At this time, the target sign (or the mass) was still present. More important is that the attending surgeon not only watches the sonographic image but also watch the patient for shortness of breath, abdominal distension and peritoneal signs. Depending on the sonographic features and clinical changes of the child, bowel perforation can be recognized immediately when it happens. In addition, according to the sonographic image and clinical findings, the surgeon can adjust, management and decide when to stop the hydrostatic reduction when to perform the trans-abdominal manual manipulation and when to perform the laparotomy.

In addition to warm saline, tap water, urografin, and gastrografin solutions have also been reported as being used in USGHR. Warm saline solution is isotonic and has electrolyte concentration closest to physiologic electrolyte concentration. Obviously, warm saline is the most physiologic solution, and it causes the fewest problems in cases of perforation. In addition, cases complicated by perforation during reduction are usually the ones that were difficult to reduce successfully on the first attempt and usually required a second or the third attempt. When the first attempt failed, the saline was drawn out from the colon, which is equal to washing out the bowel. Therefore, in the case of perforation on the second or the third attempt, there was little contamination in the peritoneal cavity. This was also confirmed by the intraoperative findings when reports were made to a ruptured colon during laparotomy.

Our results suggest that US-guided saline enema for the hydrostatic reduction of intussusception without radiation exposure is effective, reliable, and safe. It has a high success rate and fewer complications. It is easy to perform quickly and clean. Perforation can be recognized promptly. Above all, the surgeon can watch the child by the patient’s bedside and depending on the sonographic images and clinical changes can adjust management at any time to improve outcome. USGHR of intussusceptions is believed to be one of the preferred technique for the nonoperative treatment of pediatric intussusception and can be widely used as routine therapy.

The clinical findings, age and sex in this study were comparable to those of other investigations. The average age of the patients was 16.44±19 months (range 3.5-102 months), and 86% being below 24 months. The disease was observed mostly in boys (76%). The mean time of symptoms duration before the treatment was 22±16.8 hours (range 2-72 h). In our study, average age of the patients was 8.99±0.77 months (range 2-24 months), and 100% being below 24 months. The disease was observed mostly in boys (64%). The mean time of symptoms duration before the treatment was 29.86±2.62 hours (range 12-72 h). In our study there were 32 (64%) males and 18 (36%) females with a male to female ratio 1.78:1 (p value =0.01 significant difference). In a study reported that there was a male predominance of intussusception with a dynamic male-to-female incidence rate ratio.

The success rate of ultrasound guided hydrostatic reduction is more than 80%. In our study, the rate of successful reduction (78%), this is low in comparison to the international data. However, the results of our study are encouraging because it was an early experience with this procedure. The low success rate is due to the late presentation of the patients and lack of early referral system. In another study reported that success rate of successful reduction was 95.5%. Only 4.5% patients underwent surgery. Colonic perforation occurred in 0.17% patients. Geographic frequencies of intussusception are strikingly variable. According to the results of this study, in case of unsuccessful reduction, after three attempts, the possibility of bowel gangrene should be considered. High gangrene rate and ileo-ileal component were reported in patients with unsuccessful reduction. In order to increase the rate of successful reduction, some researchers advise to re-attempt the procedure after 0.5-4 hours. Gonzales et al, reported that the rate of successful reduction was 81.9%, but it increased up to 88.2% at the second attempt.

In our study success rate of reduction was 78%. Therefore, in patients with unsuccessful reduction we do not recommend additional attempts, because most of these patients may have gangrenous bowel and further attempts may lead to bowel perforation. In conclusion ultrasound-guided hydrostatic reduction using saline enema is an optimal method for the treatment of childhood intussusception, because it is a simple and safe procedure with high success rate and without radiation exposure.

CONCLUSIONS

UGSED of intussusceptions avoids radiation
exposure. It is reliable, safe and extremely effective in treating intussusceptions. It has high success rate and minimal complications. It is a suitable and most promising method for the nonoperative treatment of pediatric intussusception and can be widely used as routine therapy.

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Dengue Epidemic in Khyber Pakhtunkhawa

A study on types and complication of Dengue Fever in patients admitted to Medical Units of Khyber Teaching Hospital, Peshawar.

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ABSTRACT

Objective: To determine the frequency of various types and complications of Dengue fever in patients admitted to Medical ‘E’ Ward of Khyber Teaching Hospital Peshawar.

