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Rising Incidence of Diabetes & Hypertension
A worrying trend – Prevention through Awareness.

According to a recent National Diabetic Survey of Pakistan (2016-17) conducted by the Pakistan Health Research Council in collaboration with Baqai Institute of Diabetology and Endocrinology for 18 months, 27.4 million people over the age of 20 are suffering from Type-2 Diabetes, out of them 14.47% are at the risk of developing Diabetes which is more than 26% of the country’s population. A total of 10834 people were examined from all the provinces and were found to be suffering from Diabetes, out of which 43.9% were men and 56.15% were women. Amongst them 30.2% had a positive family history of Diabetes.

The number of diabetics is increasing dramatically from 8.7% in 1994-98 to 26.3% in 2016-17 as more younger people are getting involved in Diabetes, which is a worrying trend. There are one million people with diabetic foot and out of them 100,000 are on the verge of losing their limb within one year. In fact, Pakistan is the 4th country in the world which harbors highest number of Diabetics and the number is likely to grow if the state of affairs continues.

In the past, the incidence of Diabetes was rare in the rural population due to more physical activities and least stress of modern life. With the changing life style of the modern age, longevity of life, increased economic stress with reduced physical activity, the difference of diabetic incidence is almost equal to urban as well as rural areas. According to International Diabetic Federation the old concept of increased frequency of urination, thirst and weight loss is no longer a necessary indicator for Diabetes.

If not diagnosed and treated within time, the sufferer may develop serious complications leading to blindness within 20 years. South-Asian communities need more diabetic screening and prevention programs to reduce the risk of eye complications like development of Diabetic Retinopathy, maculopathy, proliferative retinopathy, cataract, Glaucoma and age-related macular degeneration. However, 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 leading to blindness.

According to the survey, it was detected that there was an overall 52.6% prevalence of Hypertension including 27.9% known cases and 24.6% as newly diagnosed. It is very amazing that the result of blood sugar level in all provinces were similar but in terms of Hypertension Baluchistan had the highest incidence of raised blood pressure and it was lowest in KPK, with 90% of the people had cholesterol abnormalities. In Asian population over the age of 40 years and waste width more than 35 inches they are probable candidates for both Diabetes and Hypertension. There was another important findings of the survey that amongst the affected population 14.5% were tobacco users, both in the form of smoking an chewing.

According to another report published in North England Journal of Medicine, more than 1 in 10 people are obese worldwide and suffer from weight-related health problems. In 2015 there were 107.7 million children and 603.7 million adults were obese. We must do something meaningful to combat these multi-organ killers. The only solution appears to strictly follow these golden principals

1. Change of complicated life style to simpler living.
2. Low cholesterol diet.
3. Increase the physical activity by regular walking or exercise to avoid obesity.
4. Eat half and walk double to avoid obesity.
5. Reduce mental and physical stress through education, awareness and motivation.
6. Avoid smoking.
7. Have early and good sleep.

Summary: Since higher number of people with Diabetes and Hypertension do not take their prescribed medication due to lack of knowledge, education, awareness, its complications, cost, appointment schedule with the health professionals, exercise and diet regime. There should be some motivation at community level, one to one guidance on complications of Diabetes and Hypertension, importance of retinopathies, diet and exercise programs.

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Ophthalmology Update Vol. 16 No.4, Oct - Dec 2018

OPHTHALMIC SECTION

EDITORIAL BOARD

ORIGINAL ARTICLE

Frequency of Dry Eyes after Cataract Surgery

Irfan ullah Shah

ABSTRACT

Background: Even after following successful cataract surgery and restoration of useful vision, the patient is not satisfied with the outcome. The main complain is burning, eye fatigue, foreign body sensation due to dry eye syndrome, which can adversely affect the quality of life. The symptoms of dry eye range from mild transient grittiness to persistent dryness, redness, itching, pain, burning sensation, ocular fatigue and visual disturbance.

Aim: To evaluate the frequency of dry eyes after cataract surgery.

Methodology: In our study we enrolled 200 patients from a private clinic in Hangu, District Kohat from October 2016 to September 2017. It was a conservative descriptive study. Out of them, 140 were male and 60 were female. Mostly they were in the age group of 61-70 years, Mean age was 60 ± 7 years.

Result: TBUT was recorded for every patient at 1st, 2nd and 3rd week. Mean Tear Breakup Time (TBUT) was normal at 1st and 2nd week but got abnormal at 3rd week. It was probably normal first due to post-operative inflammation and glare. Difference between mean TBUT at 3rd visit was significant (P value = 0.0001).

Conclusion: This study shows that TBUT one of the reliable test for dry eyes is normal immediately after surgery but gradually decreases. It may be due to prolonged use of steroids. Factors responsible for Dry Eye can be further investigated in order to eliminate them.

INTRODUCTION

Among many causes of reversible blindness worldwide, cataract is the chief cause.3 There are several causes of cataract but the one which is due to the advancing age factor is the leading cause and is considered indispensible although due to its better outcome, cataract surgery is one of the most fruitful interventions in medical field.

Different modes of cataract surgery are practiced like extra capsular cataract surgery, sutureless manual extra-capsular cataract surgery and phacoemulsification surgery. Intra-capsular cataract surgery which was performed before the invention of intraocular lenses is almost out dated now.

There are different factors which can affect visual outcome of cataract surgery, one of these can be the dry eyes following surgery which may not exist preoperatively. Among other symptoms of dry eyes like foreign body sensation, asthenia of eyes, redness, vision may also be deteriorated in severe cases and may account for dissatisfaction of patients even after successful cataract surgery.

TBUT is one of the reliable test for dry eyes which is normal immediately after surgery but gradually decreases with the time. It may be due to prolonged use of steroids.

Dry eye was classified and defined by the International Dry Eye Workshop as a disorder of the lacrimal system comprising the lacrimal glands, ocular surface (cornea, conjunctiva), the lids and its mebonian glands, with the sensory and motor nerves that supply these structures. According to the World Health Organization (WHO) in 2002, there were approximately 37 million blind people in the world.3 It was expected to be doubled by the year 2020 if appropriate measures were not taken.2 Out of these blinding conditions cataract is the most prevalent one, it is estimated that nearly 18 million people are bilaterally blind from cataract, representing almost 48% of all causes of blindness.1

Dry eye is a worrying condition which increases with the increasing age, 11% to 33% depending on population and parameters studied.4 Extent to which dryness can adversely affect quality of life depends on the severity of its symptoms ranging from mild redness,
irritation and burning to severe pain, decreased vision and eye fatigue. In severe cases dryness can profoundly impair the patients work productivity, influence mood, behavior and confidence. In this study we aimed to seek the factors responsible for dry eyes after cataract surgery, so that its load in a community could be quantitatively found out. After this study we would be able to find out the frequency of this anotnig condition in patients who have undergone cataract surgery and it would help us in better managing this condition post operatively.

**MATERIALS & METHODS.**

**Inclusion criteria:** Patients from 40 years to > 70 years with un-complicated cataract.

**Exclusion criteria:** Patients with no previous history of dry eyes before cataract surgery. Diseases like diabetes and other ocular surface disease like pemphigoid and ocular burns. Patients having previous complicated surgery.

Patients’ biodata were recorded on a proforma after taking informed consent. After surgery patients were called for follow-up at 1st week, 2nd week and at 3rd week. At each visit patients tear film breakup time was noted on proforma. The technique involved a commercially available fluorescein-impregnated strip wet with non-preserved saline was used and placed in the inferior fornix. The patient is then asked to blink 3 times and then to look straight ahead without any blink. The tear film is observed using a cobalt blue filter under wide beam illumination at the slit-lamp. The interval between the last blink and the appearance of the first randomly appeared corneal dry spot is measured as TBUT. A value less than 10 seconds is regarded as abnormal.

Qualitative data was analyzed for frequency and percentages while quantitative data as age and TBUT were analyzed for mean and SD in SPSS version 20. Chi square test was used for qualitative and T test was used for quantitative data to see the statistical difference.

**RESULTS**

In our study total patients were 200, out of these 140 were male and 60 were female. More patients were in age group 61-70 years, which is 100. Mean age was 60 ± 7 years. Mean TBUT was 6 second ± 2 second. TBUT was recorded for every patient at 1st, 2nd and 3rd week. Mean TBUT was normal at 1st and 2nd week but got abnormal at 3rd week. It was normal it was normal in the first due to post-operative inflammation and glare. Difference between mean TBUT at 3rd visits was significant (P value = 0.0001). Mean TBUT was less in male as compared to female, it may be because of more number of patients in male category as compared to female.

<table>
<thead>
<tr>
<th>Table No1. Gender distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
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<tr>
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<tr>
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<table>
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<td>61-70 years</td>
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<tr>
<td>&gt; 70 years</td>
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<tr>
<td>2nd week</td>
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<tr>
<td>3rd week</td>
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</table>

<table>
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<td>61-70 years</td>
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<td>&gt; 70 years</td>
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<table>
<thead>
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<th>Table No6. Gender wise 3rd week mean TBUT</th>
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<td>Gender</td>
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<tr>
<td>Male</td>
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<tr>
<td>Female</td>
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</table>

**DISCUSSION**

This study was performed at private setting in Hangu District Kohat. Two hundred patients were in-
Frequency of Dry Eyes after Cataract Surgery

cluded in the study. Male patients were more than female. This study was done due to abundant complaints of post-operative patients for dry eyes symptoms and with complain of foreign body sensation, itching and occasional blurred vision.

Severe dry eye affects the patient’s ocular and general health and quality of life. Since the dry eye syndrome is common worldwide, it can be caused by many factors, which contribute to decrease in tear film breakup time such as pre-surgical corneal surface disease, type of incision, size of incision, complicated surgery, post-operative medications. All can lead to make tear film abnormal. This dryness can lead to decrease in tear film breakup time.

It was noted that in first few weeks’ patient have normal tear film break-up time (TBUT), but gradually it is decreased to mean 6 seconds at 3rd week. The difference between mean TBUT at three visits was statistically significant (P value = 0.0001). A study by Cetinkaya et al. mean postoperative 1st day, 1st week and 1st month Break-up Time (BUT) values were significantly lower than preoperative BUT value (P < 0.001, P < 0.01, P < 0.001), however 1st year and 2nd year values were not significantly different from preoperative value (P = 0.441, P = 0.078, P = 0.145, P = 0.125).

Chung, et al shows that mean TBUT decrease from 11.8 ± 2.2 sec to 7.7 ± 2 sec postoperatively. In the dry eye group, there were significant aggravations in 6 weeks to 2 months postoperatively and in TMH at 3 days, 10 days, 1 month, and 2 months postoperatively, compared with preoperative values. All dry eye test values were significantly worse after cataract surgery in the dry eye group.

The difference between mean TBUT against age groups and gender was also statistically significant. It was significant because of more patients in age group 61-70 years and male gender, which is 0.0001 and 0.00 respectively.

CONCLUSION

This study shows that TBUT is one of the reliable test for dry eyes is normal immediately after surgery but gradually decreases. It may be due to prolong use of steroids and ointments. Further study should be done on factors that contribute to dry eyes after surgery, so that these factors could be controlled.

REFERENCES

A Comparative Study of Dry Eye Syndrome in Diabetic & Non-diabetic Patients

Jahanzeb Durrani, DOMS.M.S(Ophth)1. Inam ul Haq Khan FCPS, MHPE 2.

ABSTRACT
Objective. To compare the prevalence of dry eye syndrome (DES) in diabetic and non-diabetics patients, knowing the basic Patho-physiology of dry eye
Methodology: 100 diabetics and 100 non-diabetics (total 200) patients were enrolled for this study. A cross-sectional study at HBS Medical College & Hospital, Islamabad was carried out from May’2015 to July’2016. Approval of the Ethical Bord was obtained and written consent was obtained from all the participants, ranging from 50-80 years of age.
Results. 100 each patients were kept in group-A (with mean age of 60.4±4.0) and group-B of non-diabetics (with mean age of 60.9±4.0). Gender distribution showed males diabetics 44.0% in group-A and 58.0% in group-B, while females were 56.0% in group-A and 42.0% in group-B. Majority of the symptoms were significantly higher in diabetics group-A as compared to non-diabetics in group B (p<0.001). 40% of the men and 62% of the women classified as having dry eye. Women were found more frequently than men, with (P<0.0001).
Conclusion: Diabetic patients had an elevated prevalence of Dry Eye Syndrome.
Key Words: Menopause, Questionnaire, Schirmer test, Fluoresceine test.

INTRODUCTION
Diabetes mellitus (DM) has become a major public health problem in the world as a result of longevity of life with stress of modern age. The global prevalence of diabetes was 246 million in 2007 which could reach 380 million by 2025. The incidence has proportionally increased to 10% in the developing countries (Diabetic Association of Pakistan), especially in many African countries where malnutrition and diet deficient in vitamin–A exist. DES increases by 4% in age group of 10-20 years and 33% in 51-60 years. Pakistan is a country where population comprises different ethnic groups and life styles due to varied weather conditions.

Dry Eye (DES) is a progressive dysfunction of the lacrimal and meibomian glands 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). Diabetes Mellitus changes the tear composition by damaging the microvasculature of the lacrimal gland causing sensory neuropathy of the cornea disturbing the presence of messenger RNAs for steroidogenic enzymes, such as 17β-HSD, aromatase and 5α-reductase.

There is a preponderance of DES in females (60%) as compared to males (40%). In post-menopausal women, the tear production decreases due to low androgen level which promotes secretion of meibomian gland and increases osmolarity of tears. Androgens regulate the immune system and secretory functions of lacrimal glands.

Special investigations were carried out i.e. Schirmer Test (annex-2) Tear breakup time (TBUT-Annex-3), Ocular Surface Disease Index (OSDI- Annex-4) on all patients.

DES is diagnosed by symptoms of discomfort, visual disturbance and ocular surface inflammation. The tear film consist of outer lipid layer 0.1-0.2 µm secreted by meibomian glands, middle aqueous layer 0.7-0.8 µm secreted by lacrimal and 20 accessory glands and the innermost mucous layer 0.3 µm produced by the goblet cells in the conjunctiva. The tear film facilitates exchange of gases like oxygen and maintains the glossy nature of the cornea with the help of an enzyme retinol. The electrolytes present in the tear film include sodium, potassium, magnesium, calcium, chloride, bicarbonate, phosphate ions and proteins i.e., lysozyme, lactoferrin, and lipocalin, serum albumin, IgG, ceruloplasmin, transferrin, and monomeric IgA.

There is a strong association of DES with the systemic use of drugs like antihistamines, beta block-
ers, diuretics, steroids, oral contraceptives; and psycho-tropic drugs used in many conditions such as auto-immune disorders, trachoma, burns, post LASIK refractive surgery, insulin-dependent diabetics, blepharitis, and Steven Johnson syndrome, nutritional deficiency in omega-3, Vitamin-A.14,15,16,17

According to American Optometric Association 45% of the total world’s population use computers for many hours and approximately 60 million people suffer from symptoms of dry eye. A reduction in corneal sensitivity occurs in wearers of contact lenses 2,3, due to increased tear osmolarity of tears.

There are two categories of Dry Eye Syndrome: (i) aqueous tear-deficient dry eye (ADDE) and (ii) evaporative dry eye (EDE). The category ADDE is further subdivided: Sjogren syndrome 18 (b) Non-Sjogren. ADDE affects 5-6% of the population which rises to 6-9.8% in postmenopausal women and as high as 34% in the elderly with the ratio of females to male: 9:1. Smokers, computer users and those using systemic medications are significantly associated with a higher risk of DED with a p-value = <0.05. by using Chi-square test13.66

**METHODOLOGY.**

It is a cross-sectional study of 200 patients (100 diabetics in group-A and 100 non-diabetics in group-B) with both genders. The aim of the study was to compare the incidence of basic patho-physiology of dry eye. Regarding age distribution, 48 patients (48.0%) in group-A and 52 patients (52%) in group-B, were between 50-60 years. 33 patients (33.0%) in group-A and 31(31%) in group-B, were between the ages of 61-70 years. 19 patients (19%) in group-A and 17 patients (17.0%) were in the age group of 71-80 years. Mean ages were 60.4±4.3 and 60.9±4.6 in group-A and B, respectively. Before starting the study, a detailed history of diabetics was taken regarding the age, period of onset, medication and control of diabetes in a proper questionnaire. 'The McMonnies & Ho Dry Eye Questionnaire' (Annex-1) which is very close to our prevailing conditions and is often used in clinical studies, with slight modification. All standard tests, as per international protocol, were undertaken in these patients.

Special investigations were carried out i.e. Schirmer Test (annex-2) Tear breakup time (TBUT-Annex-3), Ocular Surface Disease Index (OSDI- Annex-4) on all patients.

Computer software SPSS version 12 was used for data entry and analysis. Chi square test was applied on qualitative variables like gender, symptoms, arthritis, dryness of nose, mouth, throat, sensitivity of eyes, irritation and dry eye. P value < 0.05 was taken as significant. This study was undertaken for the first time in Pakistani population and has not been reported in the literature.

**RESULTS.**

**Data Collection Procedure:** The result showed that 40% of the men and 62% of the women were classified as having dry eye. (P<0.0001).The distribution in age groups was statistically significant (p<0.005).

Male patients (n=16) with dry eye disease suffered diabetes for 13 years whereas female (n=56) patients suffered for 15 years. The diabetic duration of highest mean was found in 65-75 year old patients. However the duration of diabetes was not statistically significant in gender and age (p= 0.712 and p=0.719
respectively). Highest fasting glycaemia was found in men of between 45-55 year of age, not statistically significant amongst age and sex (p= 0.277 and p=0.456 respectively).

Ocular discomfort was defined as having one or more traditional dry eye symptoms, and all patients were graded as “3” or “4”. The Schirmer test was evaluated with median and amplitude and ranged from “2” to “4”, the latter was found in the 56.6-67.4 age group; there was no statistical significant difference between men and women (p=0.236). Results from other parameters, including conjunctival congestion, corneal staining with fluorescein, reduced tear meniscus, meibomian gland changes, break-up time (BUT), visual acuity and comparing them for age and sex, showed no statistical significance (Tables 1 and 2)of age. Mean age of the patients was 60.4±4.3 and 60.9±4.6 in group-A and B, respectively as in Table-1.

Table-1 Distribution of patients by age (n=200)

<table>
<thead>
<tr>
<th>Age (Year)</th>
<th>Group-A (Diabetic) n=100</th>
<th>Group-B (Non-diabetic) n=100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>50-60</td>
<td>48</td>
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<tr>
<td>61-70</td>
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<td>71-80</td>
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<td>19.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
<tr>
<td>Mean±SD</td>
<td>60.4±4.3</td>
<td>60.9±4.6</td>
</tr>
</tbody>
</table>

Gender distribution shows, 44 patients (44.0%) in group-A and 58 patients (58.0%) in group-B were male while 56 patients (56.0%) in group-A and 42 patients (42.0%) in group-B were female (Table-2).

Table-2 Distribution of patients by gender (n=200)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Group-A (Diabetic) n=100</th>
<th>Group-B (Non-diabetic) n=100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>44</td>
<td>44.0</td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td>56.0</td>
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<tr>
<td>Total</td>
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</tr>
</tbody>
</table>

Chi Square=3.92df=1 P value=0.047

Graph: 1 Incidence of Dry Eye in Diabetics & Non-diabetic

Table-3 Distribution of signs (n=200)

<table>
<thead>
<tr>
<th>Signs</th>
<th>Group-A (Diabetic) n=100</th>
<th>Group-B (Non-diabetic) n=100</th>
<th>P value</th>
</tr>
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<tbody>
<tr>
<td>Inferior punctate erosions</td>
<td>22</td>
<td>22.0</td>
<td>10</td>
</tr>
<tr>
<td>Altered state of tear meniscus</td>
<td>13</td>
<td>13.0</td>
<td>07</td>
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<tr>
<td>Mucus debris</td>
<td>17</td>
<td>17.0</td>
<td>05</td>
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<tr>
<td>Foamy presence on lower lid</td>
<td>19</td>
<td>19.0</td>
<td>11</td>
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<tr>
<td>Mucus filaments, plaques</td>
<td>25</td>
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</tr>
</tbody>
</table>

Dry eye syndrome rate was significantly higher in group-A when compared with group-B. (p<0.001).

Table-4 Distribution of Diabetic and non-diabetic patients with dry eye syndrome (n=200)

<table>
<thead>
<tr>
<th>Dry eye syndrome</th>
<th>Group-A (Diabetic) n=100</th>
<th>Group-B (Non-diabetic) n=100</th>
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<td>Total</td>
<td>100</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Chi Square=13.66df=1 P value<= 0.001

Our study also included to assess proportion of Dry Eye in patients of Computer Vision Syndrome. Data was composed from 100 (55 male and 45 female students) having age group 18-30 years. All were diagnosed with Dry Eye due to Computer usage (Minimum 3-4 hours) and data was collected using a proforma.

Table No. 5 Frequency of dry eye in Computer Vision Syndrome (CVS)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Ophthalmology Update Vol. 16 No.4, Oct - Dec 2018
The result concluded that patient with mild dry eye were 40% having (minimum value of 10mm and maximum value of 14mm), moderate are 32% having (min value 6mm and max 10mm) normal are 18% having (min value 15mm and max 16mm), severe are 10%, having (min value 3mm and max 5mm).

**DISCUSSION**

Our study observed that 40% of the men (average age 63 years) and 62% of the women (average age 64 years) suffered from dry eyes. (P<0.0001). Most of the patients were in the 75-85 year-old, while the 65-75 year-old group were fewer, being statistically significant (p<0.005). In post-menopausal women, the tear production decreases due to androgen level and high estrogen level, as androgen promotes secretion of meibomian gland. In diabetes with the advancing age there is a damage to the lacrimal gland, microvascularity with autonomic neuropathy responsible for impaired gland function.

In our study, patients older than 50 years with diabetes suffer more dry eye problems as compared to non-diabetics. Gender distribution shows 44 patients (44%) in group A and 58 patients (58%) in group B were male while 56 patients (56%) in group A and 42 patients (42%) in group B were females as seen in the study of Stephen Foster.24

Kaiserman I et.al.19, suggested that about 7.8% of American women and 4.7% of men both aged 50 years and above suffered DES. In another study by him, the prevalence of dry eye was 18.1% in diabetics compared to 14.1% in non-diabetics in which the diagnosis and dry eye symptoms were self-reported. A similar prevalence (diabetics 20.6%, non-diabetics 13.8%) was also reported in his study based on frequency of use of ocular lubricants This study also noted an association between poor glycemic control (as indicated by serum HbA1C).19

Lemp M.A. et al, found diversity of DES, ranging from 7.8 % to 93.2% in the West and Asia, respectively is believed to be due to the regional location of the study in randomly selected population for the diagnosis of dry eye1,20,21 In our study, dry eye prevalence increased with age, which is similar with findings in other studies.

Nevertheless, Meadows M. a,22, reported some contradictory results. Those different results may be attributed to different regional variations, genetic traits and environmental conditions. Liu N.N. et al23 from China reported that both males and females are equally affected by DED.

Further, in our study in urban and non-urban patients we have found that 70% of the Pakistani population living in non-urban area are mostly illiterate with meager or no medical facilities hence diabetics are becoming more dependent on ocular lubricants, mostly advised by the quacks. A significantly higher percentage of diabetic patients (20.6% as seen in our studies) received ocular lubrication compared with non-diabetic patients (13.8%, p<0.001). We did not find any reference in literature as such studies were never carried out in urban and on urban population especially in Pakistan. In our study, we found about 17% of the Diabetic patients with DED had decreased Schirmer test, equally observed by Van Bijnsterveld OP et al25. According to Versura P,et al26 Tear film instability was the main cause in these cases.

According to Management Study Research Group 2018, reported in North England Journal of Medicine, published on line Aril’2018,27 nutritional deficiency of omega-3, vitamin C, low humidity, high wind velocity may act as risk factors. Other risk factors are Trachoma: Cicatricial pemphigoid, Chemical, thermal Burns and contact lens wearers, use of antihistamines, beta blockers, antispasmodics, diuretics, and other psycho-tropic drugs post LASIK (refractive surgery) as observed by Sambursky R 28, Goebbels M., found a reduction in reflex tearing (Schirmer test) in insulin-dependent diabetics, but no difference in tear film breakup time (TBUT) was noted. This study also noted an association between poor glycemic control (as indicated by serum HbA1C). 29

Symptoms increase in dusty atmosphere in male diabetics who are engaged in out-door activities as in farmers, smokers, working in rooms with fan heaters and long distance drivers. However, symp-
toms are less in cold and rainy weather as observed by Mathers WD et al in 400 patients both in diabetics and non-diabetics. Our study have strongly supported these findings in 88% of our diabetic cases. Non-diabetics tolerate better these conditions.

In a study by Health Maintenance Organization (HMO), members older than 50 years found 20.6% of diabetic and 13.8% of non-diabetic using ocular lubrication. They concluded close monitoring of blood sugar for the prevention of dry eye syndrome. But in our study the results were consistent with HMO.27 Kaiserman I et al concluded close monitoring of blood sugar is required in Diabetics with Diabetic Retinopathy (DR), but we did not find any such study in the literature to correlate our findings. However, in our studies we noticed 40 patients (40%) had proliferative DR whereas 10 patients had Non-proliferative Diabetic Retinopathy (NPDR) out of 100 diabetic patients.

Current Opinion highlighted by Sambursky R., that topical cyclosporine 0.05% ophthalmic solution (marketed by Sante as Ristasis eye drops 0.1%) used twice daily for a longer period have successfully been tried as an immunosuppressant. The drug had significantly decreased the corneal surface inflammation 29. We also observed increased tear production in 15% of diabetics as compared to 5% with non-diabetics.30 Systemic and topical Omega-3 fatty acids and Omega-6 fatty acids have been used recently by Allison L. Rand, MD et al as an adjunctive treatment for patients with dry eye disease. They appear to have an efficacy against the symptoms of dry eye. The use of essential fatty acids as a nutritional supplement is a novel treatment for patients with DES.

**CONCLUSION**

Our findings have supported the impression that the diabetic patients have an elevated prevalence of DES. It is suggested that the examination for dry eyes should be an integral part of the assessment of diabetic eye disease. Further studies need to be undertaken in Pakistan comprising different ethnic groups with different life styles under different weather conditions.

**PROFORMA**

**Demographics:**
- Male/Female
- Age: 50-60, 61-70, 71-80

**Group:**
- Diabetic/Non-diabetic
- Blood sugar: Fasting _______ random _______
- Level of HbA1C

**History of use of ocular lubricants**
- Yes No

**Presence of ophthalmic signs**
- Inferior punctate erosions
- Altered state of tear meniscus
- Mucus debris

**Annex-1**

**The McMonnies questionnaire:** Please answer the following.

**Annex-2**

**Schirmer Test** was performed on each patient after instilling one or two eye drops of Alcaine 0.5%, as local anesthetic. A special Schirmer strip was inserted in the lower fornix both the eyes while the eye are closed. After five minutes the mount of moisture present on the strip was measured. Normally it should be more than 10 mm if it is less than 10 mm, the patient may suffer from DED and if it is less than 5 mm the DED is positively confirmed.

**Annex-3**

**Tear breakup time (TBUT)** is used to assess the evaporative dry eye disease. Fluorescein 1% is instilled into each eye and the patient is seated at the slit lamp and he is asked not to blink while the tear film is observed under the beam of cobalt blue illumination. The TBUT is recorded as the number of seconds that elapses between the last blink and the appearance of the first dry spot in the corneal tear film. If the is dry spot (punctate epithelial erosions–PEE and or stained with Fluorescein) appears under 10 seconds, it is considered a sign of ocular surface dryness.
A Comparative Study of Dry Eye Syndrome in Diabetic & Non-diabetic Patients

Annex-4

C-Ocular Surface Disease Index (OSDI). We ask our patients few questions, whether eyes are sensitive to light, feels gritty, blurred, difficulty in reading, driving at night, working in windy conditions, low humidity and painful eyes. Than we turn over to the questionnaire to calculate the patient’s final OSDI score. If the score is 33 or above, it is a sign of ocular surface dryness.

REFERENCES.
(Endnotes)
27. Allison L. Rand, W (212) 241-7977, c.liamg@dmdnarnosill Mount Sinai School of Medicine New York, NY 10029
Incidence of Environmental & Metabolic Factors Causing Congenital Cataract in Children of Lahore

Sana Rafaqat MBBS¹, Abubakar Rizwan MBBS², Usman Siddique MBBS³

ABSTRACT

Objective: To check the incidence of environmental and metabolic factors causing congenital cataract in infants.

Methods: The descriptive study was conducted at General Hospital Lahore, Pakistan which comprised children under 5 years of age with a history of mothers who had suffered rubella, Diabetes, herpes simplex, birth trauma etc. Data was collected through convenient sampling and analyzed through SPSS 20.00.

Results: Out of the 300 cases examined, 20 patients were diagnosed with congenital cataract. In these cases 5 were affected from birth injury, 2 from rubella, 3 from herpes simplex virus, 1 due to maternal torch infection, 5 due to metabolic disorders like diabetes.