Materials and Methods: This cross sectional study was conducted at Khyber Teaching Hospital Peshawar from July to September 2017. A sample of about 300 (N=300) diagnosed dengue patient were selected through non probability convenient sampling technique. Type and complications of dengue fever was determined by clinical examination and laboratory investigations. Data was analysed using SPSS version 20.

Results: Mean age was 31.5 ± 1.586 SD. 64% patients were male and 36% were female. 26.6% patients were having comorbidities of various categories i.e. diabetes, hypertension, pregnancy, asthma, fatty liver and chronic renal failure. 21% patients presented with dengue haemorrhagic fever. While no patients were found in dengue shock syndrome during the study. 36% patients presented with various complications like pleural effusions, UTI, bicytopenia, seizure, ARF and ascites.

Conclusion: A vast majority of patients admitted in medical ‘E’ ward having high and more fever spikes were having low platelets and high haematocrit value. Also younger patients were having more complications interestingly as compared to old age patients which were only 6(02%) patients above age 70. Also Simple Dengue fever and DHF were more in male as compared to female. UTI was the most common complication which was in 30(10%) patients.

Key Words: Dengue fever, Complications, Renal Failure

INTRODUCTION:

Dengue fever is a mosquito-borne zoonotic disease caused by the dengue virus in the tropical areas. The dengue virus consists of four serotypes (DEN-1, DEN-2, DEN-3 and DEN-4) belonging to the genus Flavivirus, and Flaviviridae family. Asian serotypes of DEN-2 and DEN-3 cause more severe disease with secondary infections1. Symptoms appears within three to five days after infection. Symptoms include a high continuous grade fever, vomiting, headache, muscle and body aches and pains, and a typical measles like skin rash which is just like Islands of White in a red sea. Patients Recover generally within two to seven days2. In a small percentage patients can progress into the life-threatening dengue haemorrhagic fever, with characteristics bleeding, low platelets counts and leakage of blood plasma, or patients can go into dengue shock syndrome, where low blood pressure and pulse pressure is present. Dengue, is also known “break bone fever”, due to severe musculoskeletal pains3.

Younger patients were having more complications as compared to older patients 6(02%) above age 70. Simple Dengue fever and DHF is more common in male as compared to female. UTI is the most common complication of Dengue. Keeping in view of severity of Dengue fever in current epidemic; strict urgent action by government regarding community awareness is needed.

The infection is divided into three phases: febrile, critical, and recovery. Aedes mosquitoes, transmits the dengue virus particularly A. aegypti. These
mosquitoes live below 1000 meters level in between the latitudes of 35° North and 35° South. They interestingly bite the humans during the early dawn time and in the early dusk time. Dengue transmission can occur through infected blood products and by organ donation. Vertical transmission (from mother to child) during pregnancy or at birth can also occur. In blood chemistry low white blood cell count is earlier detected on laboratory investigations, after that followed by low platelets counts and decreased PH with decreased bicarbonates i.e., metabolic acidosis.

Level of aminotransferase (AST and ALT) from the liver is also elevated with low platelets and white blood cells. In severe disease, hemo-concentration (by Increased Haematocrit) occurs by leakage of Plasma and hypoalbuminemia. Dengue shock syndrome results if pulse pressure comes down to ≤ 20 mm Hg along with capillary refill >2 sec, increased heart rate, or cold peripheries. Dengue fever is diagnosed by microbiological laboratory testing which is isolation of virus in cell cultures, PCR for RNA detection, antigen of the virus (NS1) or (serology) for antibodies. Culture isolation of virus and RNA are more specific than antigen detection, but due to cost these tests are not performed for diagnosis. Detection of NS1 during the febrile phase of dengue fever have greater than 90% sensitivity however it is decreased to 60–80% in secondary infections.

A partially effective novel vaccine for dengue fever became commercially available in the Philippines and Indonesia in 2016. Sanofi is producing the vaccine and sold by the brand name Dengvaxia. In Management those who can take orally and can pass urine can be managed at home with daily follow up and oral rehydration therapy. Intravenous hydration, if required, is only needed for one or two days. Nasogastric intubation, intramuscular injections and arterial punctures should be avoided, because of the bleeding chances. Fever spikes can be controlled by Paracetamol (acetaminophen). NSAIDs like ibuprofen and aspirin must be avoided as they might aggravate bleeding risk. Corticosteroids positive or negative effect in dengue patients is not determined due to lack of enough evidence. Transfusion of packed red blood cells or whole blood are recommended, but fresh frozen plasma and platelets are usually not.