Conclusion: Congenital cataract predominated in boys compared to girls. Some major factors like birth injury, metabolic disorders and diabetes had greater impact in this regard. Early diagnosis, maternal care regular check up of mothers during pregnancy and adequate therapy requires specific treatment for long-term and permanent care.

Keywords: Congenital cataract, Analytical study, Syndromes, Lens of eye, Slit lamp examination.

INTRODUCTION:

Congenital cataract is a leading cause of childhood blindness. Untreated cataracts in children lead to tremendous social, economical, and emotional burden to the family, and society. Blindness related to pediatric cataract can be treated with early identification and appropriate management. Most cases are diagnosed on routine screening whereas some may be diagnosed after the parents have noticed leukocoria or strabismus. Etiology of pediatric cataract is varied and diagnosis of specific etiology aids in prognosis and effective management. Pediatric cataract surgery has evolved over the years, and with improving knowledge of myopic shift and axial length growth, outcomes of these patients have become more predictable. Favorable outcomes depend not only on effective surgery, but also on meticulous postoperative care and visual rehabilitation. Hence, it is the combined effort of parents, surgeons, anesthesiologists, pediatricians, and optometrists that can make all the difference.

Pediatric cataract is a leading cause and a treatable condition. It accounts for 7.4% - 15.3% of pediatric blindness and a significant avertable disability of life. The incidence ranges from 1.8 to 3.6/10,000 per year and the median prevalence is about 1.03/10,000 children (0.32 - 22.9/10,000). The prevalence of childhood cataract is higher in low-income economies (0.63 - 13.6/10,000) compared to that of high-income economies (0.42 - 2.05/10,000). There is no difference in the prevalence based on gender or laterality. It has been found that during pregnancy, 67% of the mothers had a history of illness like Diabetes and 22% had taken medications during pregnancy. Congenital cataract is associated with ocular abnormalities in 27% of cases and with systemic abnormalities in 22% of cases. The diagnosis of cataract is incidentally made on routine screening in 41% of cases whereas congenital cataract predominated in boys as compared to girls. Some major factors like birth injury, metabolic disorders and diabetes had greater impact. Early diagnosis, maternal care regular check up of mothers during pregnancy and adequate therapy requires specific treatment for long-term and permanent care.

MATERIAL AND METHOD:

The cross sectional study was conducted at General Hospital Lahore from July-December 2017. Children aging 5-15 were included in this study who had rubella syndrome, herpes simplex, Birth trauma, trisomy 21, Nance-Horan syndrome. Snellen chart, light perception, ophthalmology and slit lamp examination were used to diagnosed CC factors like rubella, toxoplasmosis, herpex simplex etc. SPSS version 20.00 was used for analysis in which chi square test was used to assess the association of genetic and environmental factors with congenital cataract. Variables were age, gender infection and genetic syndromes. Convenient
Incidence of Environmental & Metabolic Factors Causing Congenital Cataract in Children of Lahore

Sampling was used for data collection the patients (congenital cataract) who came in study period were included in this study. Children of age more that 15 having cataract were excluded from study.

Congenital cataract is hereditary in 8.3%–25% of cases, with 75% being autosomal dominant in inheritance.[13] Autosomal-dominant cataracts have varying amounts of penetrance. Autosomal-dominant cataract includes hyper-ferritinemia cataract syndrome, Coppock-like, Volkmann-type congenial, zonular with sutural, posterior polar, anterior polar, cerulean, zonular pulverulent, crystalline aculeiform, and myotonic dystrophy like cataracts. Autosomal-recessive cataract includes Warburg micro syndrome, Hallermann–Streiff syndrome, Martsolf syndrome, Smith–Lemli–Opitz syndrome, Rothmund–Thomson syndrome, Marinesco–Sjogren syndrome, Wilsons disease, Facial dysmorphism and neuropathy. X-linked recessive cataract includes Nance–Horan syndrome (NHS) and Norrie’s disease.[14],[15]

Crystallin and Connexin gene mutations are the most commonly described non-syndromic inherited cataracts. Alpha-crystallin gene mutations results in nuclear, lamellar, zonular, and posterior polar cataracts.[16] β-crystallin gene mutation presents with variable phenotypic presentations. Anterior polar cataracts are seen with PAX6 mutations whereas PITX3 mutations mainly cause posterior polar cataracts.[17] Other genes responsible for major syndromic cataracts include OCRL (Lowe syndrome),[18] GALK1 (galactosemia),[19] GLA (Fabry’s disease),[20] and NHS (Nance–Horan cataract–dental syndrome).[21] Congenital cataracts with more than 40 genes and loci have been isolated.[22]

RESULT:

The result shows that total 300 participants were included in this study. In which 20 patients were diagnosed with congenital cataract. Of them 15 were boys and 5 were girls. In these cases 5 were effected from birth injury, 2 from rubella, 3 from herpes simplex virus, 1 due to maternal torch infection, 5 due to metabolic disorders, 4 due to diabetes.

Table: 1 Association of environmental factors (herpes simplex) with congenital cataract

<table>
<thead>
<tr>
<th>Age group</th>
<th>Environmental factors (herpes simplex) frequency</th>
<th>Bilateral Cataract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3-4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5-6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7-8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-11</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Interpretation: In these 3 cases 2 were 3-4 year old and no body had bilateral cataract.

Table: 2 Metabolic factor association with cataract

<table>
<thead>
<tr>
<th>Age group</th>
<th>Environmental factors (Diabetes) frequency</th>
<th>Bilateral Cataract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3-4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5-6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7-8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-11</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Interpretation: The result shows that in 20 cases 4 had cataract due to diabetes and two patients of age group of 1-2 year and 5-6 year respectively had bilateral cataract.

Table: 3 Association of environmental factors (birth trauma) with cataract

<table>
<thead>
<tr>
<th>Age group</th>
<th>Environmental factors (birth trauma) frequency</th>
<th>Bilateral Cataract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>3-4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5-6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7-8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10-11</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Interpretation: The result shows that in between 20 cases 3 patients of age group of 1-2 year had birth trauma history. No body had bilateral cataract.

DISCUSSION:

Out of the 300 cases examined, 20 patients were diagnosed with congenital cataract. In these cases 5 were affected from birth injury, 2 from rubella, 3 from herpes simplex virus, 1 due to maternal torch infection, 5 due to metabolic disorders, 4 due to diabetes.

Similarly another study was conducted by Shagufta. N in Karachi in which Of the 38,000 cases examined, 120(0.3%) patients were diagnosed with congenital cataract. Of them, 52(43.33%) were aged between 2 and 5 years, 22(18.33%) <11 years and 10(8.33%) >15 years. Bilateral congenital cataract was observed in 91(75.83%) patients and unilateral congenital cataract in 29(24.17%). Environmental factors caused 72(62.07%) cases and genetic factors caused 44(37.93%).[17]

A study was conducted by Brigitte. H in Denmark in which In a cohort of 2.9 million children, 1027 cases of congenital/infantile cataract were identified. Of the children in those cases, 629 were born in Denmark and had ICI. Bilateral isolated cataract cases were male dominated (62%; 95% confidence interval [CI], 56%–69%) but not unilateral isolated cases (40%; 95% CI, 34%–47%). Older age (≥40 years) of mothers at delivery and caesarean section increased the risk of ICI.
cataract. Low birth weight (<2000 g) was associated with a 10.6-fold (95% CI, 6.99–16.10) increased risk of bilateral, but not unilateral, ICI cataract. No significant associations were found with birth order, month/place of birth, or cigarette smoking during pregnancy.[18]

A study was conducted by Jugnoo.S in 2012 in US in which Of 243 children with newly diagnosed congenital or infantile cataract, 160 (66%) had bilateral disease. Isolated cataract was more common in bilateral than unilateral cases (61% versus 47%, P = 0.05) as was cataract associated with a systemic disorder (25% versus 6%, P < 0.001). Conversely, cataract with associated ocular anomalies was more common in unilateral than bilateral cases (47% versus 14%, P < 0.001). No underlying or associated risk factors for cataract could be identified in 92% of unilateral and 38% of bilateral cases, although putative prenatal and perinatal risk factors were reported in a proportion of these idiopathic cases. Hereditary disease was associated with 56% of bilateral but only 6% of unilateral cases. Prenatal infections and other systemic factors were reported in only 6% of bilateral and 2% of unilateral cases.[19]

CONCLUSION:
Congenital cataract predominated in boys compared to girls. Some major factors like birth injury, metabolic disorders and diabetes had greater impact in this regard. Early diagnosis, maternal care regular check up of mothers during pregnancy and adequate therapy requires specific treatment and long-term and permanent care.

REFERENCES:
Factors Responsible for Delayed Presentation of Strabismus in Patients aging up to 16 Years

Hikmatullah BVS., M. Phil

ABSTRACT

Objective: To determine the factors responsible for delayed presentation of strabismus in patient's age group up to 16 years. It was a hospital based cross sectional study

Materials and Methods: A comprehensive pre designed questionnaire was used to collect data from parents of affected children. Questionnaire enlisted different factors/reasons which can be assumed to be responsible for the delayed presentation of squint in children. Patients from both the genders were included in our study i.e <16 years age. The delayed presentation defined for our study is i-e a child presenting with ocular deviation of more than 3 months. All patients with delayed presentation of squint whose age is equal or less than 16 years presenting to pediatric ophthalmology OPD were included in our study after the verbal consent from the parents/guardians.

Results: Total patients were 12 out of which 8 (66.6%) were male and 4(33.3%) were female. Between age 1-5 there were 25% patients. 16.6% were with the age of 6-10 years. 58.33% patients were with the age of 10-16 years. In primary causes unawareness contributed 50%. Poverty contributed 25%. Unavailability of healthcare services in hometown contributed 8.3% and fear of surgery contributed 16.6%.

In secondary causes unavailability of healthcare services contributed 41.8%. Poverty contributed 16.6%. fear of surgery contributed 16.6% and ignorance contributed 25%.

Conclusion: Strabismus not only affects the outlook of a person cosmetically but also produces negative effect on patient visual acuity. Untreated squint is the leading cause of Amblyopia in childhood. It is concluded that primary cause of delayed presentation is unawareness and the secondary cause is lack of health care facilities.

INTRODUCTION:

Strabismus is a disorder in which the eyes do not line up in the same direction when focusing. The condition is more commonly known as Crossed Eyes. Childhood squint is a common ophthalmic disorder, if untreated; the squint can cause amblyopia and permanent loss of useful vision. Studies have reported the prevalence of amblyopia to be as high as 50% in children with esotropia and 20% in children with exotropia. In most cases the treatment of squint involves the correction of refractive error and occlusion therapy to improve vision and squint surgery if required. Despite the importance of early detection and intervention, child with squint in developing countries present late. Strabismus is common ophthalmic disorder affecting 3-4% of children

Gohnley G.B had listed accommodative esotropia (27.9 %) and intermittent exotropia (16.9%) as the common form of squint in children. Squint can have physiological and visual morbidity related due to cosmetic effect and ultimate amblyopia respectively. William Cetal concluded in the study that amblyopia and squint remain common causes of vision problems in children. Amblyopia reported prevalence is 1.6-3.6, lower socioeconomic status is reported to be a risk factor having amblyopia and convergent squint. Simons K also reported higher incidence of amblyopia in the underserved (medically) population of the community, at the time he related early detection of the amblyopia to the ultimate visual outcome in amblyopia. The primary cause of delayed presentation squint is unawareness and lack of health care Ophthalmic facilities.

However negative effect related to squint can only be prevented if squint management is initiated early by timely intervention for treating amblyopia and cosmetic correction. Early management can only be possible if the patient presentation is not delayed. WUC and Hunter DG also concluded that early detection and outcome. At the same time early detection can prevent squint related amblyopia and so ultimately decrease the work load faced by eye care professionals. Factors which can cause delayed presentation of squint may be related socio-economic and cultural values. Our society is underprivileged, poorly served (medi-
cally), with higher illiteracy and expected to have poor health awareness or lack of health education compared to developed countries. Cultural and social values also vary versus developed nations. Social disadvantage is important cause of ill health in the world.

METHODOLOGY:

It was a hospital based cross sectional survey. A comprehensive pre-designed questionnaire was used to collect data from parents of affected children. Questionnaire enlisted different factors/reasons which can be assumed to be responsible for the delayed presentation in children. Patients from both the gender were included in our study i.e <16 years age. The delayed presentation defined for our study is i.e a child presenting with ocular deviation of more than 3 months. All patients with delayed presentation of squint whose age is equal or less than 16 years presenting to pediatric ophthalmology OPD were included in our study after the verbal consent from the parents/guardians.

Inclusion criteria: All the children with delayed presentation of squint of age group equal or less than 16 years were included in the study.

Exclusion criteria: All mental and retarded patients were excluded from this study.

Data was collected from 2nd September 2013 to 21st October 2015 and analyzed by EPI info.

RESULTS:

Table 1: Gender wise distribution:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>8</td>
<td>66.6%</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

Table 2: Use of Glasses:

<table>
<thead>
<tr>
<th>Use of Glasses</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrived with glasses</td>
<td>1</td>
<td>8.3%</td>
</tr>
<tr>
<td>Has no glasses</td>
<td>10</td>
<td>83.3%</td>
</tr>
<tr>
<td>Have glasses but do not wear them</td>
<td>1</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

Table 3: Age of onset:

<table>
<thead>
<tr>
<th>Age of onset</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>Upto 2 years</td>
<td>5</td>
<td>42%</td>
</tr>
<tr>
<td>Above 2 years</td>
<td>4</td>
<td>33%</td>
</tr>
</tbody>
</table>

Table 4: Who diagnosed first:

<table>
<thead>
<tr>
<th>Who diagnosed first</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>General physician</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>Ophthalmologist</td>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td>Optometrist/Orthoptist</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>Paramedics</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 5: Gap between onset and treatment/therapy:

<table>
<thead>
<tr>
<th>Gap between onset and treatment/therapy</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5 years</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>5 to 10 years</td>
<td>2</td>
<td>16.6%</td>
</tr>
</tbody>
</table>

Table 6: Type of squint:

<table>
<thead>
<tr>
<th>Type of squint</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esotropia</td>
<td>8</td>
<td>66.6%</td>
</tr>
<tr>
<td>Exotropia</td>
<td>4</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

Causes of delayed presentation:

1. Parents were unaware and they thought it will correct by itself as the child grows older.
2. Mother pointed to father and other male members of the family but nobody bothered to take the child to ophthalmologist.
3. Parents were not able to afford the fee of consultation.
4. Parents were not able to afford the travelling charges etc. to reach an ophthalmologist.
5. Ophthalmologist/optometrist not available in the home town.
6. Parents went to local quacks/peers that misguided them and advised unscientific treatment options.
7. Parents were apprehensive that surgery will be needed to correct the squint and their child is very young to go under surgery so they avoided.
8. Parents had fear of surgery that child eye may be damaged or lost during surgery.
9. Parents did not bother due to ignorance, carelessness or had multiple children etc. Got checked by general physician lacking proper diagnosis and treatment.

Table 7: Primary causes:

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Cause</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>16.6%</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>8.3%</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>8.3%</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>8.3%</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

Table 8: Secondary causes:

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Cause</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>16.6%</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>41.6%</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>16.6%</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>25%</td>
</tr>
</tbody>
</table>

DISCUSSION:

Squint is a disorder where the eyes do not line up in the same direction while focusing. The condition is more commonly known as CROSSED EYES. In our study on “factors resulting delayed presentation of strabismus in children in Orthoptics clinic Eye OPD HMC Peshawar” I found 12 patients with delayed pre-
sentation of squint. Out of these 12 patients 8 (66.6%) presented Esotropia and 4 (33.3%) patients presented Exotropia. So the ratio of Exotropia and Esotropia was 1:2.

Study at Agha Khan University Karachi Pakistan observed 107 children with squint presented between 2000 and 2007; of these 52 (48.6%) were boys and 55 (51.4%) were girls. Convergent squint was the most common type of squint, and it presented in 63.6% (68/107) cases. 15 children had pseudo squint, while the remaining 92 (76.1%) had alternating squint, with 23.9% had unilateral or constant squint. 84 (91.3%) children had tropia while 8 (9.7%) had phoria. Overall alternating esotropia was the most common type of squint followed by alternating esotropia4. Secondary causes of delayed presentation were such that 5 (41.8%) patients were presented late because of unavailability of health services in the hometown. 2 (16.6%) patients were presented late because of poverty. 2 (16.6%) patients were delayed because of fear of surgery and 3 (25%) were presented late because their parents had multiple children and the parents were careless and ignorant.

This shows that unawareness and lack of health care facilities are the main factors resulting the delayed presentation of strabismic children. Males are more affected than females and Esotropia is more common than Exotropia and the age in which the patients are more affected is 10-16 years.

CONCLUSION:

Strabismus not only affects the aesthetic outlook of a person cosmetically but also produces negative effect on visual acuity. Untreated squint is the leading cause of Amblyopia in childhood. The primary cause of delayed presentation is unawareness and the secondary cause is lack of health care facilities.

REFERENCES:
Effect of Anterior Sub-Capsular Polishing during a Standard Phacoemulsification on Anterior Capsular Opacification

(A randomized control study)

Inam ul Haq FCPS, MHPE¹, Misbah Durrani MCPS, FCPS², Jahanzeb Durrani DO., MS³

ABSTRACT

Objective: This study was carried out to assess the effect of anterior sub-capsular polishing on Anterior Capsular Opacification (ACO), which can cause anterior capsular phimosis, decentration of IOL and visual deterioration.

Method: This prospective randomized control study compared in 100 eyes of 50 consecutive patients with bilateral age related cataract who underwent phacoemulsification. One eye had anterior capsular polishing (group 1) and second eye (controlled group) comprised without anterior capsular polishing (group 2, control group) ACO was evaluated at 01 week, 01 months and 06 months.

Results: After 01 week there was no difference in the development of ACO in the two groups. At 04 weeks follow up 2 patients in group 1 had ACO as compared to 20 in control group (P<0.001) and at 06 months follow up group 1 had 5 cases of PCO as compared to 24 cases in control group (P<0.001)

Conclusion: Anterior capsular Opacification is significantly lower in patients in whom anterior sub-capsular polishing was done.

Key words: Age related cataract, Anterior capsular polishing, Anterior capsular Opacification, Phacoemulsification.

INTRODUCTION:

Phacoemulsification is the standard cataract extraction technique¹ performed all over the world. Advances in IOL designs coupled with surgical techniques has significantly reduced posterior capsular opacification. Despite the reduction in PCO, anterior capsular opacification is still seen after phacoemulsification²³⁴ especially in comparative younger age group. Fibrosis of anterior capsule cause contraction of capsulorhexis opening and capsular retraction. This leads to reduction in free optic zone and de-centration of IOL³ and IOL induced astigmatism. Chances of PCO are also increased. Therefore removal of anterior lens capsular epithelial cells during phacoemulsification is becoming increasingly important to reduce the chances of ACO and Yag capsulotomies.

Anterior capsular opacification is significantly lower in patients after anterior sub-capsular polishing of A.C., opacification can lead to de-centration of IOL. It is considered to be more important in multifocal/trifocal IOL’s implantation as de-centration affects the surgical outcome.

MATERIAL AND METHODS:

This randomized control study was carried out at the eye department of CMH Okara. 100 eyes of 50 patients with bilateral age related cataract who went uncomplicated phacoemulsification in both eyes, were selected for this study. Informed consent was obtained from all patients.

Inclusion Criteria: Patients older than 45 years with bilateral age related uncomplicated cataract and pupil dilating more than 7 mm, underwent uncomplicated/standard phacoemulsification with aspheric hydrophilic acrylic IOL, in the bag implantation were included for this study.

Exclusion Criteria: Patients with pseudo-exfoliation, shallow anterior chambers, secondary cataracts, glaucoma, diabetes mellitus, posterior polar cataracts, high myopias (axial length 27mm or more), previous ocular surgeries, sub-luxated lens, non dilating pupils and corneal opacities resulting in visual disturbance during
surgery. Patients not willing for cataract surgery in both eyes were excluded from the study. During surgery those patients in whom IOL edge was not covered by capsulorhexis edge in both the eyes and either eye in which there was intra-operative complication like P.C. tear were also excluded from the study.

After uncomplicated standard Phacoemulsification and implantation of IOL, all enrolled patients were randomly assigned to group 1, anterior capsular polishing beneath the capsulorhexis edge in one eye and within one month phacoemulsification on the other eye with no capsular polishing were in control group 2. Anterior capsular polishing of the capsular-rhexis edge was done beneath the capsule in nasal, temporal and lower quadrants and superiorly as much as possible. A single experienced surgeon performed all the surgeries. Emulsification was performed with OERTLI, Catarhex Easy phacoemulsifier using standard surgical technique6,7,8, this was followed by irrigation and aspiration to ensure complete removal of cortex. Aspheric hydrophilic acrylic IOL was implanted in the bag. In the polish mode parameters vacuum 150 mmHg, flow rate 12ml/min the undersurface of anterior capsule was polished in nasal, inferior, temporal and as far as possible in superior quadrants. The probe of the irrigation/aspiration hand piece was mechanically touched to the capsular edge and dislodged cortical fibers were removed. Post operatively standard postoperative regime comprising of Moxifloxacin with Dexamethasone combination eye drops were given to all patients. ACO was evaluated on slit lamp examination with oblique illumination at x12 magnification at 01 week, 04 weeks and 06 months using Werner et al9 criteria. ACO was graded on a scale 0-4 in the area where rhexis edge was in contact with IOL optic. Grade 0, no opacification; grade 1, only minor opacification of capsular edge; grade 2, diffuse opacification with folds; grade 3, intense opacification with folds; grade 4, constriction of opacified rhexis edge.

RESULTS:
The mean age of the patients was 58±3 years. Edge of the IOL optic remained covered by the rhexis edge at 06 months in all the patients. At one week there was no significant difference in ACO between the two groups. At one month follow up irrespective of the grade of ACO 02 (4%) patients in group 1 had ACO and 20 patients (40%) in group 2 i.e. control group had ACO (P value <0.001), significant P value. After 06 months, irrespective of the grade of ACO 05 (10 %) patients in group 1 had ACO and 24 patients (48 %) in group 2 i.e. control group had ACO (P value <0.001), significant P value, Table 1.

As far as grading of ACO is concerned, overall 90% of patients in group 1 had no opacification as compared to 52% in group 2, i.e. control group. Grade 1 opacification was seen in 4% of patients in group 1 as compared to 20% in group 2(control group).

Figure 1

Group 2 patient after 04 weeks of surgery.
Grade 2 opacification was noted in 4% of patients in group 1 as compared to 20% in group 2. Grade 3 opacification was noted in 2% of patients in group 1 as compared to 6% in group 2 and in no patient in group 1, grade 4 opacification was noted as compared to 2% patients in group 2. Extent of opacification in majority of patients (40%) in group 2 was in grade 1 and 2, Table 2. The difference in extent of opacification between the two groups is significant, P value < 0.001, highlighting the polishing of anterior sub-capsular area during a standard phacoemulsification procedure.

<table>
<thead>
<tr>
<th>Grades of ACO</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>45 (90%)</td>
<td>26 (52%)</td>
</tr>
<tr>
<td>1</td>
<td>02 (4%)</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>2</td>
<td>02 (4%)</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>3</td>
<td>01 (2%)</td>
<td>03 (6%)</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>01 (2%)</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>
DISCUSSION:

Anterior capsular opacification is the opacification of residual anterior capsule after center curvilinear capsulorrhesis. It starts in the first postoperative month and continues for 6 months. IOL material and designs are important factors in causing ACO. It is more pronounced with silicone IOL with sharp edges or plate haptic silicone design. It is lowest with acrylic IOL. The incidence of ACO is high with retinitis pigmentosa and diabetic patients. Capsular opacification occurs due to migration, proliferation and differentiation of remaining epithelial cells (LECs). Remaining LECs tend to go under normal differentiation and consequently form heterogeneous group of cells in the anterior and posterior capsular opacification. These myofibroblast type of cells cause fibrosis and contraction of the capsule. If there are remaining LECs, their contact with IOL optic cause their fibrosis leading to fibrotic type of capsular opacification.

Figure 2

Fibrosis of anterior capsule cause contraction of the capsularhexis opening leading to buttonholing of the IOL optic therefore free optic zone is reduced. In extreme cases there would be de-centration of IOL and induced astigmatism. It can also extend on to posterior capsule leading to PCO. It is more important when we use multifocal IOL, as their centration is more important and capsular traction can decenter IOL. In the modern spotless phacoemulsification intra-operative removal of LECs has gained more importance than before. Several methods has been used, e.g. use of scratchers, use of vacuum to suck out the LECs, cryo coagulation, ultrasound techniques, chemical application, and polishing with the help of I/A hand piece, which combines mechanical as well as vacuum cleaning of under surface of anterior capsule.

There are several factors which influence the development of AC &PCO. However age and gender has no influence on the development of opacification. It is seen mostly in diabetic patients, although the severity of diabetes has no influence on it. Incidence of opacification is high in uveitis patients, in these patients use of hydrophobic acrylic IOL has better visual outcome than silicone, PMMA or heparin coated IOLs. Incidence of ACO & PCO is highest in patients with myotonic dystrophy and retinitis pigmentosa. In traumatic cataract the incidence of ACO& PCO is as high as 92% at three years follow up, as quoted in some studies.

Polishing of anterior sub-capule is effective in reducing the incidence of fibrotic capsular opacification but is shown to have minimal effect in reducing regeneratory capsular opacification. However it is assumed if regeneratory epithelium is removed there are less minimal chances of their proliferation and henceforth opacification.

ACO occurs earlier than PCO. It can occur as early as 01 month after phacoemulsification. It has been seen that shrinkage of anterior capsule during first 04 weeks is followed by a slower progressive reduction of opacification in the next 06 months. ACO develops in spite of polishing due to proliferation and migration of residual LECs at the equatorial region, which are difficult to remove with our present techniques. However it is suggested that these cells have minimal role in opacification of anterior capsule. LECs that proliferate to cause opacification are those close to the capsularhexis.

Kruger et al suggest in their study that the polished LECs are not removed immediately by aspiration, remain dispersed in the OVD and are liable to adhere to capsule and later on proliferate and migrate. Menapace et al have found in their study that ACO rates are significantly lower in polished eyes as compared to unpolished eyes in subsequent follow up examinations.

CONCLUSION:

Anterior capsular Opacification is significantly lower in patients in whom anterior sub-capular polishing is done. Anterior capsular opacification can lead to de-centration of IOL. Therefore Anterior capsular polishing is considered to be even more important in multifocal or trifocal IOL implantation as decenteration of IOL affects the result of surgery.

REFERENCES:


Comparative Evaluation of IOP with an Air-Puff Tonometer vs Goldmann Applanation Tonometer

Nesr Farooq FCPS¹, Assad Zaman Khan FCPS², Mohammad Azeem Ansari FCPS³.

ABSTRACT:
Purpose: Intraocular pressure (IOP) measurement is an integral part of routine oculan examination and one of the important diagnostic criteria for glaucoma. Since the diagnosis of glaucoma involves lifestyle modifications and financial implications for the individual as well as the health system. So we felt a need to develop a standardized system before labeling the patient as glaucoma patient keeping in view the wide variety of gadgetry available to measure IOP.

Patients and Methods: The study involved 200 eyes from 100 patients. All of whom were attending an ophthalmic outpatient clinic. Topcon air puff tonometer CT-800 and Goldmann application tonometer (GAT) were used in our study and the difference between the readings were recorded.

Results: A comparison was made between IOP measured by GAT vs AP tonometer. The mean IOP measured by GAT was 13.26±4.114 while that measured by AP tonometer was 16.123±6.421 mean difference between the two methods was 2.864±2.436. We observed that the reading by AP tonometer were significantly higher as compared to those obtained by GAT in 76% of patients and this was most significant when IOP exceeded 21 mmHg there was no significant statistic difference of IOP with reference of patient age, sex, and laterality.

Conclusion: We reached the conclusion that IOP measured with GAT and AP tonometer is statistically significant. GAT still remains the most suitable method of measuring IOP, regardless of patient’s age, sex and laterality of eye. Since measurements by AP tonometer was higher than GAP. It is more suitable for IOP screening in large communities.

Key words: Tonometry, comparison, glaucoma, goldmann application tonometry, Air puff tonometer.

INTRODUCTION
Measurement of intraocular pressure (IOP), is one of the essential procedures in ophthalmic clinics, it is essential parameter in glaucoma diagnosis. IOP varies among individuals with diurnal variations.¹ IOP is maintained by the equilibrium between aqueous humor formation and outflow, and by episcleral venous pressure.² It is essential to maintain optimum IOP.³ The aqueous humor nourishes cornea and lens as well as trabecular meshwork.⁴ The shape of eyeball is maintained by the IOP.⁵ The aqueous humor provides a transparent medium between the cornea and lens and also contributes to the refractive apparatus of the eye.⁶ The non pigmented ciliary epithelium secretes aqueous humor at a rate of 2-3 uL per minute.⁷ In humans the anterior chamber has a volume of 250-300uL. Aqueous humor turnover is 2.5 uL per minute that is about 1% of anterior chamber volume.⁷ Epidemiologic studies indicate that mean IOP is approximately 16mmHg however these pooled data have a non-Gaussian distribution with a skew tendency towards higher pressure especially in the above 40 population the value of 22mmHg has been considered in the past as the line behavior normal and abnormal pressure to determine which patients require hypotensive agents. This division is based on the fact that glaucomatous damage caused by pressure higher than normal and normal pressure do not cause damage.⁸

IOP measured with Goldmann Application Tonometer (GAT) and Air-puff tonometer (AP) tonometer is statistically significant. GAT still remains the most suitable method of measuring IOP, regardless of patient’s age, sex and laterality of eye. Since measurements by AP tonometer was higher than GAP. It is more suitable for IOP screening in large communities.

Screening method based exclusively on IOP reading may miss a significant number of people in the screening group. It is a general consensus that no clear line exists between safe and unsafe IOP. Some eyes undergo damage at an IOP of 18mmHg or less, on the other hand other eyes tolerate IOP in the 30s. Amongst all the risk factors IOP is the only factor that can be altered at
Comparative Evaluation of IOP with an Air-Puff Tonometer vs Goldmann Applanation Tonometer

The IOP varies by 2-6 mmHg in the course of a day over 24 hours as aqueous humor production-changes. Greater fluctuations occur with a higher IOP and a diurnal fluctuation of 10 mm or more is highly suggestive of glaucoma. Most individuals reach their peak IOP in the morning hours while others do so in afternoon, evening or even while sleeping. In some individuals, there is no reproducible pattern. The IOP is one of the most important risk factors for development and progression of glaucoma. Pharmacologic and surgical intervention is the only evidence-based treatment modality which may slow progression of visual field of an already established glaucoma. Therefore, IOP measurement by tonometer is essential in ophthalmological assessment but despite IOP reduction glaucoma may continue to progress, therefore indicating other factors may play an important role in pathogenesis of glaucoma.

Applanation tonometer is based on inbertick principle, which states that perfect sphere has its internal pressure equally distributed and that external force needed to flatten a known area of sphere is directly proportional to the internal pressure of sphere. The most commonly used tonometer for glaucoma assessment is goldmann applanation tonometer (GAT). It consists of double prism mounted on standard slit lamp. With GAT, the force required to applanate a constant area of cornea is measured and related to IOP. The GAT uses an applanation diameter of 3.06 mm and is performed with patient seated at the slit lamp.

Air-puff tonometer is an applanation method using standardized puff of air to flatten the cornea. This method does not require any topical anaesthetic and also reduces the risk of corneal perforation. This system comprises of central air plenum flanked on both sides by light emitter and light detector. When the pressure of air pulse on the cornea increases it tries to deform the corneal surface, the corneal surface behaves like a plane surface reflecting light to the light detector. The corneal applanation is measured by collecting light reflected from the central cornea. The parallel beam of light is directed on the central cornea at an angle of 30° and reflected light is measured by photo detector at an angle of reflection of 30°. The reflected beam of light will be strongest at this angle when the cornea is flat and acting as a plane mirror rather than a curved mirror. This instrument records the amount of force of air to flatten cornea and displace IOP that corresponds to the force. The AP tonometer is used at a fix distance from the cornea. The instrument has an optical alignment system to facilitate this. An AP tonometer can be portable or non-portable and also minimizes the risk of trans infection by the tonometer tip. However, the force of air puff can aerosolize the tear film and may theoretically transfer virus by airborne route.

The primary objective of study was to identify the difference between IOP reading taken by AP and Applanation tonometer. Keeping in view the increasing trend of recording IOP by air puff method.

MATERIAL AND METHODS

This was a comparative study using a convenience sample. Study population comprise 200 eyes from 100 patients who reported to an ophthalmic eye patient clinic for various eye conditions. The patients (35 males, 65 females) had an age range of 17 to 80 years, and mean age was 41 ± 16.16 years. All the individuals were free from corneal diseases. Following were the exclusion criteria: uncooperative patients who were not willing for IOP measurement by either method, those with severe visual loss unable to maintain fixation, those with severe visual loss, history of intraocular surgery, known case of glaucoma, history of anti-glaucoma medication, patients with astigmatism of more than 3 diopters were excluded from the study. Informed consent was taken from each patient to participate in the study.

Technique: IOP was measured in all patients using both types of tonometers AP and GAP and difference was recorded. The AP tonometer used was Topcon CT-800 non-contact tonometer and Goldmann tonometer used was Haag-Streit. An average of 3 readings was taken to get the IOP value. IOP assessment with GAP was taken soon after AP tonometer reading to prevent bias due to reduced IOP caused by applanation. Prior to measurement by GAP local anaesthetic 0.5% eye drops were instilled to anaesthetized the eyes. A fluorescein strip was also applied to the inferior conjunctival fornix for a few seconds. The contact time with applanation probe was kept below 5 seconds to minimize lowering effect of ocular message by repeated applanation. All readings were taken between 9AM to 1PM and the same clinician took both the readings by both instruments.

The collected data was classified in to 3 groups according to the IOP measurements. Group I consisted of IOP less than 12 mmHg, Group II consisted of IOP 12-24 mmHg and Group III IOP greater than 24 mmHg. The difference in readings between the two devices was calculated for each patient in each group. Classification of data was based on patient’s age, sex and laterality. The data was analyzed using statistical software (SPSS v17). The paired t-test was used and P value of less than 0.05 was considered as statistically significant.

RESULTS

The data obtained from 200 eyes in this study achieved the following results. The mean IOP value for all patients when measured by GAT was 13.26 ± 4.114, with a range of 7-29 mmHg. While that measured by AP tonometer was 16.123 ± 6.421 with a range of 8-30 mmHg. The mean difference between the two methods was 16.123 ± 6.421 with a range of 8-30 mmHg. The mean difference was 13.26 ± 4.114 with a range of 7-29 mmHg. The mean difference between the two methods
was 2.864±2.436. The difference of IOP reading taken by two devices was statistically significant (P<0.001) (Table 1). In 76% of patients the IOP measured by AP tonometer was higher than that measured by GAT (Table 2).

Table 1 Mean intraocular pressure (IOP) values for study participants, as measured by Goldmann applanation tonometer (GAT) and air-puff tonometer

<table>
<thead>
<tr>
<th>Measure</th>
<th>IOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAT (mmHg)*</td>
<td>13.26±4.114</td>
</tr>
<tr>
<td>Air–puff tonometer (mmHg) *</td>
<td>16.12±6.421</td>
</tr>
<tr>
<td>p-value</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Note:* Data presented as mean plus or minus standard deviation.

Table 2 Intraocular pressure (IOP) values measured by air-puff tonometer as related to those measured by Goldmann applanation tonometer (GAT)

<table>
<thead>
<tr>
<th>IOP measurement by air-puff tonometer</th>
<th>Patients (%)</th>
<th>Right eyes</th>
<th>Left eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below GAT measurement</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Equal to GAT measurement</td>
<td>20%</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>Above GAT measurement</td>
<td>76%</td>
<td>77%</td>
<td>75%</td>
</tr>
</tbody>
</table>

This study reached a conclusion that IOP measurement by AP tonometer was higher than that measured by GAT. It showed that IOP values measured with AP tonometer were higher as compared with a GAT, more so when the GAT IOP measurement exceeded 21mmHg and this difference was statistically significant (P<0.0001).

Table: 3 Right eye in study: mean intraocular pressure (IOP) as measured by Goldmann applanation tonometer (GAT), mean IOP as measured by air-puff tonometer (APT), and the difference (DIFF) between the two readings according to three groups of IOP values (Group 1 [G1],<12 mmHg; Group 2 [G2], 12-21 mmHg; and Group 3 [G3], >21 mmHg).

<table>
<thead>
<tr>
<th></th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
<th>P- value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAT</td>
<td>16.22</td>
<td>11.87</td>
<td>19.47</td>
<td>0.03</td>
</tr>
<tr>
<td>APT</td>
<td>12.11</td>
<td>13.83</td>
<td>26.15</td>
<td>0.37</td>
</tr>
<tr>
<td>DIFF</td>
<td>4.11</td>
<td>1.96</td>
<td>6.68</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Table 4 Left eye in study: mean intraocular pressure (IOP) as measured by Goldmann applanation tonometer (GAT), mean IOP as measured by air-puff tonometer (APT), and the difference (DIFF) between the two readings according to three groups of IOP values (Group 1 [G1],<12 mmHg; Group 2 [G2], 12-21 mmHg; and Group 3 [G3], >21 mmHg).

<table>
<thead>
<tr>
<th></th>
<th>G1</th>
<th>G2</th>
<th>G3</th>
<th>P- value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAT</td>
<td>14.20</td>
<td>13.88</td>
<td>17.93</td>
<td>0.004</td>
</tr>
<tr>
<td>APT</td>
<td>10.51</td>
<td>14.10</td>
<td>23.76</td>
<td>0.19</td>
</tr>
<tr>
<td>DIFF</td>
<td>3.69</td>
<td>1.84</td>
<td>5.84</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

DISCUSSION:

GATs and AP tonometers are the most frequently used devices to measure IOP in routine practice. AP tonometers are comparatively easy and less cumbersome to use for the patients as well as the examiners as compared to GAT. It is felt that the tendency to take IOP by AP tonometer is on the rise. The study shows that there is significant difference in measurements of IOP between GAT and AP tonometer. The readings obtained by AP tonometer were higher than those obtained by GAT in 76% of patients in this study. There was an increase in difference between the two instruments when GAT measurement increased above 21mmHg.

Several studies have compared IOP measurements obtained with GAT and those by noncontact tonometers. Lagerlof23 showed that noncontact tonometer readings were found to be unreliable between 20 and 30mmHg. Martinez-de-la-Casa et al20 compared IOP measurement taken by noncontact tonometer with GATs and concluded that mean measurement with GAT was lower than mean noncontact tonometer measurement. Firat et al’s19 study reached conclusion that noncontact tonometer measurements were higher as compared to GAT measurement. Tonnuet et al21 showed that 0.7mmHg was the mean difference in IOP between the GAT and AP tonometer measurements. The mean difference between the two devices was 2.864±2.436mmHg as shown by the present study. Rao22 showed that when IOP was <20 mmHg the non-contact tonometer gave more accurate readings.

There was no statistical difference between IOP measured by GATs and AP tonometer in terms of patient sex or laterality of eye. Some studies have found out that IOP is equal irrespective of gender. However some studies have found greater IOP reading in females as compared to males with difference increasing after 40 years. 26

AP tonometers are easier to use and some models are automatic as well, that means without the need of operator. They are also noninvasive without the need of topical anesthetic or fluorescence with minimal risk of infection or risk of corneal abrasion. Repeated measurements do not reduce IOP unlike the message effect that happens with applanation tonometer. IOP measurement may be performed by an ophthalmic assistant under ophthalmologist supervision however if AP tonometer reading is abnormally high, reading should be checked and repeated by another device before giving final opinion.
CONCLUSION

The GAT remains more suitable and reliable device for IOP measurement it is the international gold standard for measuring IOP. IOP measurement by AP tonometer is usually higher than GAT readings. Irrespective of Age, Sex or laterality of the eye, therefore AP tonometer is suitable for mass screening of the eyes. Considering this difference in IOP measurement between AP and GAT. The rising trend of using AP tonometer in outpatient clinics is of concern. One should be aware that AP tonometer can produce significantly higher readings and all medical personals using this equipment should be aware of this.

REFERENCES

Prevalence of Counseling Effect to Promote Spectacle use in Shujabad (Multan)

Sehar Ijaz M.Phil (Optometry), Prof. Ijaz Latif FCPS, Mahlab Ijaz Mphil (Public Health), Amir Ali Choudary FCPS, Mehmood Hussain FCPS

ABSTRACT

Background: Refractive error is a state in which parallel rays of light are not being focused at retina while accommodation is at rest. Spectacles and contact lenses are used to correct refractive errors. Uncorrected refractive errors cause asthenopic symptoms, strabismus, amblyopia and even blindness.

Purpose: The purpose of this study is to check effects of counseling on spectacles use. We create awareness about importance of spectacles and complications of uncorrected refractive errors.

Method: This study was conducted from October 2017 to May 2018 at THQ (Tehsil Head Quarter) Hospital, Shujabad. Visual acuity was checked by using snellens\' chart and objective refraction using autorefractometer and retinoscope. Subjective refraction was performed with \% tropicamide eye drops to dilate the pupils to check detail of fundus examination. A total of 50 subjects whose visual acuity was below 6/6, with normal fundus, previously not using spectacles, were included in the study. Then 25 subjects were counseled with their spectacles. Second group consist of those 25 participants in which counseling was not performed. Follow up of these patients after 15 days to check the effect of counseling comparing the follow up results in counselor and non counselor groups.

Results: Out of 50 participants 31 (62\%) are males and 19 (38\%) are females, 18 (36\%) are above 40 years of age which have visual impairment did not use spectacles. 17 individual (34\%) are between 7 to 25 years of age, 15 individuals (30 \%) are between 25 to 40 years of age. Out of 25 counselor group 14 (56\%) participants came on follow up with their spectacles. Out of 25 non counselor group 3 (12\%) participants came on follow up with their spectacles.

Conclusion: The results of this study shows counseling had better affect on spectacles utilization. Counseling create knowledge and awareness in non spectacle users, and motivate them to use spectacles to relieve from asthenopic symptoms.

Keywords: Refractive error, Asthenoptic symptoms, Strabismus, Amblyopia, Snellen chart, Auto refractometer, Retinoscope.

INTRODUCTION:

A refractive error is a very common eye disorder. It occurs when the eye cannot clearly focus the images from the outside world. The result is blurred vision, which is sometimes so severe that it causes visual impairment (WHO.int, 2018). Millions of people deprived of facility to avail basic and necessary diagnosis of refractive errors. By counseling to promote the use of spectacles in their lives and routine work, we can save a lot of population being blind. Our sole responsibility is to give our maximum output to these people.

There is a strong effect of counseling on spectacles utilization which can be increased by creating awareness.

Common cause of preventable blindness is uncorrected refractive errors. Most of people don’t have a lot of information regarding the benefits of spectacles use. By correcting refractive errors and counseling to use spectacles vision can be rescued. In Pakistan, there is huge number of population which have uncorrected refractive errors in a large number of population belonging to different age gender and ethnicities (Jagernath and Naidoo, 2012), Hashemi et al., 2017. There is high prevalence of uncorrected refractive errors in rural areas, there is less health care facilities (Hashemi et al., 2017)

Globally 153 million of people above age of 5 years are visually impaired because of uncorrected re-
fractive errors, out of 153 million people, 8 million are blind due to uncorrected refractive error (Resnikoff et al., 2008). Uncorrected refractive error have impact on their quality of life, affected individuals impose heavy burden on their family and society due to loss of manpower. Uncorrected refractive errors can cause amblyopia, also affect their educational, occupational and physical performance. (Jaggernath and Naidoo, 2012, Hashemi et al., 2017).

**METHODOLOGY:**

This study was conducted from October 2017 to May 2018 at THQ (Tehsil Head Quarter) Hospital, Shujabad. Visual acuity was checked by using snellens’ chart and objective refraction using autorefractometer and retinoscope. Subjective refraction was performed with 1% tropicamide eye drops to dilate the pupils to check detail of fundus examination. A total of 50 subjects whose visual acuity was below 6/6, with normal fundus, previously not using spectacles, were included in the study. Then 25 subjects were counseled with their spectacles. Second group consist of those 25 participants in which counseling was not performed. Follow up of these patients after 15 days to check the effect of counseling comparing the follow up results in counselor and non-counselor groups.

Vision is important for daily activities and one of the major serious disabilities is visual impairment. Visual impairment at birth and during childhood can influence communication, learning, employment, physical condition and the quality of life. Their effects are frequently lifelong (Pi et al., 2012, Brown et al., 2003). There are several factors for uncorrected refractive errors like lack of awareness and acknowledgment of problem at individual, society level and public health level; non-availability or inability to afford refractive services for checking; improper availability of corrective lenses; and cultural taboo which are barrier for effective compliance (Resnikoff et al., 2008).

Broman et al., (2002) defined the association of visual impairment and eye disorder on vision linked quality of life. Subjective refraction was completed by autorefractometer. ETDRS use is to measure distance visual acuity. Individuals were questioned by means of using normal feedback form to measure standard of life. Uncorrected refractive error were demarcated to have difference of more than two lines among person’s visual acuity and best corrected visual acuity. 4774 members were involved in normal age for sample was 56.9 years. Individuals having uncorrected refractive error, cataract, diabetic retinopathy and glaucoma had reduced quality of life.

Chia et al., (2003) resolute the effect of unilateral visual impairment on health associated quality of life, a population centered survey were completed in the city in the age group of 49 years or older. Individuals reported for complete eye checkup as well as visual acuity measurement. Normal quality of life questionnaire were sent to them before checkup. Complete data of 3108 members was available. 7.3% individuals have unilateral visual impairment and had lesser score on quality of life questionnaire as compared to those who were unimpaired.

Shah et al., (2008) showed first reliable estimated spectacle coverage in Pakistan (visual acuity around 6/12) was 15.1%. which indicate refractive services are not covering the greater part of the population Hubley (2018)effective eye health promotion involves a combination of three components: health education directed at behavior change to increase adoption of prevention behaviors and uptake of services; improvements in health services such as the strengthening of patient education and increased accessibility and acceptability; and advocacy for improved political support for blindness prevention policies.

Moreover no studies have been conducted on prevalence of refractive errors, visual impairment and ocular services given in Shujabad, Punjab. There is an economic and health disparities in Shujabad and also known little knowledge on eye health disorders. Results from this study will help to fill the gap of awareness and guide the program designers to make sure equally access of eye care facility to people of Shujabad.

In order to increase utilization of spectacles, we can give awareness by counseling in Shujabad. Uncorrected refractive error is of major public health issue and quick measures are needed to address the problem. In this study we see prevalence of counseling effect to promote spectacles use. Patients coming in eye OPD of THQ Shujabad were included in the study. First we took brief patient history and VA was recorded using Snellen chart and retinoscope patient will be examined by Ophthalmologist. Counsel the patient to use of spectacles and follow up the patient to check the effect of counseling.

In previous studies it shows that the percentage of refractive error was 55.56. In this total percentage of emmetropia, myopia, high myopia and hypermetropia values were 53.1%, 27.4%, 2.6%, and 16.9%, respectively (Natung et al., 2017). Another studies showed that out of total, 89.06% was hyperopic, 6.61% was myopic and 4.33% was emmetropic (Popov I, 2018). Another studies showed that simple Myopia was present in 35.1% of this study sample, simple hyperopia in 31.8%, astigmatism in 32.3% and anisometropia in 13.5%. The prevalence of myopia decreased, while the prevalence of hyperopia, astigmatism and anisometropia increased with age (Wolfram et al., 2014).

In another study it was showed that the prevalence of uncorrected refractive errors was found to be 23.9% among males and 20% among females.
The prevalence of visually disabling refractive errors was 6.89% in males and 5.71% in females. The prevalence was seen to increase with age, with maximum prevalence in 51-60 years of age group. Simple hypermetropia (10.14%) was found to be the commonest refractive error followed by simple Myopia (6.00%) and Astigmatism (5.6%). The prevalence of presbyopia was 57.5% (60.45% in males and 55.23% in females) (Abdullah et al., 2018).

Shah et al.,(2008) described the limit of incidence of refractive error (RE) and spectacle wear and to find out the need for spectacle correction in adults (30 years or older) in Pakistan. Multi-stage, cluster random sampling national survey was used. Every subject had their medical history of occupation, visual acuity measured, and go through auto refraction, biometry and fundus examination. Those presenting visual acuity of less than 6/12 in either eye go through more detailed examination, containing corrected distance visual acuity measurement, those that improved from un aided VA with glasses correction along with the spectacle treatment, defined as the part of need that was met by the participant’s own spectacles.

Yabumoto et al., in (2009) revealed that Education about the need to use spectacles, continuous technical support assistance, and even psychological assistance could enhance spectacle-use compliance in children from low-income population.

RESULTS:

Table. Effect of uncorrected refractive error on daily activities distribution

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot</td>
<td>22</td>
<td>44.0</td>
<td>44.0</td>
</tr>
<tr>
<td>Little</td>
<td>21</td>
<td>42.0</td>
<td>86.0</td>
</tr>
<tr>
<td>bit not</td>
<td>7</td>
<td>14.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Above table revealed that 22 participants (44%) have effect of uncorrected refractive error on daily routine activities (driving, sewing, cooking etc). 21 participants (42%) have little effect of uncorrected refractive error on their daily activities, this may be due to the fact that they did not need sharp vision for their tasks. Un corrected vision of 7 participants (14%) had no effect on their daily task, may be these person require less vision for execution of their daily activities. Chi square test between effect of counseling on follow up cases is evaluated by Chi Square method value is .001, which has highly significant results conclude that there is strong association between counseling and spectacles utilization. Above table contains effect of counseling on follow up case which were previously not using spectacles for uncorrected refractive errors effect their educational, professional performance.

DISCUSSION:

Shah et al., (2008) described the limit, the incidence of refractive error (RE) and spectacle wear and to find out the need for spectacle correction in adults (30 years or older) in Pakistan. Multi-stage, cluster random sampling national survey was used. Every subject had their medical history, visual acuity measured, and go through auto refraction, biometry and fundus examination. Those that existing with visual acuity of less than 6/12 in either eye go through more detailed examination, containing corrected distance visual acuity measurement (auto refraction results located in a trial lens frame), those that improved from un aided VA with glasses, correction was determined along with the spectacle treatment, defined as the part of need that was met by the participant’s own spectacles.

The prevalence of spectacle wear in phakic participants was 4.0%, significantly lower than for those who were pseudo aphakic (41.7%). Just over a quarter (25.8%) of spectacle wearers presenting with visual impairment (< 6/12) were capable to promote their vision when retested with their auto refraction prescription. The overall spectacle treatment (6/12 cutoff) was 15.1%, poor affordability and unawareness is the most common barrier to utilization of spectacles. In Niagara Counseling Services (2018) stated that Counseling improves your self-knowledge, well being, health, and clarity of mind. Counseling also offers the opportunity to improve your life and comes with an overall feeling of positive change that manifests into a more fulfilling and productive life. Counseling will make you feel more inspired, motivated, and organized. Counseling will make you feel ready to tackle almost anything.

Another study by Hubley (2018) explained effective eye health promotion involves a combination...
of three components: health education directed at behavior change to increase adoption of prevention behaviors and uptake of services; improvements in health services such as the strengthening of patient education and increased accessibility and acceptability; and advocacy for improved socio-political support for blindness prevention policies.

Yabumoto et al., in (2009) revealed that education about the need to use spectacles, continuous technical support, and even psychological assistance could enhance spectacle-use compliance in children from low-income population. Above discussion revealed that Pakistan has low spectacle coverage round about 15% (VA=6/12) in periphery where there is insufficient services and lack of awareness, which can be improved by creating awareness by counseling, by providing eye care services. Results of my article showed that there is strong effect of counseling on spectacles utilization, $P<0.05$, which is highly significant.

**CONCLUSION:**

Above data also shows that there is strong effect of counseling on spectacles utilization, therefore spectacles utilization can be increased by creating awareness through counseling. **Recommendation.** In rural areas there is much more laxity in field of eye health care and there is poor condition of eye health of resident in urban area. There is more population in urban area then rural area in Pakistan. So health policy makers should take interest in eye health care of urban area of Pakistan. There should be a proper eye care service including ophthalmologist, optometrist, refractionist, ophthalmic technicians, so that detailed examination of patients should be strengthened. There should be a regular awareness and screening programs to create awareness and knowledge about their eye health and about preventable blindness through spectacle usage.

**REFERENCES:**

Incidence, Risk factors & Correlation of Early Rise of IOP with Visual Outcome in Post Diabetic Vitrectomy

Umer Khan Orakzai FCPS¹, Nazullah FCPS² Fahad Ghayyour BVS, MPH³.

ABSTRACT:
Objective: To determine incidence, risk factors and the correlation of early rise of intraocular pressure (IOP) and visual outcome following pars plana vitrectomy (PPV) for proliferative diabetic retinopathy (PDR).

Materials and Methods: A prospective longitudinal study conducted in Khyber Medical Center Dabgari Garden Peshawar carried from 1st July to 30 December 2017. The sample size was 74, they were having proliferative diabetic retinopathy and underwent Pars Plana Vitrectomy (52 males and 22 females) The intraocular pressure and the best corrected visual acuity (BCVA) were recorded on day 1, week 1 and months 1, 3 and 6. The cross-tabulation and the t-test were used to evaluate the risk factors for early increase in IOP, defined as IOP ≥ 30 mmHg on day 1. The results were analyzed by different statistical tests using SPSS version 20.

Results: The mean IOP on day 1 was 21.9 ± 9.9 mmHg with 15 cases (20.6%) with an early increase in IOP. The risk factors showed a significant association of the early increase of the IOP and the intra-operative elimination of the fibro-vascular frond (P = 0.004), the removal of the lens (P = 0.044) and intra-operative vitreous bleeding (P = 0.009). In the first three consecutive follow-up visits, the early increase in IOP was also associated with a consistently high IOP (P = 0.04), defined as an IOP > 21 mmHg. In addition, the difference in BCVA at 6 months between the two groups, that is, with and without an early increase in IOP was statistically significant (3.12 ± 1.53 logMAR vs. 2.12 ± 1.50 logMAR, P = 0.026).

Conclusion: The visual outcome is significantly compromised with an early increase in IOP of patients undergoing diabetic vitrectomy.

Key words: diabetic retinopathy, intraocular pressure, vitrectomy

INTRODUCTION:
Many complications can occur after vitreoretinal surgery, among which an early increase in intraocular pressure (IOP) is more common, comprising in 13-40% of cases.¹⁻³ Several factors may be involved in the early increase in IOP. This may occur either because of the underlying predisposition to the development of glaucoma or it may be a secondary complication of vitreoretinal surgery.⁴⁻⁶ However, it remains controversial that diabetes itself may increase intraocular pressure.⁷⁻⁹ Although there are still many studies showing that glaucoma exists in patients with Proliferative Diabetic Retinopathy (PDR) who underwent pars plana vitrectomy (PPV),¹⁰⁻¹¹ however, to our knowledge, there is no available literature that can show the risk factors that lead to an early postoperative increase in IOP in patients with PDR after PPV. The present study was designed to determine the incidence, risk factors and correlation of early increase in intraocular pressure (IOP) and visual outcome after pars plana vitrectomy (PPV) for proliferative diabetic retinopathy (PDR).

Early increase in intraocular pressure (IOP) of diabetic vitrectomies are observed more in cases with prolonged and complex intra-operative involvement, and these cases were also significantly associated with a worse visual outcome.

MATERIALS AND METHODS:
It was a longitudinal prospective designed study. Adequate informed consent was obtained from all participants before the start of the study. The demographic and clinical data of the patients were collected and recorded through a questionnaire. The study included PDR patients admitted in Khyber Medical Center Dabgari Garden, who underwent a standard 3-port 20-gauge PPV.

Those patients were excluded from the study who had rubeosis iridis, those with “no light percep-
Incidence, Risk factors & Correlation of Early Rise of IOP with Visual Outcome in Post Diabetic Vitrectomy

A complete examination was performed and data were collected on the patient’s demographic profile, medical and ophthalmological history, initial investigations, clinic-pathological findings, ophthalmic findings that included best corrected visual acuity (BCVA), biomicroscopy with slit lamp, indirect ophthalmoscopy and Goldmann applanation tonometry. Data was collected and registered in the pre-op questionnaire and in the follow-up. Operational notes, findings and complications were also completed in the questionnaire. Additional procedures that were performed during surgeries were also recorded, such as lens removal if visibility was poor, membrane segmentation and delamination, fibrovascular removal of the frond, silicone oil infusion (SOI). With the use of endocautery and temporarily raising the height of the irrigation bottle, intra-operative vitreous hemorrhage was controlled.

All patients were followed for 6 months after the operation. The postoperative evaluation included follow-up on day 1, week 1 and months 1, 3 and 6 (final follow-up). The result variable IOP and BCVA were recorded in the Goldman tonometer and the logMAR table, respectively. An early increase in IOP was defined as IOP ≥ 30 mmHg on day 1. [1,2,13] if patients who had an IOP consistently elevated any postoperative IOP ≥ 30 mmHg at day 1. On consecutive follow-up at week 1, month 1, month 3, and month 6, the mean IOP was 18.4 ± 8.1 mmHg, 18 ± 9.9 mmHg, 16.3 ± 7.8 mmHg, and 16.8 ± 6.0 mmHg, respectively [Table 2]. Five out of 15 cases with an early rise in IOP developed a consistently raised IOP. There was a statistically significant association between early rise in IOP and consistently raised IOP (P = 0.03).

RESULTS: Total of 74 cases eyes including 52 males and 22 females were analyzed.