**MATERIAL AND METHODS**

A cross sectional study was conducted at Khyber Teaching Hospital Peshawar from July 2017 till September 2017. A sample of about 300 using prevalence formula and taking 95% confidence interval and 5% margin of error. Patients were selected using non-probability convenient sampling technique. Patients were clinically examined for determination of particular type of dengue fever. Relevant investigations were done to determine various complications due to dengue fever including Chest X-Ray, Ultrasound abdomen and pelvis, urine R/E, Complete blood count, Renal function and liver function tests. All findings were recorded on a structured proforma containing demographics of the patient.

Dengue fever patients on the basis of presentations and serological tests, Dengue Haemorrhagic patients on the basis of history, examination, ultrasound, chest x-ray and laboratory reports while dengue shock syndrome was confirmed by blood pressure, pulse pressure, pulse and blood picture. Permission was obtained from "Hospital Ethical Committee". The study was carried out at Medical ‘E’ unit Khyber Teaching Hospital, Peshawar and all the patients were available at the ward admitted for the treatment. Non probability convenient sampling from ward was done with the informed consent. Patient bio-data was checked at the bedside and history was taken. Laboratory reports were available at the bedside including CBC, Absolute values, LFTs, RFTs, X-Rays chest and U/S abdomen and Pelvis. Pulse and Blood Pressure were recorded. All the above information were put in a pre-designed proforma which included name, age, gender, presentation, blood picture, complications, morbidities, dengue serology, exclusion criteria (Mp, Congo, Chickengunia). Data collected was analysed using statistical packages for social sciences (S.P.S.S).

**RESULTS**

Three hundred patients admitted to medical ‘E’ ward with different presentations and complications of dengue fever were observed. We assessed the frequency of types/forms of Dengue fever and the frequency of various complications from the dengue fever. Age distribution among 300 patients were analysed and it was found that 63(21%) patients were in the age range of 10-20 year, 108(36%) were in 21-30 year, 39(13%) were in 31-40 year, 27(9%) were in 41-50 year, 18(6%) were above 60 year. Mean age was 31.5 with standard deviation of ± 1.586.

Gender distribution among 300 patients was analysed and it was seen that 192(64%) patients were male and 108(36%) were female patients. While in correlation to form of dengue it was observed that 147(49%) male and 90(30%) female patients were presented with simple dengue fever while 45(15%) male and 18(6%) female patients were having dengue haemorrhagic fever. Similarly complications were analysed in gender and it was observed that 72 (24%) were male patients having various complications and 36 (12%)
were female patients with complications.

Complications were analysed, amongst three hundred patients 30(10%) patients developed UTI, 27(09%) patients developed gastroenteritis, 18(06%) patients developed Pleural effusion with ascites, 12(04%) patients developed only pleural effusion, 09(03%) patients with ARF, 06(02%) patients with only ascites and 06(02%) developed seizure (focal) during hospital stay. It was also analysed that patients with age range of 21-30 year developed maximum number of various complications that is 33(11%) patients. In correlation of Age range and complications it was analysed that patients in the age range of 10-20 year developed mostly UTI and pleural effusion with ascites sharing equal frequencies that are 09(03%). Patients with age range of 21-30 year were having maximum 09(03%) gastroenteritis, while patients in age range of 31-40 developed equal and maximum number of UTI, gastroenteritis and pleural effusion with ascites that is 06(02%),while patients in the age range of 41-50 year developed equal maximum number of UTI and gastroenteritis that is 06(02%)., also patients in the age range of 51-60 year developed equally gastroenteritis and pleural effusion were 03(01%), while in 03(01%) patients, seizure was the only complication developed in age range of 61-70 year and only 03(01%) patients above age 70 developed UTI. It was also observed that the patients with simple dengue fever were having maximum complication of UTI that is 27(09%). Also it was observed that maximum 99(33%) patients of simple dengue fever were having haematocrit in the range of 41-45 same as the case with dengue haemorrhagic fever which were 27(09%) patient.

DISCUSSIONS:

Dengue is the major public health issue all around the world. The present study showed that majority of dengue patient were having prototype of disease, while haemorrhagic type is less common. Main complications observed included thrombocytopenia, UTI, gastroenteritis and pleural effusion. Complications were more common in patients having low platelets count.