Table 1. Demographic and clinical parameters of all the cases enrolled in the study

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean (M)</th>
<th>Standard Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>53</td>
<td>10.50</td>
</tr>
</tbody>
</table>

On post op at day 1, it was analyzed that the mean IOP was 21.9 ± 9.8 mmHg and 16 out of 74 cases (20.1%) were found to have an early rise in IOP, i.e., IOP ≥ 30 mmHg at day 1. In our study, the cases were grouped into two: group A – with an early rise in IOP, i.e., IOP ≥ 30 mmHg at day 1 (16 cases) and group B – those without any early rise in IOP, i.e., IOP < 30 mmHg at day 1 postoperatively (58 cases). Various preoperative and intra-operative risk factors were evaluated for any association with this early elevation in IOP [Table 3].

Table 2 Details of intra-operative events and postoperative intraocular pressure of the cases enrolled in the study

<table>
<thead>
<tr>
<th>Variables Intra-operative details</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibrovascular frond removal</td>
<td>38</td>
<td>52.2</td>
</tr>
<tr>
<td>Intra-operative iatrogenic breaks</td>
<td>15</td>
<td>20.6</td>
</tr>
<tr>
<td>Intra-operative vitreous bleed</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Lensectomy</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td>Silicon oil infusion</td>
<td>37</td>
<td>50.8</td>
</tr>
<tr>
<td>Postoperative intraocular pressure (mmHg)</td>
<td>Mean SD</td>
<td></td>
</tr>
<tr>
<td>Day 1</td>
<td>21.9</td>
<td>9.9</td>
</tr>
<tr>
<td>Week 1</td>
<td>18.4</td>
<td>8.2</td>
</tr>
<tr>
<td>Month 1</td>
<td>18.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Month 3</td>
<td>16.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Month 6</td>
<td>16.8</td>
<td>6.12</td>
</tr>
</tbody>
</table>

In our study, the cases were grouped into two: group A – with an early rise in IOP, i.e., IOP ≥ 30 mmHg at day 1 (16 cases) and group B – those without any early rise in IOP, i.e., IOP < 30 mmHg at day 1 postoperatively (58 cases). Various preoperative and intra-operative risk factors were evaluated for any association with this early elevation in IOP [Table 3].

Table 3 Chi-square analysis of preoperative and intra-operative variables predicting the early elevation in intraocular pressure

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intraocular pressure ≥ 30 mmHg</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>41</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>18</td>
</tr>
</tbody>
</table>
Incidence, Risk factors & Correlation of Early Rise of IOP with Visual Outcome in Post Diabetic Vitrectomy

Even though the preoperative BCVA values between groups A and B were comparable (2.58 ± 0.93 logMAR vs. 2.30 ± 0.85 logMAR, respectively; \( P = 0.49 \)), there existed a statistically significant difference on comparing the final BCVA values between the two groups (3.12 ± 1.52 logMAR vs. 2.12 ± 1.49 logMAR, respectively; \( P = 0.025 \)). Further analysis also confirmed that there was a positive correlation between IOP on the first postoperative day and logMAR BCVA at the final (6 months) follow-up (\( P = 0.04, r = +0.24 \)) [Fig. 1].

**Table 4** Comparison of values of intraocular pressure among the cases with and without silicone oil tamponade (\( t \)-test)

<table>
<thead>
<tr>
<th></th>
<th>With silicone Oil</th>
<th>Without Silicone Oil</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative</td>
<td>15.56 ± 3.00</td>
<td>15.87 ± 3.42</td>
<td>0.680</td>
</tr>
<tr>
<td>Postoperative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 1</td>
<td>22.88 ± 10.45</td>
<td>20.77 ± 9.10</td>
<td>0.367</td>
</tr>
<tr>
<td>Week 1</td>
<td>20.17 ± 9.60</td>
<td>16.29 ± 5.71</td>
<td>0.042</td>
</tr>
<tr>
<td>Month 1</td>
<td>18.36 ± 10.92</td>
<td>17.43 ± 8.90</td>
<td>0.602</td>
</tr>
<tr>
<td>Month 3</td>
<td>16.01 ± 8.36</td>
<td>16.32 ± 7.34</td>
<td>0.87</td>
</tr>
<tr>
<td>Month 6</td>
<td>16.98 ± 5.54</td>
<td>16.37 ± 6.59</td>
<td>0.68</td>
</tr>
</tbody>
</table>

**DISCUSSION:**

The common complication of post retinal surgery is the early increase in intraocular pressure (IOP).\(^{(10-12)}\) The current study was performed to determine the risk factors that attribute to the early increase of the IOP and its impact on visual outcome, mainly in Pars Plana Vitrectomy (PPV) in PDR patients.\(^{(13)}\)

Controversial statement by de Corral et al. shows that diabetes mellitus is not related to the increase in IOP,\(^{(14)}\) while Ando found that diabetic patients are more likely to elevate intraocular pressure after surgery, especially those who are aphakic.\(^{(15)}\) The present study also confirms that the constant elevated IOP of \( > 21 \) mmHg during the first three consecutive follow-up visits (visits on day 1, week 1 and month 1). Some studies show that those patients who have elevated IOP postoperatively on day 1 are more likely to consistently elevate IOP, i.e., IOP \( > 21 \) mmHg beyond 3 weeks of follow-up.\(^{(13)}\) In addition, contradictory findings of mention studies, changes in clinical practice and development in instrumentation and skills make it difficult to extrapolate information from previous studies to current clinical practice.

The present study emphasizes the postoperative elevation of IOP in series of cases, particularly an early increase in IOP in patients undergoing PPV due to various complications of proliferative diabetic retinopathy. The findings of the present study show that 20.6% of the cases had an early increase in IOP. These statistics are comparable to previous studies that have findings of 14.8-35.6% of cases that develop an early increase in IOP after PPV.\(^{(10-12)}\) The present study reveals that cases that had an early increase in IOP have a persistently elevated IOP (\( p = 0.03 \)), these findings were also reported in a previous study.\(^{(13)}\) The findings were proven that 6 of 16 cases with an early increase in IOP developed a persistent increase in IOP that required
medical or surgical treatment.

Although no preoperative risk factors were found that could contribute to the early increase in IOP, it was observed that 11 out of 16 patients who had Tractional Retinal Detachment (TRD) had an early increase in IOP with very little importance of (P = 0.007). Some factors during vitrectomy surgery that were associated with an early increase in IOP included lens extraction (P = 0.044), fibrovascular removal of the frond (P = 0.004), and intra-operative vitreous bleeding (P = 0.009). The detailed statistical analysis of intra-operative variables shows that 39 of 74 cases (52.2%) underwent intra-operative fibrovascular resection of the frond. Intra-operative vitreous hemorrhage was found in 25 cases (63.3%) of these 39 cases, 12 cases (29%) had intra-operative rupture and 3 cases (5.4%) required intra-operative lens removal due to intra-operative visualization problems.

These procedures in themselves suggest a complicated diabetic vitrectomy that involves more intra-operative manipulations and prolonged surgery can compromise the functioning of the ciliary body and the trabecular meshwork. Based on the above findings, it is more reasonable that an early increase in intraocular pressure IOP in post diabetic vitrectomies is inflammation and an impairment of the erythroblastic trabecular meshwork and edema of the ciliary body leading to relative pupillary block.

It is important that one be aware of the compromise of the visual result due to a high IOP. The study shows that it is likely that cases with an early increase in IOP have a worse visual outcome result, which shows a significant positive correlation between logMAR final BCVA and IOP on day 1 (P = 0.05, r = +0.25). This phenomenon was previously discussed that an early increase in IOP is more likely to have persistently increased IOP that requires medical or surgical treatment, leading to poorer BCVA at 6 months of follow-up.

One of the outstanding findings of the present study is that silicone oil was not significantly associated with the early increase in IOP (P = 0.18). This may be because none of the cases was found overfilled with silicone oil. Adequate precaution was taken during the exchange of silicone oil to maintain the closing pressure in each case below 10 mmHg. However, when comparing the mean IOP of cases with silicone oil buffer and without plugging with silicone oil, it was found that the mean values of IOP in week 1 postoperatively were found to be significantly higher in the previous case (P = 0.05). Cases with silicone oil tamponade showed more gradual decrease in IOP than cases without silicone oil tamponade post operative.

CONCLUSION.

It is observed that the early increase in intraocular pressure (IOP) of diabetic vitrectomies is observed more in cases with prolonged and complex intraoperative exercises, and these cases were also significantly associated with a worse visual outcome result.

REFERENCES:

Short Term Efficacy of Intra-Vitreal Bevacizumab (Avastin) in Macular Oedema

Asma Aftab FCPS¹, Mirza Masood Anwar MCPS (Fam. Med)², Prof. Afzal Khan Niazi FCPS³

ABSTRACT:

Background: Worldwide, macular edema is leading cause of loss of central vision. Untreated cases result in blurring vision to blindness and substantially affects an individual’s quality of life

Objective: To determine short term efficacy of Bevacizumab (Avastin) in terms of macular thickness and visual acuity among patients diagnosed with macular edema

Material & Methods: A randomized controlled trial was conducted in Department of Ophthalmology, POF hospital, Wah Cantt for 6 months from June 2017-December 2017. Sample size of 80 patients were taken using WHO indicator. Non probability consecutive sampling was used for recruitment of these participants. Patients were randomly divided into two groups. Group A was provided with intravitreal injection of 0.05 ml, containing 1.25 mg Bevacizumab while Group B was given topical NSAIDs 0.1 ml TDS. Patients were followed for 2 months to determine change in macular thickness and visual acuity from baseline. Ethical approval was obtained and data was analyzed using SPSS version 22.0. Post stratification t test and chi square tests were applied. P value <0.05 was considered significant.

Results: Total 80 patients were included in study with 1:1 randomization (40 patients in each group). Mean age of patients was 57.4±2.1 SD. There were 30 (38%) females and 50(62%) males. Group A (Bevacizumab) had significant reduction in macular thickness (540.6µm±113.4SD) from baseline (604.61µm±123.7SD) (p=0.03) as compared to group B - NSAIDs. Group A had 75% patients with visual acuity improvement more than 2 lines from baseline measurements on snellen’s chart as compared to Group B (P=0.01), Significant association between interventional group and gender (p=0.00), age (p=0.02) was found. However, an insignificant association was found between interventional groups and disease duration (P=0.165), diabetes mellitus (p=0.143) and hypertension (p=0.123)

Conclusion: Intravitreal Bevacizumab is a promising therapeutic method to improve visual acuity and to reduce macular edema.

Key words: Visual acuity, Intravitreal Bevacizumab, Macular thickness

INTRODUCTION:

Worldwide macular edema is leading cause of central vision loss¹. Untreated macular edema results in visual loss from slight blurring of vision to blindness and substantially affects an individual’s quality of life². Overall weighted prevalence of macular edema in United States is 3.8% in age group above 40 years³. However, prevalence of diabetic macular edema in Pakistan (Karachi) is 45%⁴. Early Diagnosis and management of macular edema leads to better visual prognosis.

Macular edema is defined as abnormal thickening of macula as a result of excessive fluid accumulation in extracellular spaces of central retina⁵. Most common types of macular edema are diabetic and cystoid macular edema⁶. Other conditions include retinal vein occlusion, central serous chronic retinopathy (CSCR), ocular inflammations like posterior uveitis and complications of cataract surgery leading towards macular edema⁷. In present century, Optical Coherence Tomography (OCT) and fluorescein angiography (FA) are used as latest diagnostic and monitoring techniques for macular edema⁸.

Intravitreal Bevacizumab is a promising therapeutic method to improve visual acuity and to reduce macular edema. Early detection and management of macular edema is essential for better prognosis.

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Received: June’2018 Accepted: Sep’2018

ORIGINAL ARTICLE
Short Term Efficacy of Intra-Vitreal Bevacizumab (Avastin) in Macular Oedema

MATERIAL & METHODS:
A Randomized Controlled Trial (RCT) was conducted in the Department of Ophthalmology, POF Hospital Wah Cantt, Pakistan. Study duration was 6 months (June 2017 to December 2017). A sample size of 80 patients was taken using WHO indicator; 5% significance level p1=34% and p2=10%. Non probability consecutive sampling was used for recruitment of participants. Patients with age > 18 years, diagnosed with macular edema with NSAIDS is due to reduction in vascular permeability by blocking cyclooxygenase pathway. A Randomized Controlled Trial (RCT) was conducted in the Department of Ophthalmology, POF Hospital Wah Cantt, Pakistan. Study duration was 6 months (June 2017 to December 2017). A sample size of 80 patients was taken using WHO indicator; 5% significance level p1=34% and p2=10%. Non probability consecutive sampling was used for recruitment of participants. Patients with age > 18 years, diagnosed with macular edema due to diabetic retinopathy, retinal vein occlusion, central serous chorioretinopathy and posterior uveitis, Best Corrected Visual Acuity (BCVA) > 1/60 both genders were included in study. Exclusion criteria was based upon BCVA < 1/60; history of laser photocoagulation, photodynamic therapy or IVB in the eye being considered for treatment with in the last 6 months, ocular/periocular infection, Intractable glaucoma with optic disc pathology, other ocular diseases causing permanent visual damage, pregnant and lactating mothers, ischemic heart disease and chronic renal failure.

Ethical Approval was taken from Ethical Review Board of POF Hospital. Patients were randomly divided into two groups using simple random sampling (lottery method). Each patient underwent ophthalmic assessment before treatment and during follow up visits. Assessment included best corrected visual acuity (baseline) using Snellen’s chart, anterior segment examination using slit lamp and slit lamp biomicroscopy with fundus non-contact +78D lens. Baseline macular thickness was measured using spectral domain Optical Coherence Tomography (OCT). Group A was given intravitreal injection of 0.05 ml, containing 1.25 mg Bevacizumab, using a sharp 30 gauge needle while Group B was provided with topical non-steroid anti inflammatory drugs (NSAIDS). Macular thickness and visual acuity was measured after every 4 weeks. Patients were followed for 2 months with an interval of 4 weeks.

Data was analyzed using SPSS version 22.0. Mean and standard deviation was calculated for age and duration of disease and macular thickness. Frequency and percentages was calculated for gender, marital status, occupation, visual acuity, cause of macular edema i.e., diabetes mellitus (DM) and hypertension (HTN). Post stratification t test and chi square test was applied. P value <0.05 was considered significant.

RESULTS:
Total 80 patients were included with 40 patients in each group. Mean age of patients was 57.4±2.1 SD. There were 30 (38%) females and 50 (62%) males. Among all the patients, 20 were single (25%) and 60(75%) were married. Diabetes mellitus was found in 45(56%) patients while 35(44%) were non diabetic. Mean duration of disease was 5.4 years± 1.5 SD. Among all the patients, 80(100%), 25(31%) patients had hypertension while 55(69%) were non hypertensive. Out of all patients, 37(46%) had public sector jobs, 43(56%) had private sector jobs.

Statistically significant difference in macular thickness of Group A (Bevacizumab) patients from baseline 604.61µm±123.75SD to 4 weeks 599.6µm±112.2SD was found (p=0.05) as compared to NSAIDs (p=0.181). Group A (Bevacizumab) patients had mean macular thickness 604.61µm±123.75SD at baseline while after 8 weeks mean macular thickness was 540.6µm±113.4SD (P=0.03). Group B (NSAIDs) patients had mean macular thickness 611.5µm±127.8SD at baseline while after 8 weeks mean macular thickness was 612.4µm±126.1SD (P=0.176). Statistically significant difference(p<0.05) in macular thickness after 4 and 8 weeks was found in Group A (Bevacizumab) as compared to Group B as shown in table 1.

Table 1: Comparison of Macular thickness in Bevacizumab and NSAID
### Short Term Efficacy of Intra-Vitreal Bevacizumab (Avastin) in Macular Oedema

#### Table 2: Association between Visual acuity and Interventional Groups

<table>
<thead>
<tr>
<th>Visual acuity improvement (Snellen’s Chart)</th>
<th>Intervventional Groups</th>
<th>Total</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group A (Bevacizumab)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No improvement</td>
<td>0(0%)</td>
<td>40(50%)</td>
<td>40(50%)</td>
</tr>
<tr>
<td>≤2 lines from baseline</td>
<td>5(12%)</td>
<td>0(0%)</td>
<td>5(12%)</td>
</tr>
<tr>
<td>&gt;2 lines from baseline</td>
<td>35(88%)</td>
<td>0(0%)</td>
<td>35(88%)</td>
</tr>
<tr>
<td>Total</td>
<td>40(50%)</td>
<td>40(50%)</td>
<td>80(100%)</td>
</tr>
</tbody>
</table>

Among all those patients who were in Group A (Bevacizumab) 40(50%), 5(12%) had visual acuity improvement of ≤2 lines from baseline while 35(88%) had visual acuity improvement >2 lines from baseline. Similarly among all those who were in Group B 40(50%), 40(50%) had no improvement in visual acuity. ($x^2=33.789$, p=0.01, df =3)

### DISCUSSION:

Macular edema is the leading cause of visual disability worldwide. In present study, a significant reduction in macular thickness was noted among patients treated with bevacizumab as compared to NSAIDs after 2 months (p<0.05). Bokhari et al reported mean central macular thickness was decreased after 3 months and BCVA was improved in 68% patients up to 2 snellen lines after Avastin. No adverse affects were reported17. 

Hung et al. reported that mean central macular thickness decreased from baseline (422µm) to 263 µm after one month, 333µm after 3 months and 239µm after 6 months. Moreover, they reported that recurrent macular edema was observed after 2nd follow up but repeated bevacizumab injection improved macular thickness substantially18.

HE et al reported that a statistically significant reduction in central macular thickness was found from baseline (374 µm to 240 µm, p=0.001). However, a significant increase in visual acuity after bevacizum-

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**Table 3: Association between Interventional groups and Independent Variables**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Interventional Groups</th>
<th>Total</th>
<th>Chi-Square Value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10(25%)</td>
<td>30(75%)</td>
<td>40(50%)</td>
<td>32.668</td>
</tr>
<tr>
<td>Female</td>
<td>30(75%)</td>
<td>10(25%)</td>
<td>40(50%)</td>
<td></td>
</tr>
</tbody>
</table>

### Age

<table>
<thead>
<tr>
<th>Duration of disease</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5 years</td>
<td>15(38%)</td>
<td>5(13%)</td>
<td>20(25%)</td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>25(62%)</td>
<td>35(87%)</td>
<td>60(75%)</td>
</tr>
</tbody>
</table>

### Diabetes Mellitus

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>30(75%)</td>
<td>15(38%)</td>
</tr>
<tr>
<td>10(25%)</td>
<td>25(62%)</td>
</tr>
</tbody>
</table>

### Hypertension

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>8(20%)</td>
<td>17(43%)</td>
</tr>
<tr>
<td>32(60%)</td>
<td>23(57%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>40(50%)</th>
<th>80(100%)</th>
</tr>
</thead>
</table>
ab injection was also reported (-0.24 to -0.19 LogMAR, p=0.03)\(^\text{19}\).

Present study proved that among patients of Group A (Bevacizumab) 40(50%), 5(6%) had visual acuity improvement ≤2 lines from baseline while 35(46%) had visual acuity >2 lines from baseline. Similarly among all those who were in Group B 40(50%), 40(50%) had no improvement in visual acuity (x² =33.789, p=0.01, df =2). Astam et al reported that mean baseline visual acuity was 0.82 LogMAR ±0.27 SD while after 3 months 0.66 LogMAR±0.57 SD in retinal vein occlusion patients (p<0.05)\(^\text{19}\).

A systematic review reported that intravitreal bevacizumab injection (IVB) had a significant improvement regarding macular thickness and visual acuity after 6 weeks of diabetic macular edema while benefits of intravitreal injection of methotrexate (IVM) were no longer significant after 12 weeks\(^\text{20}\).

Limitation: High cost of OCT leads researcher towards small sample selection and short duration of follow up. Study conduction at single center limits generalization of study.

CONCLUSION:

Intravitreal bevacizumab is a promising therapeutic method to improve visual acuity and to reduce macular edema. Early detection and management of macular edema is essential for better prognosis. Further evidence is required on effective frequency and long term outcome of intravitreal bevacizumab injection.

REFERENCES:

Prevalence of Hypermetropia in Presbyopic age of 40-60 years

Usman Siddique MBBS1, Fahad Abid MBBS2. Syed Noor Hashim Ali MBBS3

ABSTRACT
Background: The aim of this study was to find out the magnitude and pattern of presentation of refractive error in presbyopic patients within the age group of 40-60.
Methods: A cross sectional study was done. After assessing patient’s distant visual acuity through Snellen’s chart, refractive state was observed through autorefractor. By performing objective refraction through retinoscopy and then after subjective verification, patient was corrected for distant vision. Near vision was then assessed and patients with decreased near acuity, the age-group 40-60years were diagnosed as presbyopes and corrected according to age-method and amplitude of accommodation.
Results: Total 100 patients were screened mostly female (62%) and male (38%). Gender wise distribution shows that Hypermetropia in males (61.53%) was higher than females (38.46 %).While Astigmatism also prevails more in males (60.60 %) than females (39.40 %).Myopia was the 3rd top reason causing distance decreased vision which accounts (60%) in males and 40 % in females counterpart.
Conclusion: Gender wise distribution shows that Hypermetropia in males was higher than females .While Astigmatism also prevails more in males than females . Myopia was the 3rd top reason causing distance decreased vision which accounts in males and in females counterpart.
Keywords: Astigmatism, hypermetropia, myopia, snellen,autorefractometer.

INTRODUCTION:
Hyperopia is also known as “farsightedness” or “Hypermetropia”. It is an ocular condition in which the refracting power of the eye causes light rays entering the eye to have a focal point that is posterior to the retina while accommodation is maintained in a state of relaxation. Visual acuity is better at far distances (e.g. 6 meters) than at near (e.g. 0.33 meters) distances.

In Hypermetropia the refractive index changes takes place in cortex of the lens during presbyopic age, while astigmatism results as difference of refractive indexes of lens in its different parts. Myopia was the least and 3rd reason of refractive error caused by increase of refractive index of nucleus of the lens. Gender wise distribution shows that Hypermetropia and Astigmatism prevails more in males than females.

Hyperopia may also be categorized by the degree of refractive error: Low hyperopia is +2.00D or less, Moderate hyperopia ranges from +2.25 to +5.00D, and High hyperopia is +5.25D or more. High hyperopia may be associated with blurring of the optic disc margin, known as pseudo-papilledema. It can be differentiated from true papilledema by the presence of normal caliber of vasculature and normal appearing juxtaposed retina.

Hyperopia may also be categorized by the role of accommodation to visual functioning, which hyperopia can be overcome by accommodation whereas absolute hyperopia cannot be overcome by accommodation. Total hyperopia is the sum of facultative and absolute hyperopia.

Hyperopia may also be categorized based upon the outcome of noncycloplegic and cycloplegic refractions. Manifest hyperopia is determined with non-cycloplegic refraction whereas latent hyperopia is determined with cycloplegic refraction. The magnitude
of hyperopia is the sum of manifest and latent hyperopia[6].

Physiologic (simple and functional) hyperopia is much more common than pathologic hyperopia. [7] Decreased axial length is the most common etiology for hyperopia. Overall prevalence of hyperopia is around 10%, approximately 14 million people, in the United States.[8] Most full-term infants are mildly hyperopic. By age 6-9 months approximately 4-9% of infants are hyperopic and by age 12 months the prevalence is approximately 3.6%. Infants with moderate to high hyperopia (greater than +3.50D) are up to 13 times more likely to develop strabismus by age 4 if left uncorrected. [8] In Australia prevalence is 13% at age 6 and 5% at age 12 Prevalence of hyperopia at age 40 and above is approximately 9.9% in 2010 in the United States. Prevalence of hyperopia is higher relative to myopia between ages 45-65.[9]

MATERIAL AND METHODS:

A cross sectional study was done between July -October 2017 in eye care Hospital Lahore, in which 200 patients were included and data was collection through convenient sampling method technique. First of all unaided and aided visual acuity of patient’s both eyes was assessed, with the help of Snellen’s Visual Acuity chart, trial frame and trial box were used for this purpose. Then gross torch light examination was done to examine anterior eye structures i.e. cornea, limbus iris and pupil. The patient was tested wearing his habitual distance correction. Patient is asked to focus on a row of letters one or two lines larger than his near VA. Asked the patient to keep the letters clear. Then slowly move the chart closer to the patient and ask the patient to report when the letters become and remain blurry. Note the distance from the chart to the patient’s spectacle plane in centimeters. The linear measurement is referred to as the near point of accommodation. Diopteric value represents the patient’s amplitude of accommodation.

Autorefractometer gives objective assessment of patient’s refractive error at distance. and in case patients distance visual acuity is less than 6\6 he or she was given correction till he or she is able to read the desired standard line 6\6. Cross cylinder was used to refine the axis and power of given cylinder in prescription, sphere was refined with +1.00 blur test. After obtaining the accurate distance prescription patient was given optimum near correction. The near correction was based on need of the patient and also depends on amplitude of accommodation he or she is having. Sometimes it was given on age approximate methods, like it was initially with +1.00 at the age of 40 years and power was increased as the age increased maximum +3.00 D was given at 60 years and more.

Dynamic retinoscopy was also used for near correction, Dynamic which is useful to assess accommodation in real-life situations and it can help to correct hyperopia. Data was analyzed through SPSS version 20.00.

RESULTS:

Chart 1. A total no. of 100 (n = 100) subjects were studied consisting of 62(62%) females and 38(38%) males.

Gender wise distribution shows that Hypermetropia in males (61.53%) was higher than females (38.47%). While astigmatism also prevails more in males (60.60 %) than females (39.40 %). Myopia was the 3rd top reason causing distance decreased vision which accounts (60%) in males and 40 % in females counterpart. Mean age of all subjects was 52.74 years (range, 40 to 60 years). Table 1 shows the descriptive statistics of the age in years for all subjects under study.
Prevalence of Hypermetropia in Presbyopic age of 40-60 years

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>100</td>
<td>40.00</td>
<td>60.00</td>
<td>52.74</td>
</tr>
<tr>
<td>Males</td>
<td>62</td>
<td>40.00</td>
<td>60.00</td>
<td>53.74</td>
</tr>
<tr>
<td>Females</td>
<td>38</td>
<td>40.00</td>
<td>60.00</td>
<td>51.10</td>
</tr>
</tbody>
</table>

**Age Groups:** The total sample was divided in to 2 groups according to age. These groups are:

- **Group 1** = Contain subjects of age from 40 to 50 Years
- **Group 2** = Contain subjects of age from 51 to 60 Years

Surprisingly the presentation of females in group 1 (40-50) 70% as compared to group 2 (51-60) 30 %, which indicates that females tend to more conscious for early detection on the other hand males in group 1 (40-50) presented were 30% and group 2 (51-60) showed 70% which is comparatively late presentation as compared to females. Females have other sort of near tasks other than reading and writing like stitching, sewing, food particles etc.

**DISCUSSION:**

The result shows that 100 patients were screened female (62%) and male (38%). Gender wise distribution shows that Hypermetropia in males (61.53%) was higher than females (38.46 %). While Astigmatism also prevails more in males (60.60 %) than females (39.40 %). Myopia was the 3rd top reason causing distance decreased vision which accounts (60%) in males and 40 % in females counterpart.

A study on relevant topic was conducted in Nigeria by Obajolowo, N in 2015 according to him 335 subjects were included while 24 subjects were not available for examination and 45 subjects excluded based on the visual acuity cut off point. The age range was 35 to 100 years, with a mean age of 57±12.1 years. The prevalence of presbyopia was 59.7%. Presbyopia correction coverage was 46.5%. Increasing age was found to be significantly associated with presbyopia, while gender, occupation and educational level were not. Skilled workers, retired persons and those with at least a secondary education were more likely to have glasses than others. The commonest barrier to obtaining near vision glasses was lack of financial resources.[15]

Similarly another study was conducted in rural Tanzania by Abrahamsum, O in 2017 that determines the prevalence of Presbyopia in a rural African population. A total of 61.7% of eligible participants were presbyopic. A higher prevalence of Presbyopia was associated with increasing age, female gender, higher educational level, and residence in urban areastown (odds ratio _ 3.09, 95% confidence interval: 2.46–3.90). The odds of developing Presbyopia increased 16% per year of age from age 40 to 50, but the increase was non-significant at 1% per year after age 50. More severe Presbyopia was associated with female gender and less with education. This study provides the first population-based data on prevalence of Presbyopia in a large, random sample of older Africans and suggests a high rate of Presbyopia. Presbyopia plateaus after age 50, is more common in females. In addition, the 3-fold increased odds in town versus village dwellers was unexpected and suggests that research of other factors, including environmental factors, is warranted.[18]

In a study conducted on the magnitude and pattern of Presbyopia among the patients seen on outreach in Pakistan in lions sight first eye hospital by Mukkari, M in 2012 in which total 442 patients were examined of which 177 (40%) were male and 265 (60%) female. Males were found to be older than females p<0.001. Refractive errors were found in 15.4% of those examined. Presbyopia was found in 388 (87.8%) of those examined, males= 151 (85.3%) and females= 237 (89.4%).