Previously Dengue fever was common in children but nowadays adults are most commonly effected. Maliha et al in their study showed that most common age group effected were between 20-40 years of age as in our study. Complications were more in dengue haemorrhagic fever as compared to simple dengue which is again similar to our study results. But in contrast to their study most common type was of simple dengue fever.

Diaz et al in their study showed strong association of thrombocytopenia with dengue complications. Same is reflected in our study. Another study by Kumar et al on atypical respiratory complications showed rare pattern of respiratory involvement in dengue i.e. acute respiratory distress syndrome and bronchiolitis with respiratory failure. In contrast to this our study showed no such complication. In Pakistan Dengue was reported in 1995 at Baluchistan. Since than various outbreak of dengue has occurred annually. In 2017 dengue outbreak in Peshawar, most incidents of dengue fever were reported in the month of August. Initially according to the health department of Khyber Pakhtunkhwa 4,320 suspected were received by Khyber Teaching Hospital Peshawar and 831 were found positive. Up to 22nd September, the total deaths of dengue fever patients in the province this year were 31, according to a statistics issued by Health Department, KP and the Dengue Response Unit.

Some of the local data on molecular surveillance of dengue in swat. complications(infections) was observed which was 40% in age less than 15 year. While our study with 33(11%) patients having maximum complications were in the age group of 21-30 year. Also local study shows that complications was more in males (55.3%) as compare to females (44.7%) which is similar to our study i.e., 72(24%) male and 36(12%) females.

Keeping in view of outbreak and severity of complications preventive measures in community needs to be highlighted. Our study showed low level of preventive measures taken by community against Dengue virus. Low knowledge observed in our study population regarding habitat and preventive measures.
against aedes aegypti can be improved through public awareness.

CONCLUSION:

Most common form of dengue observed in our study was of simple type. Therefore anxiety of the people should be relieved. Keeping in view of severity of Dengue fever in current epidemic; strict urgent action by government regarding community awareness is needed.

REFERENCES

Prevalence of Bacterial Meningitis in Children aging from 2 months to 14 years, in Pediatric Ward of General Hospital, Lahore

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ABSTRACT
Background: World wise two third of the cases of meningitis occur below the age of 15 years. Bacterial meningitis is rare, but can be deadly. It usually starts with bacteria that cause a cold-like infection
Objective: To get to know the prevalence of meningitis among children of age 2 month to 14 year.
Material & Methods: A hospital cross sectional study was conducted in General Hospital Lahore. All those children in the age group between 02 months of 14 years having clinical suspicion of meningitis and cerebrospinal findings suggestive of meningitis i.e, > 10×10⁶WBC/L and/or CSF sugar <40mg% or (<50% of the circulating blood sugar) and/or CSF protein >80mg% were included in the study.
Results: The CSF cultures were positive in 52% of cases and negative in 48% of cases. The three most common pathogens isolated were Streptocococcus Pneumonia 25% cases, Neisseriae Meningitides 20% cases and Hemophilus influenza B 29% cases
Conclusion: Bacterial meningitis is the major cause of morbidity in children below the age of 5 years. S Pneumonia, N Meningitides and H Influenza are the three most common etiology of Bacterial Meningitis.
Key Words: Bacterial meningitis, cerebrospinal fluid gram staining.
According to the studies CSF culture result was 46.3% positive (Soomro et al), while it was 57.1% positive in Akbani (et al). While in the same studies gram smear was 63.4% and 62% positive respectively [5,6]. The objective of study is to check the prevalence of meningitis, its causes and prevention from it.

MATERIAL AND METHODS:

A cross sectional study was conducted at the pediatrics unit of General Hospital Lahore at the children of age 2 months-14 years, admitted to the pediatric unit. 80 patients suffering from Meningitis were sample size of this study that was selected through convenient based sampling. The following information were included in the performa i.e. gram staining CSF culture results. Lumber puncture was done immediately upon arrival of the patient to the hospital and cerebrospinal fluid was sent to the laboratory before giving the first shot of antibiotics. Cerebrospinal fluid’s biochemistry (i.e. CSF glucose and proteins levels), microscopy (total WBC count with different counts), gram staining and culture studies were done on all patients. Other supportive investigations like Hb, TLC, DLC, chest x-rays, diagnostic BCG, serum creatinine, LFT’s, gram staining of the skin Lesions, skull ultrasound and CT brain were also done when required.