**CONCLUSION:**

It is concluded that the hypermetropia was the top most reason as refractive index changes takes place in cortex of the lens after presbyopic age and results in hyperopia, while astigmatism results as difference of refractive indexes of lens different parts. Myopia was the least and 3rd reason of refractive error caused by increase of refractive index of nucleus of the lens. Gender wise distribution shows that Hypermetropia in males was higher than females, while Astigmatism also prevails more in males than females.

**REFERENCES:**

3. Dry eye syndrome, NICE CKS, September 2012 (UK access only)
Prevalence of Hypermetropia in Presbyopic age of 40-60 years


Cystoid Macular Edema (CME)

Cystoid macular edema (CME) is commonly seen after cataract surgery. It may occur with vascular disease like uveitis, and with usage of certain medications. CME arises from the accumulation of fluid within the retina when there is disruption of the normal blood-retinal barrier and abnormal permeability of the perifoveal retinal capillaries.

Curtsey: George J. Ko, Stacy J. Bang, William B. Phillips, Andreas K. Lauer, NEJM UK
Prevalence of Strabismus in Low Vision Department of K.E Medical University Lahore

Abubakar Rizwan MBBS¹. Sumaira Rafaqat MBBS² Bilal Afzal MBBS³

ABSTRACT:
Aim: To get to know about the prevalence of strabismus in low vision patients.
Methodology: A cross sectional study was done in which 200 patients with decreased contrast were taken through convenient sampling. Visual acuity of all the patients was measured using ETDRS chart at a distance of 4 meters. All patients were already diagnosed by the senior ophthalmologists and were referred to the low vision department. Then cover test was performed at both short and long distance to access strabismus. At long distance fixation target was ETDRS chart at 4 meters and for short distance fixation target was held at 33cm.
Results: Among 200 patients 74.8% patients had acquired while remaining had strabismus since birth. The exotropia-esotropia ratio was 7:1, with mostly 38% had esotropia.
Conclusion: It is concluded that the prevalence of strabismus in low vision patients was high which mostly had acquired strabismus.
Key words: strabismus, acquired, congenital, prevalence, esophoria

INTRODUCTION:
A patient with low vision is one who has visual impairment even after best available treatment (medical, surgical, optical) and who has visual acuity of <6/18 to no perception of light or visual field of 10 degree from center of fixation or 20 degree in largest diameter in better eye but who have potential to do activities of daily life¹.

Globally, 32.4 million people were blind in 2010, and 191 million had moderate to severe visual impairment (MSVI). The MSVI prevalence in older adults was highest in South Asia (23.6%; 95%CI, 19.4-29.4%); Oceania (18.9%; 95%CI, 11.8%-23.7%). And Eastern and Western Sub-Saharan Africa and north Africa and Middle East (95%CL, 15.9%-16.8%)².

In Pakistan standardized prevalence of FLV were 1.7% (95% CL: 1.5-1.9%) and total blindness were 0.2% (95%CL: 0.1%-0.2%). An estimated 727,000 (586,000-891,000) adults in Pakistan had FLV. Retinal conditions were the commonest cause in urban populations (39.8%vs. 26.5% rural) compared with corneal opacity in rural areas (38.0% vs. 25.55 urban). It was estimated that 565,000 adults require assessment for optical services, 735,000 for non-optical interventions, and 424,000 for rehabilitations.³

The prevalence of strabismus in low vision patients was high which mostly had acquired strabismus.

Globally the principal causes of visual impairment are uncorrected refractive errors and cataracts, 43% and 33% respectively. Other causes are glaucoma, 2% age related macular degeneration (AMD), Diabetic retinopathy, Trachoma and corneal opacities, All about 1%. A large portion of causes, 18%, are undetermined⁴.

These diseases cause not only pathological complications, such as retinal detachment, macular degeneration and optic disc abnormalities but also functional problems, such as misalignment of eye position. Horizontal and/or vertical strabismus is
often observed in patients with diseases.\textsuperscript{5}

Study in Japan have been confirmed the relatively high prevalence of horizontal and vertical strabismus with pathological myopia. Among 636 patients with pathological myopia, 520(81.8\%) had orthophoria, 85(13.4\%) had exotropia and 31(4.9\%) had esotropia at near distance. At long distance, 499(86.5\%) had orthophoria, 51(8.8\%) had exotropia and 27(4.7\%) had esotropia. Vertical heterotropia was seen in 103 patients (16.2\%).\textsuperscript{6}

It has been concluded the risk of strabismus in patients having congenital nystagmus and can predicted from the nature of underlying visual disorder.\textsuperscript{7} Strabismus was found in 50\% of children with congenital nystagmus. The prevalence of strabismus was 82\% in children with bilateral optic nerve hypoplasia, 53\% in patients with albinism, 3\% in children with congenital retinal dystrophies, and 17\% in children with idiopathic congenital nystagmus.\textsuperscript{8} Cyclic exotropia is an unusual association with retinitis pigmentosa.\textsuperscript{9} Strabismus causes double vision and/or eye strain. To avoid double vision, the brain may adopt by ignoring one eye. Strabismus also causes loss of depth perception. A constant unilateral strabismus causing suppression, fatigue when reading, and unstable vision.\textsuperscript{10} Strabismus also affect the cosmetical appearance of patient.

**MATERIALS AND METHODS:**

A cross-sectional study was done between Jan-Oct 2015 king Edward medical college Lahore. Study was carried out in Low vision department. All patients presented in low vision department were included in this study. Non probability convenient sampling technique was used. The inclusion criteria of our study were as follows. Age between 6 and 55. Patients with low vision diseases. Visual acuity between 6/10 and a maximum of 10/10 (via the Snellen optotype). Both genders were included Data was collected using proformas including clinical findings. All patients were already diagnosed by senior ophthalmologist and were referred to low vision department.

Equipments used to collect data were ETDRS CHART to access visual acuity. Occluder and target to perform cover test. Assessment was start by taking written informed consent. Then history was taken. After that visual acuity and cover test were performed. There were 2 parts to the Cover Test (CT), which include the cover and uncover component and the alternate cover test. It was ensured that there is sufficient light in the room so that the examiner could clearly see the patient’s eyes. The purpose of the test was explained to the patient.\textsuperscript{3} The cover/uncover part includes 1 eye being covered. Instructions were given to the patient to look at the near target and snellen chart for distance fixation.\textsuperscript{3}

**Observations:** The movement of the uncovered eye taking up fixation The movement as well as position of the eye under the cover when the paddle is removed (repeated until movement was observed/no movement to confirm a diagnosis) Cover/uncover method for heterotropia The alternate CT had to ensure that one eye is dissociated at all times: The movement of the covered eye is recorded as the paddle is changed from one eye to the other every 3 seconds while allowing the eye to take up fixation. The cover was placed before the first eye in a manner that prevent the patient from viewing the target but allow examiner to continue seeing the covered eye. Observed the response of the first eye tested behind the occluder when it was first covered.

**Results:**

200 patients of age 15-55 were included in this study. In which mostly 55\% were male and 45\% were female.

**Visual profile of the patients:**

Vision was measured by ETDRS chart. As the participants were from the department of low vision, the visual acuity of all the participants was 6/18 or below 6/18. Visual acuity of each eye was recorded with and without glasses which is as follow:

**Table:1**

<table>
<thead>
<tr>
<th>VA</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/18 – 6/24</td>
<td>56</td>
<td>32.9</td>
</tr>
<tr>
<td>&lt;6/24</td>
<td>14</td>
<td>8.2</td>
</tr>
<tr>
<td>&lt;6/30</td>
<td>17</td>
<td>10.0</td>
</tr>
<tr>
<td>&lt;6/38</td>
<td>12</td>
<td>7.1</td>
</tr>
<tr>
<td>&lt;6/48</td>
<td>16</td>
<td>9.4</td>
</tr>
<tr>
<td>&lt;6/60-cf</td>
<td>54</td>
<td>31.8</td>
</tr>
<tr>
<td>Total</td>
<td>170</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Cover test was performed for the objective deter-
Prevalence of Strabismus in Low Vision Department of King Edward Medical College Lahore

ministration of the presence of ocular deviation. Cover test was performed in distance and near with glasses without glasses.

Table:2
Most commonly found horizontal deviation with glasses in distance was esotropia

<table>
<thead>
<tr>
<th>Type of deviation</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthophoria</td>
<td>10</td>
<td>5.3</td>
</tr>
<tr>
<td>Esotropia</td>
<td>74</td>
<td>38</td>
</tr>
<tr>
<td>Exotropia</td>
<td>47</td>
<td>26.5</td>
</tr>
<tr>
<td>Esophoria</td>
<td>52</td>
<td>31.2</td>
</tr>
</tbody>
</table>

Table:3
Most commonly found horizontal deviation without glasses in distance was esotropia.

<table>
<thead>
<tr>
<th>Type of deviation</th>
<th>Frequency</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthophoria</td>
<td>8</td>
<td>4.7</td>
</tr>
<tr>
<td>Esotropia</td>
<td>75</td>
<td>37.6</td>
</tr>
<tr>
<td>Esophoria</td>
<td>45</td>
<td>26.5</td>
</tr>
<tr>
<td>Exotropia</td>
<td>53</td>
<td>31.2</td>
</tr>
</tbody>
</table>

DISCUSSION:

Among 200 patients 74.8% patients had acquired while remaining had strabismus since birth. The exotropia-esotropia ratio was 7:1, with mostly 38% had esotropia.

A study was done in Canada by Patrick et al in which he evaluated 52% strabismus.[17]

Another study was done by Katherine.A in US in which Strabismus was detected in 9 Head Start children (1.5%) and 3 K/1 children (1.0%). Ratio of esotropia to exotropia was 1:3 in Head Start and 1:2 in K/1 in low vision department. The percentage of patients presenting with acquired deviation was high that was 48.80%. 34.7% were presented without history of deviation and 16.50% were having strabismus since birth.

Similarly another study was done in India by sanjeet.T in which total 57 patients with RP were participated in the study out of which 31 patients had exotropia 18 patients had phoria and 5 patients had esotropia. The results of present study were similar to previous studies. 20 patients with myopic degeneration participated in this study out of which 17 patients had esotropia 1 patient had exotropia and 2 patients had phoria. 17 patients with congenital cataract were participated out of which 14 patients had esotropia 1 patient had exotropia and 2 patients had phoria. 11 patients with Albinism participated in study and 7 patients had esotropia 2 patients had exotropia and 2 patients had phoria.[18]

Other diseases were also considered and strabismus was also noticed. Yokota et al in his study in Saudi Arabia concluded the association between cong. Nystagmus and strabismus in low vision department. [19]

Virginia Wong et al in US concluded 20% strabismus associated with Down syndrome.[20]

The strength of the study was that all diseases of low vision were considered. The results were different in different pathologies. The study is done by the chief researcher herself.

The limitations in this study were that the numbers of subjects were low due to limited time duration. The sample size was not selected randomly and the study was done only in single clinical setup.

CONCLUSION:

It is concluded that the prevalence of strabismus in low vision patients was high with mostly had acquired strabismus. So it should recommend that eye positions be repeatedly assessed over time and that surgical procedures be performed as appropriate.

REFERENCES:


References


Diro-filaria Repens Infection (Nodulocystic acne)

A young patient reported to an ophthalmologist with a 2-week history of nodules that moved around her face. She had first noted a nodule below her left eye. Five days later, it had moved to above her left eye, and 10 days after that to the upper lip. The nodules occasionally caused a localized itching and burning sensation. She had recently traveled to a rural area outside Moscow and recalled being frequently bitten by mosquitoes.

D.D. Human papillomavirus warts, Pyogenic granuloma, Relapsing malaria, Diro-filaria Repens infection, Nodulocystic acne
ABSTRACT:

Objective: To evaluate the visual outcome, the control of the intraocular pressure (IOP) and the complications in patients with phacomorphic glaucoma undergoing manual small incision cataract surgery.

Materials and Methods: This was prospective, non-randomized interventional consecutive case series carried out in Khyber Medical Center Dabgari Garden Peshawar from 1st January to 30th June 2017. The study included all patients with phacomorphic glaucoma that presented in the center. A complete examination, medical and ophthalmological history, initial investigations, clinic-pathological findings, ophthalmic findings that included the best corrected visual acuity (BCVA), biomicroscopy with slit lamp, indirect ophthalmoscopy and Goldmann applanation tonometry were performed. Cataract extraction was performed on all affected eyes with the manual small incision cataract surgery procedure (MSICS).

Results: A sample of 84 eyes with phacomorphic glaucoma underwent the manual small incision cataract surgery. Mean intraocular pressure (IOP) before surgery was 39.5 ± 14.3 mmHg and the mean IOP at the last follow-up was 13.8 ± 2.4 mmHg. A significant fall in IOP was observed and no long-term anti-glaucoma medication was required. A better visual outcome result was reported since the best corrected visual acuity (BCVA) was 20/40 or better in 61 patients. Fifteen eyes had corneal edema and 38 eyes had inflammation of the anterior chamber. Both conditions were resolved with standard medical therapy.

Conclusion: To achieve a good visual outcome, manage IOP and the least complication in the treatment of phacomorphic glaucoma, manual small incision cataract surgery is safe and effective.

Keywords: Phacomorphic glaucoma, intraocular pressure, manual small incision cataract surgery.
Manual Small Incision Cataract Surgery in Phacomorphic Glaucoma Complications and Challenges

cent cataract is cataract extraction. In the management of phacomorphic cataract, the clinicians faces serious challenges, such as high intraocular pressure (IOP), which increases the risk of expulsive hemorrhage, positive pressure and, often, zonular dialysis is performed, which makes it difficult surgery. Due to limited resources and the manual economic image, small incision cataract surgery (MSICS) is popular in developing countries without compromising medical standards. The present study aims to evaluate the visual outcome result, the control of intraocular pressure (IOP) and the complications in patients who have phacomorphic glaucoma undergoing manual small incision cataract surgery.

MATERIALS AND METHODS:
It was a prospective, non-randomized interventional consecutive case series. Adequate informed consent was obtained from all participants before the start of the study. The demographic and clinical data of the patients were collected and recorded through a questionnaire.

The patients diagnosed with phacomorphic glaucoma between January 2017 and June 2017 was included in the study. Those patients were diagnosed with phacomorphic glaucoma, which had complaints of acute pain and redness associated with objective signs such as the presence of corneal edema, an intumescent cataract lens and an IOP greater than 21 mmHg. All patients in whom the other eye had a narrow angle and high IOP were excluded from the study. A complete examination and data on the demographic profile of the patient, previous medical and ophthalmic history, initial investigations, clinic-pathological findings, ophthalmic findings including the best corrected visual acuity (BCVA), biomicroscopy with slit lamp, indirect ophthalmoscopy, were made. B-scan ultrasound to exclude pathology of the posterior segment and Goldmann applanation tonometry were collected and recorded in a predesigned questionnaire preoperatively and during follow-up. Operational notes, findings and complications were also completed in the questionnaire. All patients with phacomorphic glaucoma were treated with topical beta-blockers, drops of steroid antibiotics and oral acetazolamide. If the IOP was greater than 45 mmHg, mannitol was administered intravenously. All surgeries were performed by a single doctor. Before the start of surgery, 20% intravenous mannitol (1-2 g / kg of body weight) was administered to all patients. Peri bulbar anesthesia was administered to patients undergoing surgeries. After an upper conjunctival fornix flap, a scleral incision of 6.0, 5.0 mm partial thickness was made 2 mm behind the limbus and 1 mm scleral tunnel was extended to the transparent cornea. An additional paracentesis was performed at the 10 o’clock position. The anterior chamber was filled with an air bubble and 0.1 ml of 0.06% trypan blue was injected under the air bubble. After several seconds, viscoelastic was used to displace the air bubble. The anterior chamber was introduced with a 3.2 mm keratome. Viscoelastic was used to deepen the anterior chamber. Continuous curvilinear capsulorhexis (CCC) was performed with a 26G needle. A Sinskey hook was used to hook a core pole out of the capsular bag in the AC. The nucleus was extracted from the eye with visco elastic. After aspiration of the remaining cortex, the intraocular hard lens was implanted in the capsular bag. Hydration was performed with balanced salt solution. The conjunctival flap was opposed using a forceps adjusted to bipolar diathermy.

Post op medications including topical antibiotics and steroids and oral analgesic were prescribed to patients for 2 months. The patients were again examined at the follow-up visit after 2 months. All the collected data were analyzed by different statistical tests using SPSS version 20. All the data were expressed as mean ±SE. t test was applied to calculate the X² value of, the value of p, the relative risk and the 95% confidence interval. A p-value less than 0.05 were considered significant.

RESULTS:
The demographic details of the patients included in the study are presented in Table 1. A total of 84 patients of mean age 67.71±9.2 years with phacomorphic glaucoma were analyzed during the study period of 6 months.

Table 1: Pre-operative demographic characteristics of the study population

<table>
<thead>
<tr>
<th>Demographics</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years)</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>67.6 ±10.3</td>
</tr>
<tr>
<td>Range</td>
<td>41.99</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>32 (40%)</td>
</tr>
<tr>
<td>Male</td>
<td>52 (60%)</td>
</tr>
<tr>
<td>Status of fellow eye</td>
<td></td>
</tr>
<tr>
<td>Imature Cataract</td>
<td>42 (50%)</td>
</tr>
<tr>
<td>Mature cataract</td>
<td>5 (7%)</td>
</tr>
<tr>
<td>Aphakic</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>Pseudophakic</td>
<td>27 (30%)</td>
</tr>
<tr>
<td>Clear lens</td>
<td>7 (10%)</td>
</tr>
<tr>
<td>Duration of Symptoms (Days)</td>
<td></td>
</tr>
<tr>
<td>0-10</td>
<td>61 (72%)</td>
</tr>
<tr>
<td>11-20</td>
<td>22 (27%)</td>
</tr>
<tr>
<td>21-30</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Pre operative IOP</td>
<td></td>
</tr>
<tr>
<td>25-40mmHg</td>
<td>44 (48%)</td>
</tr>
</tbody>
</table>
On the first postoperative day, there was severe corneal edema in 28 (34%) patients, 36 (48%) had severe iritis with fibrin membrane, two had blood clot. Blood clot resolved with medical treatment over a period of one week. The fibrin membrane and corneal edema resolved with topical medications over the next few days. The preoperative IOP and the best corrected visual acuity (BCVA) at last follow-up are summarized in Table 2. Fifty-four (72%) patients attained 20/40 or better vision, of which 30 (58%) had preoperative IOP between 25-40 mm Hg and 21 (41%) had IOP between 41-55 mm Hg. There was no association between preoperative IOP and postoperative BCVA \( (P=0.361) \).

**Table 2:** Comparative analysis of patients with preoperative IOP and postoperative visual acuity at third month follow-up visit

<table>
<thead>
<tr>
<th>Preoperative IOP</th>
<th>25 - 40 mmHg</th>
<th>41- 55 mmHg</th>
<th>56-70 mmHg</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/20-20/40</td>
<td>35</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>20/60-20/200</td>
<td>27</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>&lt;20/&lt;200</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>HM, Pi</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The duration of symptoms and the BCVA at last follow-up are summarized in Table 3. Forty-four (70%) patients had 20/40 vision when duration of symptom was less than 10 days, nine (58%) had 20/40 or better vision when duration of symptom was 11 days to 20 days. Comparing the patients with symptoms for less than 10 days against patients with symptoms of 10 days or longer, there was significant association between duration of symptoms and postoperative BCVA \( (P<0.009) \).

**Table 3** Effect of duration of symptoms on visual outcome

<table>
<thead>
<tr>
<th>Postoperative BCVA</th>
<th>Duration of symptoms [Number (%)]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-10days</td>
</tr>
<tr>
<td>20/20-20/40</td>
<td>44</td>
</tr>
<tr>
<td>20/60-20/200</td>
<td>14</td>
</tr>
<tr>
<td>&lt;20/&lt;200</td>
<td>4</td>
</tr>
<tr>
<td>HM, Pi</td>
<td>5</td>
</tr>
</tbody>
</table>

**DISCUSSION:**

Phacomorphic glaucoma is a common clinical condition in developing countries such as Pakistan. In the conventional technique extracapsular cataract extraction (ECCE) a large incision is made in the eyeball that leaves the eye in another risk of visual threat.\(^9\)\(^,\)\(^11\) However, in this new era, manual small-incision cataract surgery (MSICS) using the blue-vision staining procedure is a practice that advances on extracapsular cataract extraction. The biggest advantage is to leave with a minimum postoperative astigmatism.\(^9\) Ruit et al., In their study they reported that MSICS achieves an excellent visual result and a low postoperative complication. Due to limited resources and the manual economic image, small incision cataract surgery (MSICS) is popular in developing countries for early cataracts without compromising medical standards.\(^21\),\(^22\) Venkatesh et al. conducted a study on phacolytic glaucoma and found that MSICS is safe and effective with minimal postoperative complication.\(^23\)

Another phacoemulsification procedure is challenging in phacomorphic glaucoma due to intraoperative complications such as increased risk of superficial chamber, iris prolapse, rupture of peripheral capsulorhexis; the loss of endothelial cells at risk is greater due to the close proximity of the tip of the phaco cannula during the emulsification of the nucleus and the reduced endothelial reserve in these patients.\(^19\) However to combat these challenges Chang et al., have advised to deepen the anterior chamber with pars plana vitreous tap this will permits successful completion of capsulectomy and cataract removal.\(^24\) Dada et al., In their study also suggested that apart from the commitment to direct visual monitoring is often not possible due to dense cataracts and there is a small risk of retinal detachment, however the use of a sutureless, small-gauge, pars plana partial-core vitrectomy as an effective technique to overcome these problems.\(^19\) MSICS is popular in developing countries, where resources are limited, since they do not require expensive equipment such as phacoemulsification and the anterior chamber is more stable due to scleral shelving injury along with minimal complications related to surgery.

In our study, the percentage of men (60%) predominates in women (40%), it is possible due to cul-
tural socioeconomic limitations. Three months after the operation, 54 (70%) of our patients had a good visual result with an BCVA of 20/40 or better and 20/60 to 20/200 in 13 (19%) patients. These results of visual outcome are similar to other ECCE studies conducted in phacomorphic glaucoma.\(^{14,17}\) There was a significant association between the duration of symptoms and postoperative BCVA. Fifty-four patients had better visual acuity than 20/40, of which significantly more patients had a symptom onset duration of less than 10 days (82%; 43 of 54) compared to those with more than 10 days (14%; 8 of 54). A better visual outcome was observed in those patients who had a shorter duration of onset of symptoms. The mean IOP at the final visit was 13.8 ± 2.4 mmHg and was less than 20 mmHg in the 84 patients and did not require long-term antiglaucoma medication. These results of our study on the control of IOP may be comparable with other studies on ECCE performed for phacomorphic glaucoma.\(^{14-17}\) The \(t\) test was \(P<0.0001\) between the IOP in the presentation and the IOP at the last follow-up, which is significant. Due to the elevated IOP associated with phacomorphic glaucoma and BCVA HM, 3 had pallor of the optic disc and 3 had glaucomatous atrophy.

Two other patients who had BCVA <20/200 had pre-existing diabetic retinopathy with macular edema. Considering the intense inflammation associated with phacomorphic glaucoma, corneal edema and AC inflammation was common in the majority of patients.\(^{19}\)

Due to limited resources and the manual economic image, manual small incision cataract surgery (MSICS) is popular in developing countries without compromising medical standards and allows high-volume cataract surgery compared to phacoemulsification. Due to scarce resources, lack of knowledge about cataract services and delayed surgical intervention, phacomorphic glaucoma is a common clinical presentation in Pakistan and other developing countries.

**CONCLUSION.**

Our study has some limitations such as designing a non-randomized study and having a short follow-up period; however, we wish to show that MSICS could be safe and effective to control IOP and achieve good functional visual recovery in the management of phacomorphic glaucoma with minimal complications in the developing world.

**REFERENCES:**

Prevalence of Congenital & Acquired Strabismus in Low Vision Department


ABSTRACT

Objectives: The objective of his study was to estimate the proportion of congenital and acquired strabismus in patients with low vision.

Methodology: A cross sectional study was done 170 patients with decreased contrast were taken through convenient sampling who fit the inclusion criteria. Visual acuity of all the patients was measured using ETDRS chart at a distance of 4 meters. Then cover test was performed at both short and long distance to access strabismus.

Results: In 170 patients 48.8% were having acquired strabismus while remaining 27 patients (16.5%) had strabismus since birth. 64.7% strabismus in patients presenting in low vision department were very high.

Conclusion: This study concluded that strabismus in patients presenting in low vision department was very high, mostly had acquired strabismus.

Key words: Strabismus, acquired, prevalence, ETDR, low vision, congenital

INTRODUCTION:

A patient with low vision is the one who has visual impairment even after best available treatment (medical, surgical, optical) and who has visual acuity of <6/18 to no perception of light (NPL) or visual field of 10 degree from center of fixation or 20 degree in largest diameter in better eye but who have potential to do activities of daily life.

Globally, 32.4 million people were blind in 2010, and 191 million had moderate to severe visual impairment (MSVI). The MSVI prevalence in older adults was highest in South Asia (23.6%; 95%CI, 19.4-29.4%), Oceania (18.9%; 95%CI, 11.8%-23.7%) and Eastern and Western Sub-Saharan Africa and North Africa and Middle East (95%CL, 15.9%-16.8%).

In Pakistan standardized prevalence of FLV were 1.7% (95% CL: 1.5-1.9%) and total blindness were 0.2% (95%CL: 0.1%-0.2%). An estimated 727,000 (586,000-891,000) adults in Pakistan had FLV. Retinal conditions were the commonest cause in urban populations (39.8%vs. 26.5% rural) compared with corneal opacity in rural areas (38.0% vs. 25.55 urban). It was estimated that 565,000 adults require assessment for optical services, 735,000 for non-optical interventions, and 424,000 for rehabilitations.

The incidence of strabismus in patients presenting in Low Vision Department was very high. It is mostly acquired strabismus.

Globally the principal causes of visual impairment are uncorrected refractive errors and cataracts, 43% and 33 % respectively. Other causes are glaucoma, 2% age related macular degeneration (AMD), Diabetic retinopathy, Trachoma and corneal opacities, All about 1 %. in larger portion of 18% the etiology have remaied undetermined.

These diseases cause not only pathological complications, such as retinal detachment, macular degeneration and optic disc abnormalities but also functional problems, such as misalignment of eye position. Horizontal and/or vertical strabismus is often observed in patients with diseases.

Study in Japan have been confirmed the relatively high prevalence of horizontal and vertical strabismus with pathological myopia. Among 636 patients with pathological myopia, 520(81.8%) had orthophoria, 85(13.4%) had exotropia and 31(4.9%) had esotropia at near distance. At long distance, 499(86.5) had orthophoria, 51(8.8) had exotropia and 27(4.7%) had esotropia. Vertical heterotropia was seen in 103 patients (16.2%).

It has been concluded the risk of strabismus in patients having congenital nystagmus and can predict-
ed from the nature of underlying visual disorder. Stra-
bismus was found in 50% of children with congenital
nystagmus. The prevalence of strabismus was 82% in
children with bilateral optic nerve hypoplasia, 53% in
patients with albinism, 3% in children with congenital
retinal dystrophies, and 17% in children with idiopath-
ic congenital nystagmus.

Cyclic exotropia is an unusual association with
retinitis pigmentosa. Strabismus causes double vision
and/or eye strain. To avoid double vision, the brain
may adopt by ignoring one eye. Strabismus also causes
loss of depth perception. A constant unilateral strabis-
mus causing suppression, fatigue when reading, and
unstable vision. Strabismus also affect the cosmetical
appearance of patient.

MATERIALS AND METHODS:
It was a cross-sectional study which was car-
rried out from 17 April-25 July 2016 in LRBT, Hospital
Lahore. Study was carried out in Low vision depart-
ment of LRBT which is a tertiary eye care hospital. The
patients from all over the Pakistan came here. As the
patients presenting in low vision department were al-
ready referred and screened, all the patients present-
ing in low vision department in this time period were
included as participants. Sample size was consisted
on 170 patients. Non probability convenient sampling
technique was used.

Data was collected using questionnaire including clinical findings. Equipments used to collect
data were ETDRS Chart to access visual acuity with-
occluder and target to perform cover test Assessment
was start by taking written informed consent. If the eye
was exotropic, when fixating eye was covered, caused
an inwards movement; and esotropic, when fixating
eye was covered, caused an outwards movement. The
alternating cover test, or cross cover test was used to
detect total deviation (tropia + phoria). Fixation targets
are required for both the near (33 cm) and far (6m) com-
ponents of the cover test. Near Targets (33 cm).

In those patients with poor vision a spotlight
was used. (Same as near targets). Snellen’s chart was
used as target when assessing a patient’s far com-
ponent of a cover test while performing the cover test
it was made sure that the patient was clearly seeing the
fixation targets to confirm their accommodating eye is
controlled.

Data analysis was done by using SPSS. Confi-
dence level was set at 5%. Data was summarized upon
the nature of data. Descriptive data was analyze by us-
ing percentages and frequencies and summarized in
tables. All preliminary analysis was done to check the
data for fulfillment of assumptions.

RESULTS:
Total 170 participated in this study. Majority of
the patients were males (93, 54.7%) and remaining (77,
45.30%) were females.

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>45.30%</td>
<td>54.70%</td>
</tr>
</tbody>
</table>

Figure no. 1 showing gender of the patients:
Age of the participants: There were 5 age groups in
this study and most of the participants belonged to age
group >5-15 years (31.2%) and the participants belong-
ing to age group from >35-45 were lesser (8.8%)

Figure no. 2 showing age of the patients:
History of deviation: History of deviation in eyes was
taken from patients. Mostly of the participants were
presented with acquired deviation (48.80%). (34.7%)
were presented with no history of deviation and
(16.50%) gave the history of deviation since birth

Figure no. 3 showing history of deviation: Strabismus:
Total percentage of presence of strabismus in patients
presenting in low vision department was very high that
was (64.7%).

Figure no. 4 showing percentage of strabismus:

DISCUSSION:
In 170 patients 48.8% were having acquired
strabismus while remaining 27 patients (16.5%) had
strabismus since birth. 64.7% strabismus in patients
presenting in low vision department that was very
high.

Similarly a study was conducted in Nigeria by Dirani et al. in 2016 he concluded in a study that the most frequent causes of amblyopia were refractive error (85%) and strabismus (15%); anisometropic astigmatism >1.50 D (42%) and isometropic astigmatism >2.50 D (29%) were frequent refractive errors. The prevalence of strabismus in children aged 6 to 72 months was 0.80% (95% CI, 0.51–1.19), with no sex (P = 0.52) or age (P = 0.08) effects. The exotropia-esotropia ratio was 7:1, with most exotropia being intermittent (63%). Of children with amblyopia, 15.0% had strabismus, whereas 12.5% of children with strabismus had amblyopia. [17]

A study was conducted in US by Virginia Wong et al. in 2012 concluded 20% strabismus associated with congenital causes. [18] While Stephan et al. in Ethiopia concluded in a study that Prevalence of other ocular disorders included strabismus (34/72, 47%), nasolacrimal duct obstruction (26/73, 35.6%), cataracts (5/64, 7.8%), and nystagmus (12/72, 16%) and acquired strabismus was 35% in this. While congenital is just 10%.

Thomas et al. in Turkey concluded that the prevalence of nystagmus in the general population was estimated to be 24.0 per 10,000 population (95% confidence interval [CI], ±5.3). The most common forms of strabismus were acquired (6.8 per 10,000 population; 95% CI, ±4.6), associated with low vision such as congenital cataracts (4.2 per 10,000; 95% CI, ±1.2), and nystagmus associated with retinal diseases such as achromatopsia (3.4 per 10,000 population; 95% CI, ±2.1). [19]

CONCLUSION:

This study concluded 64.7% strabismus in patients presenting in low vision department that was very high. Out of 170 patients 83 patients (48.80%) had acquired deviations and 28 patients (16.50%) were having strabismus since birth and remaining 59 patients (34.5%) were presented without history of deviation.

It was recommended to low vision practitioners to prescribe patching therapy to prevent them from amblyopia and for adults with better visual status it was recommended to prescribe prisms to them and for those whose visual acuity improved with optical aids, surgery should be advised to them.

REFERENCES:

Outcome of Late Fixation of Fracture Neck of Femur in Young Adults by Multiple Cannulated Screws.

Haziq Dad Khan FCPS¹, Tariq Ahmad FCPS², Zahir Khan FCPS²
Dept. of Orthopaedics Bacha Khan Medical College Mardan

ABSTRACT
Objective: To analyze the results of multiple cannulated screws in patients with fracture neck of femur in young adults with age less than 60 years.

Methods: It was descriptive case study in which 54 patients were selected with fracture neck of femur from January 2013 to December 2016 at Mardan medical complex Mardan. 35 patients were male and 19 were female. Patients were operated 3-4 days after trauma due to late arrival and preparation for surgery. Patients were followed for one year after surgery. Patients were classified according to Garden Classification. The anatomical reduction was assessed by Garden Anatomical Index on Hip X rays performed in antero-posterior and Lateral views. Post-operative results were analyzed during follow up period.

Results: In 54 patients Garden 1 (G1) cases were 4, Garden 2 (G2) cases were 19. Garden 3 (G3) group cases were 24 while 7 cases were in Garden 4 (G4) group. Avascular necrosis and nonunion was observed in 11 cases. These patients were having displaced fracture and were in G3 and G4 groups. In these patients 2 cases were re operated by using fibular Graft. While 4 patient were selected for total Hip replacement. AVN was in 19% cases and Nonunion was in 3% case. Patients in G1 and G2 groups had good and excellent results. Innon-displaced group 100% union was observed.

Conclusion: In young Adults with displaced fracture neck of femur, early fixation with multiple cannulated screws and proper anatomical reduction can save patients from lifelong limb disabilities.

Key words: femoral neck fractures, multiple screw fixations, avascular necrosis, non-union.

INTRODUCTION
Fracture neck of femur is common in any age group. High energy is required for fracture in young whiletrivial trauma is needed for fractures in elderly due to osteoporosis. Incidence of hip fracture in elderly population is 150/10000. Billions of rupees are spend on treating and preventing the fractures. 340000 hip fractures are treated in US. Fractured neck of femur bears a high risk of mortality within the first 6 months after surgery. Most fractures of the femoral neck are intra-capsular and may compromise the tenuous blood supply to the femoral head. Basic cervical femoral neck fractures are extra-capsular femoral neck fractures and often are considered with intertrochanteric femoral fractures.

Two main complication of the fracture neck of femur are osteonecrosis and non-union of fractures. The fracture non-union and avascular necrosis ranges from 8-80% respectively. The aim of surgery is to restore patients’ mobility. Fracture neck of femur can be treated conservatively by endoprosthesis (arthroplasty) and osteosynthesis (internal fixation). Trauma-induced avascular necrosis of the femoral head, either with or without bony fracture, represents the most common femoral head aseptic osteonecrosis. In young patients with fractured neck of femur osteosynthesis should always be the preferred option, whereas in older patients, endoprosthesis should be favored. For middle aged patients (55-65 years), the indication is the subject of much controversial discussion and has to be
In young Adults with displaced fracture neck of femur, early fixation with multiple cannulated screws and proper anatomical reduction can save patients from lifelong limb disabilities.

MATERIAL AND METHODS

In this descriptive case study 54 patients with fracture neck of femur were selected with the age less than 60 years. The patients were treated in Mardan Medical Complex Mardan Orthopaedic department from January 2013 to December 2016. This study was approved by the hospital ethical committee. Patients selection was intracapsular fractures presented to the accident and Emergency department and then referred to the Orthopaedic department. The exclusion criteria were patient younger than 18 years, older than 65 years and hepatitis B and C positive patients.

35 patients were male and 19 were female. Patients were operated 3-4 days after trauma. Patients were followed for one year after surgery. Patients were classified according to Garden Classification. The anatomical reduction was assessed by Garden Anatomical Index on Hip X rays performed in antero-posterior and lateral views. Post-operative results were analyzed during follow up period for one year. Patients with fracture neck of femur were treated as emergency but most of the patients surgery was two to three days late due to late arrival of the patients to the hospital and preparing them for surgery as no facility of immediate orthopedic emergency surgery was available in the hospital.

6.5 mm cannulated screws were used for fixation of the fractures under image intensifier machine. Three screws were used in reverse triangle fashion after proper reduction of the fracture. Most fractures (36/54 fractures) were reduced by closed technique on a traction table, but the reminder required open reduction.

We used a simple lateral approach if closed reduction was satisfactory, but a Watson-Jones lateral approach was used if open reduction of the fracture was required. The joint was opened in the middle of the anterior capsule by a mid-longitudinal incision, stopping 1 cm short of the intertrochanteric line. A guide wire was passed in the center of the femoral neck from 2 to 3 cm below the greater trochanter to the acetabular floor. Two more guide wires were passed parallel to the central wire (so one was above and one below). Three 6.5-mm cannulated screws of sufficient thread length for compression were placed over the two Patients were followed in the outpatient department with regular checkups on 1, 3, 6 and 12 months. Patient clinical and radiological union, range of motion, avascular necrosis and nonunion of the fracture was assessed.

No plaster was applied postoperatively. Straight leg raising and exercises of the ankle and knee were started the next day. The patients were allowed to walk after 7 to 10 days with crutches (non-weightbearing), and were sent home 2 to 6 weeks postoperatively. At 8 weeks postoperatively, patients were examined radiographically in an outpatient clinic and were allowed partial weightbearing. At 12 weeks postoperatively, full weightbearing was commenced depending on the progress of fracture union. Outpatient radiographic reviews were performed at 4-week intervals until union was achieved.

Garden classification of fracture neck of femur

Stage I: incomplete fracture line (valgus impacted)
Stage II: complete fracture line; non-displaced
Stage III: complete fracture line; partially displaced
Stage IV: complete fracture line; completely displaced

RESULTS

In 54 patients Garden 1(G1) cases were 4, Garden 2 (G2) cases were 19. Garden 3 (G3) group cases were 24 while 7 cases were in Garden 4(G4) group. Avascular necrosis and nonunion was observed in 11 cases. These patients were having displaced fracture and were in G3 and G4 groups. In these patients 2 cases were re operated by using fibular Graft. 4 patients were selected for total Hip replacement. AVN was in 19% cases and Nonunion was in 3% case.

Patients in G1 and G2 groups had good and excellent results. In non-displaced group 100% union was observed.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Garden1</th>
<th>Garden2</th>
<th>Garden3</th>
<th>Garden4</th>
</tr>
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<tr>
<td>No. of patients</td>
<td>4</td>
<td>19</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>Union achieved</td>
<td>100%</td>
<td>94%</td>
<td>75%</td>
<td>43%</td>
</tr>
<tr>
<td>Nonunion/ avascular necrosis</td>
<td>Nil</td>
<td>1 (5%)</td>
<td>6 (25%)</td>
<td>4 (57%)</td>
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</table>

The overall incidence of complication i.e. nonunion and avascular necrosis for all patients was 20%. Fracture nonunion was less common (p < 0.0001) for undisplaced fractures than for displaced fractures (11 of 54 [20%] (Table 1). At the final followup, surgical treatment generally with an arthroplasty was performed for
4 out of 11 patients with avascular necrosis and fibular grafting for treatment of non-union of the displaced fractures.

**Table 1. Demographic data**

<table>
<thead>
<tr>
<th>Data on patients (overall)</th>
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<tr>
<td>Number of fractures</td>
<td>54</td>
</tr>
<tr>
<td>Mean age (y)</td>
<td>53.5 (18–65)</td>
</tr>
<tr>
<td>Mean duration of follow up (months)</td>
<td>12 months</td>
</tr>
<tr>
<td>Fracture type</td>
<td></td>
</tr>
<tr>
<td>Un-displaced (Garden I, II), n (%)</td>
<td>23 (42%)</td>
</tr>
<tr>
<td>Displaced (Garden III, IV), n (%)</td>
<td>31 (57.4)</td>
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<tr>
<td>Fracture reduction</td>
<td></td>
</tr>
<tr>
<td>Excellent, n (%)</td>
<td>43 (67.2)</td>
</tr>
<tr>
<td>Union rate after one operation, n (%)</td>
<td>62 (96.9)</td>
</tr>
<tr>
<td>Rate of osteonecrosis, n (%)</td>
<td>8 (14.5)</td>
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<tr>
<td>Rate of conversion to total hip arthroplasty, n (%)</td>
<td>3 (4.49)</td>
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</table>

**DISCUSSION**

The aim of the study is to find the outcome of neck of femur fracture fixation who presented late or surgery was performed late. Two main complications were found in the series i.e. nonunion and avascular necrosis were found. The main complication of internal fixation of intracapsular fractures is nonunion of the fracture.14,15. This term is used for fractures in which the fixation fails to hold and the fracture is displaced before union has occurred or the more unusual situation of the fracture failing to heal with the fixation intact.

Numerous other factors that may influence later development of fracture-healing complications have been studied. These include patient factors such as the presence of rheumatoid arthritis and metabolic bone disease and surgical factors such as timing of surgery, quality of the reduction and fixation, and positioning of the implant16,17,18. These factors, although relevant in determining the best treatment method or outcome for a patient with an intracapsular fracture, are outside the scope of this study.

In the study by Parker M.I et al9 the incidence of nonunion was 19.3%. Fracture nonunion was less common for un-displaced fractures than for displaced fractures (48 of 565 [8.5%] versus 171 of 568 [30.1%]) and in men than in women (35 of 271 [12.9%] versus 184 of 862 [21.3%]). The incidence of nonunion progressively increased with age from one of 17 (5.9%) in patients younger than 40 years to 84 of 337 (24.9%) in patients in their 70s. In our study the nonunion was 11% which was in garden type 3 and 4 fractures.

Seyedet al.20 reported the complication in 11% patients but their study was not in patients with late presented patients while in our study the complications were associated only in displaced fractures i.e. Garden 3 and Garden 4 groups.

**CONCLUSION:**

In young Adults with displaced fracture neck of femur, early fixation with multiple cannulated screws after proper anatomical reduction can save patients from lifelong limb disabilities.

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Vitamin A deficiency

A 4-year-old boy with a 1-year history of enlarging white deposits in both eyes and decreasing night vision. On examination, the conjunctivae of both eyes appeared dry and wrinkled, with foamy, cream-colored deposits near the outer corners. The corneas were clear, the fundi were normal, and the visual acuity was 20/30 in both eyes. The child was anaemic with hypopigmented hair, a weight of 10.5 kg and a height of 92 cm.

D.D. Sjögren’s syndrome, Pyridoxine deficiency, Vitamin A deficiency, Loaisis, Type 1 diabetes
Frequency of Most Common Presenting GI Symptoms & Signs in Dengue in a Tertiary Care Hospital, Peshawar (KPK) during Dengue Epidemic in 2017

Awais Naeem MRCP, Fahad Naeem MRCP, FCPS, M. Bilal Awan FCPS, M. Talha Khan MBBS, Aamer Ubaid MBBS, Farishta Waheed MBBS

ABSTRACT
Objective: The aim of this study was to determine the frequency of gastrointestinal symptoms and signs in patients admitted with Dengue fever.
Materials and Methods: A descriptive study was conducted in Dengue isolation unit, Lady Reading Hospital, Peshawar from 01/09/2017 to 30/09/2017. In this study complete medical record of 407 Patients with confirmed Dengue was reviewed for presence of gastrointestinal symptoms and signs.
Results: In Patients admitted with Dengue, nausea and vomiting were the most common gastrointestinal symptoms in 69.7% of cases, followed by abdominal pain in 41.3% and diarrhea in 13.7%. Hepatomegaly or splenomegaly were present in 2.9% while hematemesis was present in 1.3% of cases.
Conclusion: Our study concludes that gastrointestinal symptoms and signs are very common in patients with Dengue fever.
Key words: Dengue fever, Gastrointestinal symptoms and signs, alarm features, Dengue shock syndrome

INTRODUCTION
The female Aedes aegypti and Aedes albopictus mosquito is the vector that transmits Dengue virus which is a RNA Flavivirus.1,2 It is a significant cause of morbidity and mortality in developing countries, including Pakistan with millions of people at risk. Till 2016 almost 71649 Dengue cases were reported with 757 deaths.3-5 Currently the disease is endemic in 112 countries in Africa, America, the Eastern Mediterranean, Southeast Asia and the Western Pacific. It is estimated that approximately 250 million people living in tropical and subtropical areas are at risk to the disease.6 After the initial 1997 WHO classification of Dengue, WHO reclassified Dengue into two groups in 2009, uncomplicated and severe.7 Severe Dengue is defined as infection associated with bleeding, severe organ dysfunction or severe plasma leakage while all other cases are uncomplicated.

Gastrointestinal are presenting and most common symptoms in patients who are admitted with Dengue fever. It might be the first or single presentation of Dengue fever. If overlooked or delayed, misdiagnosis is possible. It is wise to include Dengue in differential diagnosis in any patients, in the tropical area, if it presents with gastrointestinal disorder.

Dengue classification schemes support a range of activities from clinical triage and treatment to epidemiologic, vaccine and drug studies. Each guideline has been evaluated by a number of groups and the 2009 classification has superseded the 1997 classification for all aspects of Dengue virus infection.8-12 The WHO issued additional documents on Dengue management in 2011 and 2012.13-14 Dengue fever can present with a wide range of clinical presentation ranging from asymptomatic infection to severe disease. The acute phase of the disease (4 to 7 days) usually begins with a fever and can be indistinguishable in the initial stages from acute febrile illnesses from other infectious diseases.15 Reports suggest that Dengue can cause fatality with multiorgan dysfunction. In the areas where more than one serotype...
of Dengue virus is endemic, the incidence of Dengue hemorrhagic fever and Dengue shock syndrome is comparatively high.\textsuperscript{8,9} Although gastrointestinal manifestations are considered to be an alarm sign in Dengue fever, the degree of association between these features and clinical course of the disease has only been determined by a few studies. Hence the presence of gastrointestinal symptoms and signs can prove to be a clinical marker of severe disease.\textsuperscript{8,12-14} From May to November 2017, Peshawar was facing an epidemic of Dengue fever. Therefore the aim of this study was to determine the frequency of gastrointestinal symptoms and signs in a Cohort of patients with Dengue fever.

**PATIENTS AND METHODS**

This descriptive study was conducted in 407 in-patients with the clinical and serological diagnosis of dengue virus infection, who were admitted in Dengue Isolation Unit, Lady Reading Hospital, Peshawar, Khyber Pukhtunkhwa, from 1\textsuperscript{st} September to 30\textsuperscript{th} September 2017

**Inclusion criteria:** Clinical symptoms consistent with acute dengue fever. Dengue Serology (IgM antibodies or NS1 antigen positive).

**Exclusion Criteria:** Pediatric age group less than 16 years. Patients with malarial parasite positive. Known liver cirrhosis. Known peptic ulcer disease. Stool culture positive in diarrheal patients. Clinical evidence of other infections positive on septic screen. Known bleeding disorder. This study was conducted after approval from hospital ethical and research committee.

All patients fulfilling the inclusion criteria were selected. Detailed history, physical examination, routine investigation were done in all included patients. Patients were monitored closely round the clock and given standard supportive care. Patients were discharged after complete recovery.

All the inpatient assessments and treatment procedure were carried out under the strict supervision of a consultant physician. All above-mentioned information including name, age, gender and address were recorded in a predesigned proforma. Strict exclusion criteria were followed to excluded confounders and bias in study design. All the data was stored and analyzed in SPSS version 24. Frequency and percentages were calculated for categorical variables. GI symptoms were stratified by age and gender to see the effect modification.

**RESULTS**

A complete medical record of 407 Patients with confirmed dengue was reviewed. 40 patients did not meet the inclusion criteria/came under the exclusion criteria, and were excluded from the study population. A total number of 367 patients were included in the study with dengue fever. Out of 367 patients, 210 (57.1\%) were male, while 157 (42.9\%) were female. The age of the patients ranged from 16 to 80 years. In this study, the overall mean age was 44.7 years with a standard deviation of 20.61 years. The minimum age was 16 years and the maximum was 79 years. Majority of the patients 95 (25.9\%) were in the age range of 31-40 years followed by 77 (20.9\%) patients in the age range of 41-50 years.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>All N</th>
<th>Nausea/Vomiting n/%</th>
<th>Abdominal pain n/%</th>
<th>Diarrhea n/%</th>
<th>Hematemesis n/%</th>
<th>Hepato/Splenomegaly n/%</th>
</tr>
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<tr>
<td>16-20</td>
<td>29</td>
<td>7.9</td>
<td>15/ 51.7</td>
<td>8/ 27.5</td>
<td>4/ 13.8</td>
<td>0/ 0</td>
</tr>
<tr>
<td>21-30</td>
<td>77</td>
<td>20.9</td>
<td>52/ 67.5</td>
<td>33/ 42.9</td>
<td>11/ 14.2</td>
<td>1/ 1.3</td>
</tr>
<tr>
<td>31-40</td>
<td>95</td>
<td>25.8</td>
<td>73/ 76.8</td>
<td>45/ 47.4</td>
<td>17/ 17.9</td>
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<tr>
<td>41-50</td>
<td>63</td>
<td>17.1</td>
<td>49/ 77.8</td>
<td>26/ 41.2</td>
<td>9/ 14.3</td>
<td>0/ 0</td>
</tr>
<tr>
<td>51-60</td>
<td>56</td>
<td>15.2</td>
<td>38/ 67.9</td>
<td>27/ 48.2</td>
<td>7/ 26.9</td>
<td>1/ 1.8</td>
</tr>
<tr>
<td>61-70</td>
<td>42</td>
<td>11.4</td>
<td>27/ 64.3</td>
<td>13/ 30.9</td>
<td>3/ 7.1</td>
<td>0/ 0</td>
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<tr>
<td>71-80</td>
<td>5</td>
<td>1.3</td>
<td>2/ 40</td>
<td>0/ 0</td>
<td>0/ 0</td>
<td>1/ 20</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
<td>256/69.7%</td>
<td>152/41.3%</td>
<td>51/13.7%</td>
<td>5/1.3%</td>
</tr>
</tbody>
</table>
group between 21-30. 63(17.1%) of the patients were between 41-50 years age, 56(15.2%) were in age group 51-60 years, 42(11.4%) were between the age group 61-70 years, 29(7.9%) between age group 16-20 and 5(1.3%) were between 71-80 years age group.

The frequency of symptoms in the analyzed cohort showed that nausea/vomiting ranked first, registering 256 (69.7%) of the patients studied. Incidence was highest among the age group 41-50 at 77.8%. Abdominal pain was the other important manifestation with 152(41.3%) patients complaining of this symptom. The incidence of abdominal pain was highest in the age group 51-60 at 48.2%.

The frequency of other gastrointestinal manifestations was diarrhea 51(13.7%), hepatomegaly or splenomegaly 11(2.9%) and hematemesis 5(1.3%).

DISCUSSION:

These results showed a high frequency of gastrointestinal symptoms that range between 70 to 80% of patients suffering from Dengue virus infection which was consistent with studies done in other parts of the world. Nausea and vomiting were the most common gastrointestinal complaints in our study with an incidence of 69.7% affecting all age groups. These findings are consistent with the results showed by Fiestas et al in 2011, which reported the incidence of nausea/vomiting at 70.7%. Research suggests that one of the most common causes of vomiting are multiple petechial hemorrhages that occur at the level of the gastrointestinal mucosa, which triggers its irritation leading the patients to experience this symptom.

Another frequent gastrointestinal symptom was abdominal pain, which was present in 41.3% of patients studied and represented the second most frequent complaint. Abdominal pain was found in other researches to be a significant cause of morbidity, who reported a percentage ranging between 13 to 75.6%. The various mechanisms of abdominal pain were hypothesized by Khanna et al. to be hepatitis, pancreatitis, cholecystitis (acalculous) and acid peptic disease in patients suffering from Dengue fever. The other explanations for the abdominal pain includes stretching of the liver capsule, stimulation of the nerve plexus by distension of the retroperitoneal space due to edema or decreased mesenteric perfusion or pain of biliary or pancreatic origin. Plasma leakage induced ascites can sometimes manifest as abdominal pain which can be confused with acute abdomen. It has also been proposed that small hemorrhages in the peritoneal cavity could bepotential cause of the pain.

This study ranked diarrhea as the third most common gastrointestinal complaint that was present in 13.7% of the patients, which was lower than found in other studies where the frequency of diarrhea ranged from 24% to 32%.

Hematemesis and hepatomegaly occurred in 1.3% and 2.9% of patients respectively that was recorded similar to those reported in other studies. Regarding hepatomegaly, various possible explanations have been proposed for the emergence of this sign in patients with Dengue such as necrosis of hepatocytes and Kupffer cells and formation of Councilman bodies. Some cases detected physical displacement of the liver due to the accumulation of extravasated fluids by increased capillary permeability which is associated with the most severe presentation of Dengue fever. In some countries, the presence of hepatomegaly varies from one epidemic to another, suggesting that the strain and/or serotype may influence hepatic involvement.

CONCLUSION:

We conclude that gastrointestinal symptoms are very common in patients who are admitted with Dengue fever. Presence of gastrointestinal symptoms at the presentation can be used to triage the patient as high risk, requiring inpatient care. For the general practitioner, it should be noted that gastrointestinal presentation might be the first and single presentation of Dengue fever. It is overlooked and delayed or misdiagnosis is possible. Since up to two-third of the patients might have gastrointestinal disorder, it is wise to include Dengue as a differential diagnosis in any patients, in the tropical area, presenting with gastrointestinal disorder.

REFERENCES


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Prevalence of Depression in Epilepsy

Saeed Akhtar FCPS (Psy), 1 Ahmed Nawaz MBBS 2 , Hajira Khan MBBS 3

ABSTRACT
Objective: The objective of the present study was to determine the prevalence of depression among epileptic patients at tertiary care hospital at Bahawalpur.
Material and Methods: This was a cross-sectional study involving epileptic patients aged 18 years and above who were attending the psychiatry and medical outdoor of the Bahawal Victoria Hospital. Demographic data including age, gender, education, marital status and seizure type was obtained. For assessment of depression we used Hamilton Rating Scale for depression. The data was entered in SPSS version 16 and analyzed. Mild, moderate, severe and very severe types of depression were assessed in the form of frequencies.
Results: Depression was diagnosed in 28% of the patients. Out of them 9 were females and 19 were males. In females depression was diagnosed in 25% of the patients and in males depression diagnosed in 29.68% of the patients of epilepsy. Depression was more common in age group of 18-35 years of age. There was no association found in epilepsy and depression.
Conclusion: Depression is common in epileptic patients. If undiagnosed, it could significantly affect the quality of life of these patients. As effective treatment is available, there is need for clinicians treating epilepsy patients to routinely screen for depression.
Key words: epilepsy, depression, SPSS, frequencies, analysis

INTRODUCTION:
Epilepsy is amongst the most common serious neurological conditions. The global prevalence of epilepsy is generally taken as between 5 and 10 cases per 1000 persons. 1,2 Studies have shown various differences in epidemiological patterns of epilepsy around the world. 3 Few epidemiological studies of epilepsy are available from Pakistan. 4-6. This subject has not been thoroughly investigated. The recent estimates of population of Pakistan exceed 140 million, whereas the total number of trained neurologists in Pakistan is estimated to be less than 30 (verbal communication at the annual meeting of Pakistan International Neuroscience Society (PINS) 2001). There are approximately 350 neurologists of Pakistani origin in North America (Data collected by PINS from various directories of neurologists 2001). Based on the available data, it is estimated that 1.38 million people are suffering from epilepsy in Pakistan, which makes it one neurologist available for every 46200 sufferers of epilepsy.

Almost 30-50% of epileptic patients have clinical depression as well. 1,2 Incidence of suicide and deliberate self-harm is believed to be at least five times higher in epileptic patients than in general population. Patients with temporal lobe epilepsy are even more vulnerable to commit suicide. 3 Also in children it has shown to be strongly associated with suicidal behavior. 4 Depression has also been found to be the most important factor associated with reduced quality of life (QOL) in epilepsy rather than epilepsy itself. 5

Depression is common in epileptic patients. If undiagnosed, it could significantly affect the quality of life. Since effective treatment is available, there is need for clinicians for treating epileptic patients to routinely screen for depression.

Unfortunately depression remain unrecognized and untreated in large number of epileptic patients and usually not given attention in the overall management of epilepsy. 5

Few studies have been carried out to know the prevalence of epilepsy in Pakistan. Depression is one of the most prevalent psychiatric disorders occurring
in patients with epilepsy. Most of the time it is under recognized and has a huge impact on their quality of life. Patients with epilepsy have a higher prevalence of depression than the general population and studies estimate the incidence to range between 20% and 54%.

MATERIAL AND METHODS:
This was a cross sectional study involving epileptic patients aged 18 years and above who were attending the psychiatry and medical outdoor of the Bahawal Victoria Hospital Bahawalpur, from February to August 2014. All the patients were included in the study who presented during the study period. Informed consent was obtained from all the patients. Patients who were mentally treated or who had psychiatric illness other than depression were excluded. Similarly patients having other medical problems were also excluded. A total of 100 patients were included in the study.

Unfortunately, there are currently no specific screening instruments to identify anxiety in epilepsy; however, the standardized clinical tools used to assess anxiety in psychiatric settings can be employed. The Hospital Anxiety and Depression Scale, a self-report scale measuring anxiety and depressive symptoms, was developed to investigate various dimensions of mood in patients with medical co-morbidities. It includes anxiety (seven items) and depression (seven items) subscales, and the total score ranges from 0 to 21, with a higher score reflecting a worse psychiatric status. Subscale scores of >8 represent pathological levels of anxiety and depression.

Demographic data including age, gender, education, marital status and seizure type was obtained. For assessment of depression we used Hamilton Rating Scale for depression. The data was entered in SPSS version 16 and analyzed mild, moderate, severe and very severe types of depression were assessed in the form of frequencies. Estimates of depression prevalence among epilepsy patients and association between epilepsy and depression (estimated with reported odd ratios (ORs) were provided.