RESULTS:

During this study, total admissions were 2500 and total numbers of patients enrolled were 200. While total number of patients studied were 80 only. The result shows that out of 80 patients 52% were in age group 2 month-1 year, 40% were in age group 1-5 years, 9% were in age group 5-14 years. The three most common pathogens isolated were Streptococcus Pneumonia followed by Neisseriae Meningitides and Homophiles influenza B.

Table 1: Distribution of Patients By Gram Staining

<table>
<thead>
<tr>
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<th>Percent</th>
<th>Valid Percent</th>
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<tbody>
<tr>
<td>Valid</td>
<td>70.6</td>
<td>70.6</td>
</tr>
<tr>
<td>negative</td>
<td>29.4</td>
<td>29.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
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</table>

The result shows that Gram staining was positive in 70.6% cases and negative in 29.4%.

DISCUSSION:

The CSF cultures were positive in 52% of cases and negative in 48% of cases. The three most common pathogens isolated were Streptococcus Pneumonia 25% cases, Neisseriae Meningitides 20% cases and Hemophiles influenza B 29% cases. In the hospital, meningitis is responsible for 3-5% of pediatric admissions. Most of the Time this diagnosis is based on clinical grounds i.e. clinical examination and cerebrospinal fluid microscopy, biochemical examination and gram staining. But even the gram staining results are positive in a minority of the cases. Because majority of the children do receive antibiotics in one form or the other before reaching the hospital. The recent conflicting reports regarding the classic CSF findings of septic meningitis in cases of viral meningitis has made gram staining and culture studies more important. CSF culture is the “gold standard” and should always be obtained when possible.
The male predominance in this study is similar to other studies from Pakistan and abroad\textsuperscript{16,17,18,19}, majority of our patients were younger than 5 years i.e. 71.2%. But the percentage of >1 year of age (40.4%) is lower in our study as compare to other studies from Pakistan like Akbani et al\textsuperscript{10} (50%), Qazi et al\textsuperscript{17} (63.4%) In the developed world there is considerable decline in the incidence of bacterial meningitis. Bonadio at al\textsuperscript{18} reported 4% of the children >5 years, while in our study 28.8% were above 5 years which is a big difference.

The yield of stainable organisms from CSF smear in Europe and USA\textsuperscript{19,20} is almost 80%. In our study 28.8% were above 5 years which is a big difference.

The yield of stainable organisms from CSF smear abroad\textsuperscript{10,11,12,13,14}, majority of our patients were younger than 5 years i.e. 71.2%. But the percentage of >1 year of age (40.4%) is lower in our study as compare to other studies from Pakistan like Akbani et al\textsuperscript{10} (50%), Qazi et al\textsuperscript{17} (63.4%) In the developed world there is considerable decline in the incidence of bacterial meningitis. Bonadio at al\textsuperscript{18} reported 4% of the children >5 years, while in our study 28.8% were above 5 years which is a big difference.

The yield of stainable organisms from CSF smear in Europe and USA\textsuperscript{19,20} is almost 80%. In our study, the gram stain smear positivity rate (59.6%) is much lower than the developed countries. However our results are comparable to the studies from Pakistan as mentioned in the above table. We believe that close liaison between the laboratory staff and clinician can further improve the yield of gram staining as most of the time in our hospital, the CSF is sent for microscopy after the patient receives first few doses of antibiotics inside the hospital, which make yield of gram staining almost impossible even though there may not be history of prior antibiotics intake.

CSF cultures were positive in 48.1% of the cases in this study, which in comparable to other studies from Pakistan as mention in table. However the culture positivity rate in our study is much lower than that reported internationally\textsuperscript{21,22}. The percentage isolation of the three most common pathogens i.e. S pneumonia, N meningitides and H influenza B (HIB) in this study is similar to the studies from Pakistan. The relative incidence of HIB in this study is lower than expected (>50% in the developing world). We believe that HIB is more common in younger children and the signs and symptoms of meningitis are subtler in this age group. So majority of them gets antibiotics before reaching the hospital and so were excluded from the study because of or inclusion criteria. However the relative incidence of H. influenza b is much higher than reported internationally\textsuperscript{23,24}. The reason is adoption of routine immunization against H. Influenzæ B in these countries. This also demonstrates the need of inclusion of hemophilus influenza B vaccine in our Expanded Immunization Program (EPI).

CONCLUSION

Bacterial Meningitis is still a very common and serious infection in our children in all age groups.S pneumonia, N meningitides and H influenza are the three causes of bacterial meningitis as reported nationally, internationally. Yeild of Gram staining and culture though comparable with the national studies but lower than reported internationally.

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