RESULTS:
Total 100 epileptic patients were included in the study. Among them 64 (64%) were males and 36 (36%) were females. 55% of the females and 47% of the males were married. Mean age of the patients was 30.5±5.3459% of the patients were on antiepileptic drugs already. About 65% had epileptic fit during last one month.

Depression was diagnosed in 28% of the patients. Out of them 9 were females and 19 were males. In females depression was diagnosed in 25% of the patients and in males depression diagnosed in 29.68% of the patients. Depression was more common in age group of 18-35 years of age.

Categorized into mild, moderate, severe and very severe according to Hamilton Rating Scale for depression. Only one patient had very severe depression and two were having severe depression. Notably all three of them were males, not taking antiepileptic drugs and having fit during last one month. Rest of the patients were having mild to moderate depression. Another finding of our study is that the rate of depression was higher in the patients not taking the antiepileptic drugs i.e. 29.26% (12 patients), as compared to 27.1% (16 patients out of 59 patients). But the difference was not statistically significant.

Chi-square test of association shows that epilepsy was not significantly associated with depression. There was no significant difference in degree of depression between married and unmarried patients. No significant association was fond between educational level and degree of depression. No patient was on antidepressant medication.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Depression</th>
<th>Total</th>
<th>P. value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>19 (29.69)</td>
<td>45 (70.31)</td>
<td>64 (64)</td>
</tr>
<tr>
<td>Female</td>
<td>9 (25)</td>
<td>27 (75)</td>
<td>36 (36)</td>
</tr>
<tr>
<td>Total</td>
<td>28 (28)</td>
<td>72 (72)</td>
<td>100</td>
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<th>P. value</th>
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<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12 (20.34)</td>
<td>47</td>
<td>59</td>
</tr>
<tr>
<td>No</td>
<td>16 (39.02)</td>
<td>25</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>28 (28)</td>
<td>72 (72)</td>
<td>100</td>
</tr>
</tbody>
</table>
Prevalence of Depression in Epilepsy

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Depression</th>
<th>Total</th>
<th>P. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-35</td>
<td>Yes (35) (66.04)</td>
<td>No (18) (33.96)</td>
<td>53 (53)</td>
</tr>
<tr>
<td>36-50</td>
<td>5 (25)</td>
<td>15 (75)</td>
<td>20 (20)</td>
</tr>
<tr>
<td>51-65</td>
<td>11 (40.74)</td>
<td>16 (59.26)</td>
<td>27 (27)</td>
</tr>
<tr>
<td>Total</td>
<td>28 (28)</td>
<td>72 (72)</td>
<td>100</td>
</tr>
</tbody>
</table>

Grade of depression

- Mild to Moderate: 25
- Severe: 2
- Very Severe: 1

DISCUSSION:

This study found the frequency of depression among epilepsy patients to be 28% that is close to previous studies. Despite its relatively high prevalence, no patient was on antidepressant medication. The reason of this phenomenon is that the patients in our society do not think that they need to report their symptoms of depression and clinician do not see a need to inquire about depression or to treat it, in epileptic patients. Depression was more common in age group 18 to 35 years, accounting for 12 (42.8%) out of the total 28 patients depression. This is similar to a study from Nigeria the reason may be that this age group is searching for jobs and marriage partner. They may be having more social difficulties in this struggle due to epilepsy.

Another finding of our study is that rate of depression was higher in the patient not taking the anti epileptic drugs although difference was not statistically significant. Our hypothesis is that antiepileptic drugs like sodium valproate and carbamazepine for example are also mood stabilizers and this difference is due to this effect.

A study was done by Knoun.Y in US according to that many recent epidemiological studies have found the prevalence of depression and anxiety to be higher in people with epilepsy (PWE) than in people without epilepsy. Furthermore, people with depression or anxiety have been more likely to suffer from epilepsy than those without depression or anxiety. Almost one-third of PWE suffer from depression and anxiety, which is similar to the prevalence of drug-refractory epilepsy.

A study was conducted in Pakistan by Khatri.A according that overall prevalence of epilepsy in Pakistan is estimated to be 9.99 per 1000 population. Highest prevalence is seen in people younger than 30 years of age. A slight decrease in prevalence is noted between the ages of 40 and 59. Higher prevalence is observed in rural population. Etiology of epilepsy is more commonly identified in pediatric population. Epilepsy was considered idiopathic in 21 to 76% cases. Only 27.5% epileptic persons in urban areas and 1.9% in the rural areas were treated with AEDs. The burden of epilepsy is not fully evaluated and understood. Generalized seizures were the most common seizure type noted. Knowledge about epilepsy and its care is extremely low.

Similarly another study was conducted in Pakistan by Aziz.H according that Mean onset of epilepsy was 13.3 years, and 74.3% epileptic persons were aged <19 years at onset of the disorder. The most common seizure type was tonic clonic in 77% (primary generalized tonic-clonic (GTC) in 59% and secondarily generalized in 18%), simple partial (SPS) in 5%, complex partial (CPS) in 6%, generalized absence in 1%, tonic in 3%, and myoclonic in 3% cases. Multiple seizure types in the same person were evident in 9.6% of only the generalized group. A putative cause could be suggested in 38.4% of cases; 32% had a positive family history of epilepsy, most common among siblings. Common perceived precipitants included fever in 29.2% and emotional disturbances in 16.6%. Only 3% of epileptic persons believed that their illness was due to supernatural causes. Treatment status was very poor, with only 2% rural and 27% urban epileptic persons receiving antiepileptic drugs (AEDs) at the time of the survey. We discuss the logistic and management problems of population-based epidemiologic studies in developing countries.

In epilepsy patients, factors related to seizures, such as the type of seizure, frequency of seizures, age of onset, the duration of illness, whether the illness is controlled or not, the number of medications used, additional neurological deficits and psychosocial factors may be related to the development of psychopathology. we could not study these factors in relation to development of depression in epileptic patients.

This study has shown that many of epileptic patients can have depression also Which is a treatable condition which patients a new life.

CONCLUSION:

Depression is common in epileptic patients. If undiagnosed, it could significantly affect the quality of life of these patients. As effective treatment is available, there is need for clinicians treating epilepsy patients to routinely screen for depression.
REFERENCES:

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Unpigmented Ocular Melanoma

An unusual number of ocular melanoma with visible blood vessels, a rare cancer of the eyes. Columbia University, is doing genetic testing of tissue samples to the fact why unpigmented Iris melanoma be occurring more than normal. Certain factors do increase the risk for ocular melanoma. Older age, light-colored (blue or green) iris, caucasian heritage, inherited skin conditions like dysplastic nevus syndrome, abnormal skin pigmentation involving the eyelids and increased pigmentation on the uvea and moles in the eye. Exposure to natural sunlight or artificial sunlight over long periods of time may also cause a melanoma on the surface of the eye (conjunctival melanoma).

Curtesy: Nejm UK
ABSTRACT:
Objective: To assess the knowledge, attitude and practice regarding the oral health in our community. It was a cross sectional study from January 2018 to June 2018, in Nishtar Institute of dentistry Multan
Material and methods: A total number of 378 patients were enrolled in this study. A questionnaire was developed to gather the information required for the determination of knowledge, attitudes and behavior of the patient towards oral health. The questionnaire comprised of thirty three questions regarding different aspects of oral health care. It involved questions regarding demographic information, knowledge, attitudes and behavior of the patients.
Results: Regarding oral care, n=213 (56.3%) used tooth paste, n=260 (68.8%) patients brush once a day, n=178 (47.1%) used vertical technique for brushing. n=138 (36.5%) changed their brush every six months while n=60 (15.9%) changed their brush after one year. n=189 (50%) patients brush their teeth in morning, n=166 (43.9%) brush their teeth for cleaning purpose. n=144 (38.1%) visited to dentist when they felt pain. n=170 (45%) ignore, n=98 (25.9%) go to the dentist and n=110 (29.1%) use home remedies when they felt dental decay. n=239 (63.2%) patients’ family members brush their teeth regularly. Self-medication was observed as n=269 (71.2%).
Conclusion: Although majority of the patients had good knowledge about health care but it was not associated with better attitudes, behavior and practicing of healthy habits. It can be suggested that poor socioeconomic conditions of majority of the public and lack of motivation for oral hygiene are the cause of poor behavior, attitude and practicing of dental care.
Keywords: Knowledge, Attitudes, Behavior, Oral Health

INTRODUCTION:
In recent years a considerable reduction in incidence and severity of oral diseases has been observed especially in developed countries1. A systemic and organized dental care has been employed to improve the oral health in children and young adults2-3. As a result of this systematically organized way of oral health care there has been significant decline in the frequency of dental caries in patients4. Another advantage of this mode of health care is that, an increased number of adults are now able to keep their original denture for later stages of the life5. But it has only improved overall dental health in developed countries unlike in developing countries where dental care is still one of the major health problems6.

The reasons behind the improvement in overall dental health in developed and industrialized countries are the life style modifications, improved self care practices, changing living conditions and establishment of dental care programs. Moreover overall attitudes and behavior of general public have also grown7. On the contrary in developing countries incidence of dental caries has increased gradually8. It can be attributed to the fact that no dental or oral health care programs are performed in these communities.

Poor socioeconomic conditions of majority of the public and lack of motivation for oral hygiene are the causes of poor behavior, attitude and practicing of dental care.

MATERIAL AND METHOD:
A total number of 378 patients were enrolled

1.2.3. House Officers.

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Received: June’2018 Accepted: August’2018
in this study. The study was performed in Nishtar Institute of Dentistry Multan from January 2018 to June 2018. All the patients aged 10 to 70 presenting to the out-patient department with the complaint of tooth ache were included in this study. Approval for the study was obtained from the Hospital Ethics Committee. Sample size was calculated from the reference study by Muhammad K. Al-Omri et al. Non probability consecutive type of sampling technique was used to collect the sample size. A questionnaire was developed to gather the information required for the determination of knowledge, attitudes and behavior of the patient towards oral health. The questionnaire comprised of thirty three questions regarding different aspects of oral health care. It involved questions regarding demographic information, knowledge, attitudes and behavior of the patients.

Demographic information included age, gender, education status, occupations, socio-economic status, type of family and religion. For knowledge regarding dental pain, causes of the rapid dental decay, source of oral health knowledge and frequency of visit to dentist were asked. Similarly for attitude regarding dental pain treatment questions regarding, duration of pain, relieving factor, aggravating factor, type of pain, intensity, associated symptoms, time when pain started, time period between 1st and 2nd incidence of pain. Practicing of oral care was judged by asking question about methods and frequency of cleaning teeth, technique of brushing, change of brush, time of brushing, reason to brush the teeth, reason for last dental visit, approach if there is dental decay, brushing habits of family members, home remedies and medications. All the data thus calculated was subjected to statistical analysis. Computer software SPSS version 23 was used to analyze the data. Frequency and percentage was calculated for quantitative variables while mean and standard deviation was calculated for qualitative variables.

RESULTS:

378 were included in this study, both genders, revealed as n=257 (68%) males and n=121 (32%) females. The mean age of the patients was 26.14±3.15 years. There were n=196 (51.9%) patients literate and n=182 (48.1%) were illiterate. The mean age of the patients was 26.14±3.15 years. There were n=196 (51.9%) patients literate and n=182 (48.1%) were illiterate. Occupations distribution observed as n=47 (12.4%) employee, n=61 (16.1%) worker, n=121 (32%) student, and n=149 (39.4%) house wife. Socio-economic status noted as n=92 (24.3%) upper class, n=125 (33.1%) middle class and n=161 (42.6%) lower class.

Knowledge regarding dental pain was assessed from the patients from different questions. It was seen that majority of the patients were unfamiliar about the knowledge regarding dental pain table II. Attitude towards dental pain treatment of the patients were shown in table III. It was observed that majority of the patients did not take proper remedy for dental pain.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
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<tr>
<td>Age (years)</td>
<td>26.14±3.15</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>257</td>
<td>68</td>
</tr>
<tr>
<td>Female</td>
<td>121</td>
<td>32</td>
</tr>
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<td>Education status</td>
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<td>196</td>
<td>51.9</td>
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<tr>
<td>Illiterate</td>
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<td>48.1</td>
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<td>Occupations</td>
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<td></td>
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<tr>
<td>Employee</td>
<td>47</td>
<td>12.4</td>
</tr>
<tr>
<td>Worker</td>
<td>61</td>
<td>16.1</td>
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<tr>
<td>Student</td>
<td>121</td>
<td>32</td>
</tr>
<tr>
<td>House wife</td>
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<td>39.4</td>
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<tr>
<td>Socio-economic status</td>
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<td></td>
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<tr>
<td>Upper class</td>
<td>92</td>
<td>24.3</td>
</tr>
<tr>
<td>Middle class</td>
<td>125</td>
<td>33.1</td>
</tr>
<tr>
<td>Lower class</td>
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<td>42.6</td>
</tr>
<tr>
<td>Type of family</td>
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<td></td>
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<tr>
<td>Joint</td>
<td>250</td>
<td>66.1</td>
</tr>
<tr>
<td>Nuclear</td>
<td>128</td>
<td>33.9</td>
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<table>
<thead>
<tr>
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<th>Percentage</th>
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</thead>
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<td>What causes the rapid dental decay</td>
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<tr>
<td>Decreased brushing frequency</td>
<td>227</td>
<td>60.1</td>
</tr>
<tr>
<td>Increased sugar intake</td>
<td>75</td>
<td>19.8</td>
</tr>
<tr>
<td>Cold drink consumption</td>
<td>76</td>
<td>20.1</td>
</tr>
<tr>
<td>Source of oral health knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media source</td>
<td>42</td>
<td>11.1</td>
</tr>
<tr>
<td>Family members</td>
<td>151</td>
<td>39.9</td>
</tr>
<tr>
<td>Friends</td>
<td>57</td>
<td>15.1</td>
</tr>
<tr>
<td>Variable</td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------</td>
<td>------------</td>
</tr>
<tr>
<td>Teachers</td>
<td>105</td>
<td>27.8</td>
</tr>
<tr>
<td>Others</td>
<td>23</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>If gums bleed what you do</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop brushing</td>
<td>140</td>
<td>37.0</td>
</tr>
<tr>
<td>Increase brushing</td>
<td>76</td>
<td>20.1</td>
</tr>
<tr>
<td>Go to dentist</td>
<td>36</td>
<td>9.5</td>
</tr>
<tr>
<td>Nothing</td>
<td>126</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>Is oral health related to systemic health</strong></td>
<td></td>
<td></td>
</tr>
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<td>Yes</td>
<td>292</td>
<td>77.2</td>
</tr>
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<td>86</td>
<td>22.8</td>
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<tr>
<td><strong>Frequency of visit to dentist</strong></td>
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</tr>
<tr>
<td>Every 6 months</td>
<td>18</td>
<td>4.8</td>
</tr>
<tr>
<td>After a year</td>
<td>95</td>
<td>25.1</td>
</tr>
<tr>
<td>Never</td>
<td>265</td>
<td>70.1</td>
</tr>
<tr>
<td><strong>Is it essential to visit dentist every 6 months</strong></td>
<td>458</td>
<td>120.0</td>
</tr>
<tr>
<td>Yes</td>
<td>245</td>
<td>64.8</td>
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</table>

Table III Attitude Regarding Dental Pain Treatment

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<tr>
<th>Variable</th>
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<tbody>
<tr>
<td><strong>Duration of pain</strong></td>
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<td></td>
</tr>
<tr>
<td>5 minutes</td>
<td>45</td>
<td>11.9</td>
</tr>
<tr>
<td>&gt;5 minutes</td>
<td>49</td>
<td>13.0</td>
</tr>
<tr>
<td>20 minutes</td>
<td>40</td>
<td>10.6</td>
</tr>
<tr>
<td>30 minutes</td>
<td>52</td>
<td>13.8</td>
</tr>
<tr>
<td>Continuous pain</td>
<td>192</td>
<td>50.8</td>
</tr>
<tr>
<td><strong>Relieving factor</strong></td>
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<td></td>
</tr>
<tr>
<td>Cold water gargles</td>
<td>19</td>
<td>5.0</td>
</tr>
<tr>
<td>Pain killers</td>
<td>206</td>
<td>54.5</td>
</tr>
<tr>
<td>Salt water gargles</td>
<td>55</td>
<td>14.6</td>
</tr>
<tr>
<td>Tooth paste</td>
<td>98</td>
<td>25.9</td>
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<tr>
<td><strong>Aggravating factor</strong></td>
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</tr>
<tr>
<td>Mastication</td>
<td>22</td>
<td>5.8</td>
</tr>
<tr>
<td>Sweets</td>
<td>116</td>
<td>30.7</td>
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<tr>
<td>Hot and cold things</td>
<td>151</td>
<td>39.9</td>
</tr>
<tr>
<td>Food impaction</td>
<td>28</td>
<td>7.4</td>
</tr>
<tr>
<td>Sour things</td>
<td>61</td>
<td>16.1</td>
</tr>
<tr>
<td><strong>Type of Pain was</strong></td>
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<tr>
<td>Spontaneous</td>
<td>92</td>
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<tr>
<td>Stimulated</td>
<td>70</td>
<td>18.5</td>
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<tr>
<td>Referred</td>
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<tr>
<td>Non-referred</td>
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<td>32.5</td>
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<td><strong>Intensity</strong></td>
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<td>Mild</td>
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<tr>
<td>Moderate</td>
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<td>Severe</td>
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<td><strong>Associated with</strong></td>
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<td>Swelling</td>
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<td>Fever</td>
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<td>Sinus</td>
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<tr>
<td>Nothing</td>
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<td>40.7</td>
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<tr>
<td><strong>Sensitivity to</strong></td>
<td></td>
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<tr>
<td>Cold</td>
<td>216</td>
<td>57.1</td>
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<tr>
<td>Hot</td>
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<td>14.6</td>
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<tr>
<td>Sweet</td>
<td>76</td>
<td>20.1</td>
</tr>
<tr>
<td>Sour</td>
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<td><strong>When did the pain started recently</strong></td>
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<td></td>
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<tr>
<td>Within one week</td>
<td>254</td>
<td>67.2</td>
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<td>Before one week</td>
<td>52</td>
<td>13.8</td>
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<tr>
<td>Before 2 weeks</td>
<td>54</td>
<td>14.3</td>
</tr>
<tr>
<td>Before 1 month</td>
<td>18</td>
<td>4.8</td>
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<tr>
<td><strong>Time period between 1st incidence of pain and 2nd incidence of pain</strong></td>
<td>790</td>
<td>210.0</td>
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<tr>
<td>1 week</td>
<td>53</td>
<td>14.0</td>
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<tr>
<td>2 weeks</td>
<td>95</td>
<td>25.1</td>
</tr>
<tr>
<td>More than 2 weeks</td>
<td>113</td>
<td>29.9</td>
</tr>
<tr>
<td>1 month</td>
<td>117</td>
<td>31.0</td>
</tr>
<tr>
<td><strong>What was your approach in case of pain</strong></td>
<td></td>
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<tr>
<td>Good doctor</td>
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<td>2.9</td>
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<tr>
<td>Private clinic</td>
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<tr>
<td>Brushing regularly</td>
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<td>Hakeem</td>
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<td>2.1</td>
</tr>
<tr>
<td>Quack</td>
<td>112</td>
<td>29.6</td>
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<tr>
<td>Home remedy</td>
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<td>20.6</td>
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<tr>
<td>Dam</td>
<td>4</td>
<td>1.1</td>
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<tr>
<td>Homeopathy</td>
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<td>2.9</td>
</tr>
<tr>
<td><strong>Why did you delay seeking consultation</strong></td>
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<td></td>
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<td>Busy life</td>
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<td>Mild tolerable pain</td>
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</tr>
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<td>Non availability of conveyance</td>
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<td>15.3</td>
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<tr>
<td>Costly treatment</td>
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<td>Pain is subsiding</td>
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<td>Hospital faraway</td>
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<td>14.6</td>
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<td>Dental treatment fear</td>
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<td><strong>Do you have habit of</strong></td>
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<tr>
<td>Panchaliya</td>
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<td>Niswar</td>
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</tr>
<tr>
<td>Smoking</td>
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<td>Carbonated drinks</td>
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<td>Milk</td>
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Table IV Practicing of Oral Care
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<td><strong>Methods of cleaning teeth</strong></td>
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<td>Tooth paste</td>
<td>213</td>
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<td>Dentonic powder</td>
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<td>9.0</td>
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<td>Miswak</td>
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<td>Mouth wash</td>
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<td>Tooth picks</td>
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<td>5.8</td>
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<td><strong>Frequency of brushing</strong></td>
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</tr>
<tr>
<td>Twice a day</td>
<td>46</td>
<td>12.2</td>
</tr>
<tr>
<td>Thrice a day</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>Once a day</td>
<td>260</td>
<td>68.8</td>
</tr>
<tr>
<td>Do not brush</td>
<td>67</td>
<td>17.7</td>
</tr>
<tr>
<td><strong>Technique of brushing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horizontal</td>
<td>170</td>
<td>45.0</td>
</tr>
<tr>
<td>Vertical</td>
<td>178</td>
<td>47.1</td>
</tr>
<tr>
<td>Circular</td>
<td>30</td>
<td>7.9</td>
</tr>
<tr>
<td><strong>Change of brush</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every 3 months</td>
<td>115</td>
<td>30.4</td>
</tr>
<tr>
<td>Every 6 months</td>
<td>138</td>
<td>36.5</td>
</tr>
<tr>
<td>After a year</td>
<td>60</td>
<td>15.9</td>
</tr>
<tr>
<td>When it gets rough</td>
<td>65</td>
<td>17.2</td>
</tr>
<tr>
<td><strong>Time of brushing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In morning</td>
<td>189</td>
<td>50.0</td>
</tr>
<tr>
<td>Before breakfast</td>
<td>13</td>
<td>3.4</td>
</tr>
<tr>
<td>In evening</td>
<td>22</td>
<td>5.8</td>
</tr>
<tr>
<td>Before going to bed</td>
<td>27</td>
<td>7.1</td>
</tr>
<tr>
<td>Both evening and morning</td>
<td>127</td>
<td>33.6</td>
</tr>
<tr>
<td><strong>Reason to brush the teeth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning purpose</td>
<td>166</td>
<td>43.9</td>
</tr>
<tr>
<td>Brightening of teeth</td>
<td>81</td>
<td>21.4</td>
</tr>
<tr>
<td>To stop bleeding</td>
<td>24</td>
<td>6.3</td>
</tr>
<tr>
<td>To stop cavity</td>
<td>107</td>
<td>28.3</td>
</tr>
<tr>
<td><strong>Reason for last dental visit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraction</td>
<td>123</td>
<td>32.5</td>
</tr>
<tr>
<td>Pain</td>
<td>144</td>
<td>38.1</td>
</tr>
<tr>
<td>Filling of cavity</td>
<td>111</td>
<td>29.4</td>
</tr>
<tr>
<td>On seeing dental decay what do you do</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignore</td>
<td>170</td>
<td>45.0</td>
</tr>
<tr>
<td>Go to dentist</td>
<td>98</td>
<td>25.9</td>
</tr>
<tr>
<td>Use home remedies</td>
<td>110</td>
<td>29.1</td>
</tr>
<tr>
<td>Do your family members brush their teeth regularly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>239</td>
<td>63.2</td>
</tr>
<tr>
<td>No</td>
<td>139</td>
<td>36.8</td>
</tr>
<tr>
<td><strong>What home remedies you use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clove</td>
<td>22</td>
<td>5.8</td>
</tr>
<tr>
<td>Salt water gargles</td>
<td>25</td>
<td>6.6</td>
</tr>
</tbody>
</table>

### DISCUSSION:
Numerous factors are responsible for oral hygiene and oral health behaviors in a population. Positive reinforcement and proper informing about the health care regimen improves the compliance of the patients towards the treatment. Non compliance and non adherence to the oral hygiene practices is directly associated with lack of information and motivation. The more the knowledge a patient has regarding the dental care the more will be the possibility of him to seek preventive health care. Knowledge regarding the seriousness of the dental problem and benefits of the treatment available are essential for seeking of health care.

The results of our study suggest that overall behavior and attitude of people regarding the practice of oral hygiene and seeking the preventive health care in case of any complaint is very unsatisfactory. A large number of the patients who presented at the out-patient department were illiterate and belonged to poor socioeconomic class of the society. In previous studies poor attitudes and behavior have been attributed to the lack of oral health education programs. The problem in our community is not very different health education programs are conducted. Previous studies also suggest that in order to improve the oral health conditions among the children and adults, dependency of patients on health personnel should be reduced and patients should be encouraged to be responsible for their own dental care.

Similarly preventive approach should be emphasized over curative approach by improving the lifestyles especially in those living in rural areas. Community oriented oral health programs must be conducted as also suggested by some previous studies by Zhu L et al and Varenne B et al. Studies in India by Mathur A et al and Garcha V et al indicated that overall behavior, attitudes and knowledge of oral health care among children and their parents needs improvements. This requires health educations as well as improvement in socioeconomic conditions as these conditions have direct influence on the behavior and attitude of participants of the study.
CONCLUSION:
Although majority of the patients had good knowledge about health care but it was not associated with better attitudes, behavior and practicing of healthy habits. It can be suggested that poor socioeconomic conditions of majority of the public and lack of motivation for oral hygiene are the cause of poor behavior, attitude and practicing of dental care.

Conflict of interest: There was no conflict of interest.

Funding Source: No external funding source was used.

REFERENCES:
ABSTRACT:
Background: Neglected clubfoot (NC) includes a variable range of complex deformities of the foot that are refractory to conventional treatments or are treated inappropriately. The Ilizarov method has become established as a tool for treating these deformities.

Objectives: The main objective of this study is to evaluate the functional outcome of neglected club foot using ilizarov external fixator in case series.

Materials and Methods: This study was conducted in Department of Orthopedics and Trauma, Khyber Teaching Hospital, Peshawar from January 2017 till December 2017. Data including age, gender, functional outcome and complications of surgery were documented on a pre-formed proforma. A limited soft tissue dissection like percutaneous Achilles sheath tenotomy and plantar fasciotomy were done, where needed. Progressive correction of the deformities was achieved through the standard and simple ilizarov frame construct setting. After removal of ilizarov frame, a short leg walking cast was used for an additional 6 weeks, followed by an ankle foot orthosis for 3 months. SPSS 18 was used for analysis.

Results: 18 feet in 12 patients were treated, 9 (72%) were male and 3 (28%) female. The mean age was 15 years (range: 6 to 30 years). The mean follow up period was 18 months. The final functional outcome according to Reinker and Carpenter scale was excellent in 5 (28%) feet, good in 10 feet (55%), fair in 2 (12%) and poor in 1(5%) feet. The main complications were pin track infection and loose wires.

Conclusion: It is concluded from analyzing this case series that treatment of neglected clubfoot using an external fixator has a high rate of excellent results, with low frequency of complications.

Key words: neglected clubfoot, Ilizarov frame

INTRODUCTION
In developing or under developing countries, neglected clubfoot is a common problem. The ratio of children suffering from congenital club foot is 80% in developing countries. The main reason behind this is the limited or late access to the trained specialists for treatment and healthcare system. Currently, non-surgical method is used to treat congenital club foot in newborn. Some feet cannot be adequately corrected with conservative treatment; though, majority of patients achieve satisfactory deformity correction with weekly serial manipulations and casting during the first six weeks of life. If the initial deformity is rigid, the likelihood of surgical treatment is increased. Children up to one year of age having idiopathic club foot present satisfactory result after corrective surgery. In approximately 20% of these patients due to recurrence of deformity, additional corrective surgery may be necessary.

Neglected clubfoot using an external fixator has a high rate of excellent results, with low frequency of complications.

Significant challenge is posed by the resistant and neglected clubfoot. With the goal to provide a pain free, plantigrade foot, several corrective procedures have been described. As an alternative to convention-
Functional Outcome of Neglected Club Foot Using Ilizarov External Fixator

al techniques, the Ilizarov method of external fixation and gradual distraction has been reported. With this method encouraging results are reported. The basis for the treatment is provided by the distraction osteogenesis principles that have been described by Ilizarov and colleagues. Simultaneous correction of all components of the clubfoot deformity is allowed by the progressive distraction offered by the external fixator. Preservation of foot size or lengthening of a baseline shortened foot is another advantage of Ilizarov external fixator over conventional methods.

All the severe foot deformities including neglected clubfoot with minimal surgery, risks of cutaneous or neurovascular complications and excessive shortening of the foot are corrected by the Ilizarov’s external fixator. For future orthopedic surgeons, the external fixation remains an essential tool. To correct many orthopedic deformities, the Ilizarov method is being used increasingly. Owing to the complexity of the deformities which must be corrected, the frames required for ankle and foot deformity correction are among the most difficult to construct. Ilizarov frame is applied in two parts, one to the leg and one to the foot. First, to the leg, a two-ring construct is applied. Two or one wire and one half pin is fixed with each ring. Foot construct is made of half ring on posterior side and half ring on anterior side. Two crossed olive wires and a half ring is fixed to the forefoot. One traverses the five metatarsals and the other fixed to the medial three metatarsals medially to laterally. Two crossed wires and a half ring was applied to the hind, though the calcaneus, with a Shanz pin is fixed to the calcaneus from posterior to anterior. Medial rod on a hinge is used to fix the forefoot half ring with the hind foot half ring and connected to the distal tibial ring by a central dorsal rod on a universal hinge. On each side of the central hole of the forefoot half ring, two dorsal rods were used in patients with forefoot supination. We report a series of functional outcome of neglected club foot using Ilizarov external fixator.

METHODOLOGY:

We evaluated as series of 18 feet in 12 patients with neglected CTEV treated with ilizarov external fixator at our department. All neglected club feet with common deformities like fore foot adduction or supination, or both, mid foot caves, short medial column and long lateral column, hind foot varus and equinus of the ankle were included in the study for treatment with Ilizarov. Patient unwilling for frame application or follow up and Resistant clubfeet with non healing ulcers over the callosities on the foot were excluded from the study. Dimeglio et al. classification was used to grade the severity.

The limb was cleaned and draped from foot mid thigh. Ilizarov frame was preassembled according to the deformity of foot as well as radiographs to correct without any stress over the related soft tissues.

Two full rings connected by four rods and mounted over the tibia with one transverse wire and two oblique wires in each ring. One half ring was mounted to the calcaneus, using two wires. Another half ring with two plain crossed wires was applied to forefoot and connected with the rings applied over the tibia through the hinges, plates, and conical washers were also used wherever required. The calcaneal half ring had three connections to the lower ring of the tibia frame (posteriorly, medially, and laterally), while the forefoot half ring had two connections situated medially and laterally and sometimes only one connection situated centrally to the long axis of the foot. One wire was passed in each toe and connected to forefoot half ring to prevent toe contracture.

Half ring over the calcaneus was used as a distractor or and compression was achieved through the
half ring over dorsum of the fore foot. Varus deformities of the heel were corrected through medial and lateral rods by compression and distraction method. These rods with hinges were applied in the rings fastened over the calcaneus and forefoot to increase or decrease the medial or lateral column according to the need of deformity correction. For correction of rotational like supination and pronation deformities, two frontal rods with hinges were applied in oblique directions connected with the ring in the forefoot and assembly over the leg and corrected accordingly. The sequence of deformities’ correction was gradual distraction of medial column and compression of lateral column to correct the forefoot adduction, 1 mm/day, which was started on the 3rd to 5th postoperative day. After correction of forefoot adduction supination, hind foot varus and finally equinus were corrected through the setting of the Ilizarov’s external fixator.

During follow up while distraction soft tissues tension, neurovascular status, and improvement in the correction of the deformities were observed clinically as well as radiologically. All patients were motivated and weight bearing was allowed as tolerance of the patients and their degree of correction. Required adjustments were done by the surgeon during stay in the hospital, and after discharge by either the patient himself/herself, or responsible family members were trained to move the nuts for compression, distraction, and lengthening through the markings. Patients and their attendants were trained to take care of pins by themselves. All the pins were cleaned with normal saline and dressed with sterilized gauzes. Regularly patient were followed in Ilizarov clinic weekly up to deformity correction, then fortnightly up to removal of the fixator. The decision to remove the fixator was made after correction of all required deformities. Even after complete correction, the distraction stopped and the Ilizarov was retained for a period of 4–6 weeks more. After fixator removal, all the pintract wounds were washed with saline, and aseptic dressings were done; a short leg plaster of Paris (POP) cast was applied for 2 weeks, the patients were reviewed at the outpatient clinic after 2 weeks and 6 weeks. After 6 weeks POP cast was removed and ankle foot orthosis (AFO) advised for 3 months.

RESULTS:
18 feet in 12 patients were treated in our study, 9 (72%) patients were male and 3 (28%) female. The mean age was 15 years (range: 6 to 30 years). The mean follow up period was 18 months. The mean distraction time for deformity correction was 6 weeks (range 4-12 weeks). The mean duration of fixator application was 6 months (range 4–08 months). The correction of the deformity and function were assessed and the results were graded based on the Reinker and Carpenter scale as follows:

Excellent: Painless, plantigrade foot with no functional limitations;
Good: Plantigrade foot in a patient able to ambulate long distances with mild pain;
Fair: Mild residual deformity, required bracing, and/or some functional limitations, but the patient leading an active life;
Poor: Significant residual deformity, pain, and activity limitations

Of all 18 patients result was excellent in 5 (28%) feet, good in 10 feet (55%), fair in 2 (12%) and poor in 1(5%). Excellent and good results are labeled as satisfactory and fair and poor results considered as unsatisfactory. The main complication noted was pin tract infection seen in 6 feet which were treated with oral antibiotics and pin tract care. Other complications were loose wires which were tightened in Ilizarov clinic, toe contractures and kinking of skin

DISCUSSION
Our study included 18 neglected clubfeet in 12 patients with ages ranging from 6 to 30 years (mean 15
Makhdoom A15 managed Twenty one patients with 27 feet having resistant clubfoot deformities by Ilizarov distraction histogenesis. At the time of removal of the fixator, a plantigrade foot was achieved in 25 feet and gait was improved in all patients. Out of 27 feet, 3 (11.11%) were rated as excellent, 17 (62.96%) as good, 5 (18.51%) as fair, and 2 (7.40%) as poor according to Reinker and Carpenter scale. Excellent and good results (74.07%) were considered satisfactory, while fair and poor results (25.92%) were considered unsatisfactory.

Freedman in 20066 conducted a review of 21 resistant clubfeet in 17 patients, at an average follow-up of 6.64 years (range, 2.25-10.50 years), 9.5% (2) achieved an excellent result; 4.8% (1), good; 33.3% (7), fair; and 52.4% (11) poor. All 11 of the feet graded poor required revision surgery. Franke et al17 treated 13 feet in 12 patients with clubfoot relapse using Ilizarov’s apparatus in children 8-15 years old. A plantigrade foot was achieved in all cases. All patients were able to wear ready-made shoes.

El Barbary et al16 achieved satisfactory correction using an Ilizarov fixator for treatment of 66 relapsed or neglected club feet (40 months follow up). Prem et al17 followed 19 feet managed by Ilizarov soft tissue distraction for 5-10 years postoperatively. They reported on 14 of 19 feet graded good or excellent and 13 of 14 children satisfied with the results of the treatment. Utukuri et al18 treated 26 resistant clubfeet in 23 children using Ilizarov technique. They reported unsatisfactory results of soft tissue and bony distraction with a recurrence rate of 70% for soft tissue distraction and 55% for bony distraction after a longer period of follow up (47 months), but found that functional results (patient based outcomes) were better despite a poor surgical outcome.

Reinker and Carpenter19 achieved excellent and good results in 21 of 23 feet treated by Ilizarov’s external fixation. Nineteen feet had received one or more osteotomies at the time of Ilizarov’s external fixation application; additional procedures were required during the course of treatment, including four percutaneous teno Achilles lengthening, two first metatarsophalangeal joint fusions, and takedown, ankle arthrodesis, Achilles tenodesis, and plantar arthrodesis in one case.

Hosny20 used the bloodless technique in treating 23 foot deformities in 22 patients without any real surgical incision; there was no need for soft tissue release or osteotomy, all patients had a plantigrade foot, and the results were rated as good in 20 and fair in 3 cases.

CONCLUSION:
It is concluded from analyzing this case series that treatment of neglected clubfoot using an external fixator has a high rate of excellent results, with low frequency of complications.

REFERENCES
Frequency of Delirium in Patients with underlying Urinary Tract Infection

Fatima Aamir Khan, FCPS(Psych)1 M. Fahim Qasim, FCPS(Psych)2
Prof. Fareed Aslam Minhas FCPS (Psych)3. Asad Tamizuddin Nizami, FCPS (Psych)4.

ABSTRACT
Introduction: Delirium is a common and serious disorder with high morbidity and mortality. A large proportion of patients with UTI suffer from delirium hence UTI is a common cause of delirium. The current study was aimed at determining the frequency of delirium in patients with underlying UTI.

Methods: A total of 96 patients aged 16-80 years, admitted to the medical unit with Urinary Tract Infection, excluding those with coma, speech/sensory impairments, generalized cognitive deficits, were consecutively recruited for the study. Having obtained the socio-demographic details via proforma, Confusion Assessment Method was administered to the patients and results were interpreted accordingly. Data was analyzed using SPSS 10.0.

Results: The mean age of the patients was 35.73(S.D±18.54), with an age range of 17-80 years. There was almost an equal gender distribution, with 50(52.08%) females and 46(47.92%) males. Among the patients with underlying UTI, 30(31.25%) had delirium, while 66 (68.75%) did not have any symptoms of delirium.

Conclusion: A large proportion of patients with UTI suffered from delirium which might indicate that UTI is a common cause of delirium. There should be more focus on detecting, preventing and treating UTI to avoid unnecessary suffering thus reducing morbidity and mortality.

Keywords: delirium, cognitive disorders, urinary tract infection

INTRODUCTION

Delirium is a major healthcare concern in developing countries with poor outcome. Health service planners and practitioners have yet to systematically tackle the potential for delirium diagnosis and prevention. Few guidelines have been produced and delirium remains disproportionately ignored relative to its impact.1 Delirium is an important problem for all clinical service particularly general medical wards. It is a complex neuropsychiatric syndrome comprising a broad range of cognitive and non-cognitive symptoms occurring in 11–42% of general medical inpatients and up to 50% of the hospitalized elderly with higher rates in patients with terminal illness and Medical Intensive Care Unit.2 Patients with delirium have increased length of stay, increased mortality and increased risk of institutional placement. Hospital mortality rates of patients with delirium range from 6 to18 %.3

Delirium is highly heterogeneous in its causation. Moreover, existing studies do not adequately account for the multifactorial nature of delirium aetiology and are predominantly cross-sectional in nature. Moreover, in around 10% of cases, no clear aetiology is usually identified.4 However a high index of suspicion relative to the presence of UTI especially in the elderly can precipitate delirium. In a study eighty-seven of 504 women (17.2%), were diagnosed as having a UTI with or without ongoing treatment when they were assessed, and almost half of them (44.8%) were diagnosed to be delirious or having had episodes of delirium during the past months. A large proportion of patients with UTI suffered from delirium which might indicate that UTI is a common cause of delirium.5 There should be more focus on detecting, preventing and treating UTI to avoid unnecessary suffering especially amongst older patients.

Patients with UTI suffer from delirium, a common cause. There should be more focus on detecting, preventing and treating UTI to avoid unnecessary suffering thus reducing morbidity and mortality.

Several diagnostic instruments have been developed for detecting delirium. USA and UK guidelines recommend the confusion assessment method for routine use. The diagnosis of delirium rests solely on clinical skills and no diagnostic test exists. This may partly explain why it is undiagnosed in over a half of patients with the condition. Delayed or missed diagnosis is an important issue. Non-detection of delirium in
Frequency of Delirium in Patients with underlying Urinary Tract Infection

emergency departments is associated with a sevenfold hazard for increased mortality. Unfortunately, very little is known about diagnosing delirium in clinical set-up in developing countries like Pakistan. The purpose of the current study was to address this overwhelming problem of delirium, and aims to determine the burden of delirium in patients with Urinary Tract Infections, in in-patients settings at Benazir Bhutto Hospital, which is a tertiary care setting. The prompt and early diagnosis should help improve the general health of the patients concerned also improving overall prognosis and preventing further deterioration.

**PATIENTS AND METHODS:**

This was a descriptive, cross-sectional study, carried out at the inpatient department of Benazir Bhutto Hospital, Rawalpindi, a tertiary care setting, for a period of 6 months from August 26th 2011 till February 26th 2012. The study was commenced after obtaining Hospital Ethical Committee approval. A total of 96 patients which included adults aged 18 years to 80 years, of both genders, admitted to Medical Unit, with Urinary Tract Infection. Patients with pre-existing generalized cognitive deficits, with speech or other sensory impairments or those who were comatose and were excluded. A written informed consent was obtained from the patients and a socio-demographic proforma was filled in to obtain the relevant socio-demographic details. Confusion Assessment Method (CAM) was applied to the patients by the principal researcher. The Confusion Assessment Method (CAM) includes an instrument and diagnostic algorithm for identification of delirium. The CAM instrument assesses the presence, severity, and fluctuation of 9 delirium features i.e., acute onset, inattention, disorganized thinking, altered level of consciousness, disorientation, memory impairment, perceptual disturbances, psychomotor agitation or retardation, altered sleep-wake cycle. The CAM diagnostic algorithm is based on four cardinal features of delirium: i) acute onset and fluctuating course ii) Inattention (iii) disorganized thinking, and (iv) altered level of consciousness. A diagnosis of delirium according to the CAM requires the presence of features 1, 2, and either 3 or 4. The CAM demonstrated sensitivities from 94–100%, specificities from 90–95%, positive predictive accuracy of 91–94%, negative predictive accuracy of 90–100%, interrater reliability ranging from 81–100.

**RESULTS:**

Table 1 showing the mean age of the participants (n=96). The mean age of the patients was 35.73(S.D±18.54), with an age range of 17-80 years.

<table>
<thead>
<tr>
<th>Age of patients</th>
<th>63</th>
<th>17</th>
<th>80</th>
<th>35.73</th>
<th>18.54</th>
</tr>
</thead>
</table>

Table 2 There was almost an equal gender distribution, with 50(52.08%) females and 46(47.92%) males, showing the gender distribution of the participants (n=96) Among the patients with underlying UTI, 30(31.25%) had delirium, while 66 (68.75%) did not have delirium.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>46</td>
<td>47.92%</td>
</tr>
<tr>
<td>Female</td>
<td>50</td>
<td>52.08%</td>
</tr>
</tbody>
</table>

Table 3 showing the frequency of delirium with underlying UTI amongst the participants (n=96)

<table>
<thead>
<tr>
<th>Delirium with underlying UTI</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>30</td>
<td>31.25%</td>
</tr>
<tr>
<td>Absent</td>
<td>66</td>
<td>68.75%</td>
</tr>
</tbody>
</table>

There were 85 true positive cases and 11 false positive cases, 87 true negative and 9 false negative cases, as determined by the Confusion Assessment Method (CAM). The Confusion Assessment Method (CAM) Questionnaire thus showed a Sensitivity of 90.43% determined by the formula ( True positive cases-TP / True positive + True Negative X 100), Specificity of 88.78% determined by the formula ( True Negative cases / False positive + True negative cases), positive predictive value of 88.54% determined by the formula ( True Positive cases / True positive + False positive cases) and Negative predictive value of 90.63% determined by the formula ( True Negative cases / True negative + False negative cases)

Table 4. Showing the sensitivity, specificity, positive and negative predictive value of cam questionnaire

<table>
<thead>
<tr>
<th>Test</th>
<th>Present</th>
<th>n</th>
<th>Absent</th>
<th>n Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>True Positive</td>
<td>a=85</td>
<td></td>
<td>False Positive</td>
<td>c=11 a + c = 96</td>
</tr>
<tr>
<td>False Negative</td>
<td>b=9</td>
<td></td>
<td>True Negative</td>
<td>d=87 b + d = 96</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Formula</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>a / (a + b)</td>
<td>90.43%</td>
</tr>
<tr>
<td>Specificity</td>
<td>d / (c + d)</td>
<td>88.78%</td>
</tr>
<tr>
<td>Positive Predictive Value</td>
<td>a / (a + c)</td>
<td>88.54% (*)</td>
</tr>
<tr>
<td>Negative Predictive Value</td>
<td>d / (b + d)</td>
<td>90.63% (*)</td>
</tr>
</tbody>
</table>
DISCUSSION:

The purpose of the study was to find out the frequency of delirium in patients with urinary tract infections presenting in medical unit, in-patient department, at Benazir Bhutto Hospital, Rawalpindi. The study found that 30 out of 96 patients, i.e. 31.25% of the patients with underlying Urinary Tract Infection had been diagnosed with delirium. This is a significant finding and can be compared across different studies.

A retrospective study by Manepalli J et al (1990) study involving 407 patients discharged over a 2-year period from a psychogeriatric unit found that 83 (20.4%) had urinary tract infection (UTI) and 54 (13.3%) had delirium diagnoses at admission. Of the 54 with delirium, 14 (25.9%) had UTI.

We can compare this finding with the current study finding of delirium frequency of 31.25% which is significantly higher than the frequency of delirium i.e 13.3% found in the aforementioned study. Another interesting study is worth mentioning here. The aim of the study was to investigate whether urinary tract infection (UTI) in a representative sample of 85-, 90- and ≥95-year-old women was associated with delirium.

Eighty-seven of 504 women (17.2%) were diagnosed as having a UTI with or without ongoing treatment when they were assessed, and almost half of them (44.8%) were diagnosed to be delirious or having had episodes of delirium during the past month. One hundred and thirty-seven of the 504 women (27.2%) were delirious or had had episodes of delirium during the past month and 39 (28.5%) of them were diagnosed to have a UTI.

Another study from India conducted on hospitalized geriatric medical patients found an overall rate of delirium of 27% in the 100 patients. 19% was the rate of ‘prevalent’ delirium and 8% was the rate of ‘incident’ delirium. The implications of this study was delirium is a common complication seen in patients with underlying Urinary Tract Infection, and its early detection and effective management could help reduce morbidity and mortality associated with delirium. Also, Confusion Assessment Method (CAM) is a useful screening method with high sensitivity for diagnosis of delirium at the bedside.

Limitations of the study include a small sample size with poor generalization of the results, a wide age range of 16-80 years, as it would have been better to focus only on the geriatric population, delirium being common in that age group, and lastly other risk factors like history of previous delirious episodes, dementia etc, remained unexplored.

CONCLUSION

A large proportion of patients with UTI suffered from delirium which might indicate that UTI is a common cause of delirium. There should be more focus on detecting, preventing and treating UTI to avoid unnecessary suffering thus reducing morbidity and mortality.

REFERENCES

Frequency and Severity of Depression in Adolescents at Tertiary Care Psychiatric Facility

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Fatima Aamer Khan FCPS3, Asad Tamiz uddin Nizami FCPS4

ABSTRACT

Background: Depression is a common mental disorder that hinders ability of an individual to grow and develop to their full potential. Various studies showed that the prevalence of major depression during adolescence range from 14% to 20% and consequences could be substance misuse, high suicide rates, anxiety, impaired QOL. The current study was designed to determine the frequency and severity of depression in adolescents and long term pharmacological and psychological interventions for the affected population in terms of improving their quality of life.

Objective: The objective of our study was to determine the frequency and severity of depression in adolescents presenting in outpatient department. It was a descriptive cross sectional study, conducted in outdoor of child psychiatry department Benazir Bhutto hospital Rawalpindi.

Methods: 400 patients were enrolled and the study was conducted for 6 months from Jan to July 2015. Data was collected by cluster sampling using the systematic random sampling technique. KADS for depressive Illness was applied to the participants for diagnosing depression. The patients diagnosed as suffering from depressive illness were then assessed for the severity of depression using the ICD-10. Data was then analyzed using SPSS 18.

Results: Study revealed that among participants (n=400) prevalence of depression is 12%, with 177 (44.3%) males and 223 (55.8%) female participants. 23 (5.8%) had mild depression, 20 (5.0%) had moderate depression and 5 (1.3%) had severe depression after using the ICD-10 criteria for depression and the KADS scale.

Conclusion: The findings from this study indicated that the clinician should determine a treatment plan that not only addresses the depression but which identifies the contributing features. Studies should also evaluate the cost-effective models of treatment and other interventions for the affected population which can be easily used in the primary care setting to effectively treat depression thus improving their quality of life.

Keywords: Children, childhood, frequency, severity, adolescent, Prevalence, depression, KADS

INTRODUCTION

Depressive disorder is a common mental health problem in adolescents worldwide,1 with an estimated 1 year prevalence of 4–5% in mid to late adolescence.2,3 Depression in adolescents is a major risk factor for suicide, the second-to-third leading cause of death in this age group,4 with more than half of adolescent suicide victims reported to have a depressive disorder at time of death.5 Depression also leads to serious social and educational impairments,6,7 and an increased rate of smoking, substance misuse, and obesity.8,9 Thus, to recognize and treat this disorder is important.

Depression has been defined as a cluster of specific symptoms with associated impairment. The clinical and diagnostic features of the disorder are broadly similar in adolescents and adults (panel).10,11 The two main classification systems (international classification of diseases-10 (ICD-10) and the American diagnostic and statistical manual of mental disorders-IV (DSM-IV) define depression similarly, although DSM-IV makes one exception for children and adolescents, whereby irritable rather than depressed mood is allowed as a core diagnostic symptom.12 Nevertheless, depression in adolescents is more often missed than it is in adults,13 possibly because of the prominence of irritability, mood reactivity, and fluctuating symptoms in adolescents. Depression can also be missed if the primary presenting problems are unexplained physical symptoms, eating disorders, anxiety, refusal to attend school, decline in academic performance, substance misuse, or behavioral problems.

The clinician should determine a treatment plan addressing the depression and contributing features. They should also evaluate the cost-effective treatment along with other interventions thus improving their quality of life.

In some respects depression in adolescents can be viewed as an early-onset sub-form of the equivalent...
adult disorder because of its strong links with recurrence later in life. The illness has similar clinical features and patterns of neural activity to that in adults, and its occurrence is also associated with a family history of the disorder. However, important differences exist between the two disorders, particularly in treatment response, with strongly divided opinions about best treatment practices. 

There is already paucity of research in this area in our country and very little is already known about the frequency and severity of depression in adolescence, therefore we carried out this study in our department, institute of Psychiatry, Benazir Bhutto Hospital, to furnish essential data regarding this and to create more awareness for early identification and effective treatment of depression in adolescence.

METHODOLOGY

This cross sectional, descriptive, study was conducted in the outdoor of child Psychiatry department Benazir Bhutto Hospital Rawalpindi, for a period of 6 months from Jan 2015–July, 2017. The total sample was 400 adolescents, aged between 10-19 years of both genders having any or combination of followings; irritability, poor school performance, behavioral disturbances and disturbed sleep and appetite for one week duration, excluding patients with other psychiatric disorders like ADHD, Mental retardation etc. and those who were unable to communicate.

After getting approval from hospital ethics committee, written informed consent was obtained from those subjects who fulfilled the inclusion criteria. A predesigned performa was given to the study participants and all the relevant details such as age, gender, educational status were obtained. The Kutcher Adolescent Depression Scale (KADS) was used to screen depression in adolescents. The patients suffering from depressive illness were then assessed for the severity of depression using the ICD 10 criterion for depression. Data was analyzed with Statistical Program for Social Sciences (SPSS) version 18. For the quantitative variables i.e. age, KADS score, ICD10 criterion, Mean ± S.D was calculated. For the qualitative variables i.e. gender, educational status, depression and its severity, frequencies and percentages were presented.

RESULTS

This study was conducted in the child psychiatry OPD of psychiatry unit of BBH Rawalpindi. Participants were children of 10-19 years of age. Period was 6 months. The total numbers (n) of participants were 400. The age distribution showed that 84 (21%) of the participants were in the age range of 10-12 years, 170 (42.5%) in 13-15 years, 114 (28.5%) in 16-18 years range while only 32 (8%) were >18years. The mean age of the participants was 14.64 ± S.D 2.585 with an age range of 10-19 years. Among the participants, 178 (44.5%) were males where as 222 (55.5%) were females. Among the (n=400) participants, depression was present in 48(12%) while absent in 352 (88%). Among the participants 352(88.0%) had no depression, 23(5.8%) had mild depression, 20(5.0%) had moderate depression and 5(1.3%) had severe depression. See table

<table>
<thead>
<tr>
<th>Severity of Depression</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>mild</td>
<td>23</td>
<td>5.8%</td>
</tr>
<tr>
<td>moderate</td>
<td>20</td>
<td>5%</td>
</tr>
<tr>
<td>severe</td>
<td>5</td>
<td>1.3%</td>
</tr>
<tr>
<td>no depression</td>
<td>352</td>
<td>88%</td>
</tr>
</tbody>
</table>

In MANOVA the results concluded that interaction among gender and education of the sample was significant on intrinsic motivation and extrinsic motivation. Gender and level of education when combined, significantly influence the rates of intrinsic motivation (MS= 149.74, p<.05) and extrinsic motivation (MS= 56.78, p<.05).

DISCUSSION:

Depression in children and adolescents is a prevailing mental illness which carries a significant burden in terms of social, educational, interpersonal, economic and impaired future developmental outcomes. By age of 18, nearly a fourth of all children will experience clinically significant depressive symptoms which remain problematic for many youngsters throughout childhood, adolescence and beyond. Among the (n=400) adolescents in our study, depression was diagnosed in 48(12%) cases with 352(88.0%) had no depression, 23(5.8%) had mild depression, 20(5.0%) had moderate depression and 5(1.3%) had severe depression. These findings are in line with other studies. Which estimates the prevalence of major depressive disorders in early adulthood range from 10%-17% (Moffitt et al., 2010), with women about twice as likely to be affected as men. Studies have shown that levels of depression begin to rise in the early teens. As a result, by the mid-teens, the median 12-month prevalence of unipolar depression is in the region of 4-5%

The lifetime prevalence of Major Depression in adolescence is similar to what has been reported in adults, suggesting that a large proportion of adult episodes could have precursors in adolescence. Estimates of lifetime Major Depressive Disorder prevalence in adolescents and young adults vary widely, ranging from less than 9% (Tanner et al., 2007) to more than 30% (MDD and/or the much less common dysthymia;
A number of studies have identified the prevalence of Major Depressive Disorder to be between 5 – 8% in adolescence and adulthood (e.g., Birmaher et al., 1996; Costello et al., 2006; Kessler et al.). Thus, we can clearly see that adolescent depression becomes a major risk factor for developing depression in later adulthood with much greater severity. Therefore, proper screening and effective management of cases of Major Depressive Disorder during the adolescence is vital to the health related quality of life of the individuals concerned.

CONCLUSION:

The findings from this study indicated that the clinician should determine a treatment plan that not only addresses the depression but which identifies and addresses the contributing features. Studies should also evaluate the cost-effective models of treatment and other interventions for the affected population which can be easily used in the primary care setting to effectively treat depression thus improving their quality of life.

REFERENCES

ABSTRACT

Objectives: The aim of this study was to determine the difference in outcomes between pediatric patients undergoing preoperative bowel preparation and those with no bowel preparation before colostomy closure. Differences in morbidity and mortality were measured in this study between these two groups.

Material and Methods: This is a prospective randomized study. Eighty-five patients undergoing a colostomy reversal were included in this study over the period of two years from August 2015 to July 2017. They were randomly divided into two groups No bowel preparation (NBP) 42 and bowel preparation (BP) 43. Parent’s refusal, any known allergy or contraindication to polyethylene glycol, hepatic, renal or cardiopulmonary abnormality, bleeding diathesis, local skin site infections were excluded from this study. Patients were admitted to the hospital two days before surgery and initiated on intravenous fluids at a weight based maintenance rate. Bowel preparation was started 2 days before surgery with normal saline distal loop wash and Movicol sachet per oral. Patients remained NPO overnight prior to surgery in accordance with anesthesia protocol. All patients received intravenous ceftriaxone and metronidazole – 1 h prior to incision and continued for 3 to 5days post operatively. Postoperatively, surgeon’s judgment dictated the removal of the Naso-gastric tube (NGT) and advancement of diet. Complications or morbidities were noted at the time of discharge. Initial follow up was scheduled in two weeks to OPD. At 4–6 weeks postoperatively the patients were evaluated in OPD to determine postoperative progress and to assess for any complications.

Results: Total of 85 patients were included in the study, 42 in No Bowel Preparation group (NBP) and 43 in Bowel Preparation Group (BP). In NBP 10(23.8%) suffered skin infection, 3(7.1%) intra-abdominal abscesses and 2(4.7%) anastomotic leaks while in BP group there were 2(4.7%) patients with skin infection, no intra-abdominal abscess and 2(4.7%) anastomotic leaks. Conclusion: Preoperative bowel preparation is safer and effective before colostomy closure.

Large multicentre prospective trials need to be done to establish the significant difference between BP versus NBP.

Key words: Bowel preparation, Colostomy closure, Saline wash, Polyethylene glycol.

INTRODUCTION

Most of the patients with Hirschsprung’s disease and Anorectal malformations need colostomy at some stage, making colostomy and colostomy reversal one of the most common surgeries performed in pediatric patients. At times colostomy is inevitable and is lifesaving in some cases however it has its own associated substantial morbidity and mortality.¹

According to pediatric literature, the data regarding pre-op bowel preparation for colostomy reversal is inadequate.² Some surgeons are in favor of bowel preparation while others are against it³. Even significant variation exist in the use of bowel preparation methods among pediatric surgeons.⁴ Although the use of mechanical bowel preparation (MBP) alone remains the preferred approach for most procedures, an increasing number of surgeons report abandoning this approach in favor of dietary modification alone or no preparation at all.⁵ A bowel preparation agent consisting of polyethylene glycol (PEG) can be used safely in pediatric patients.⁶ But some authors argue that children have poor compliance, cannot tolerate PEG and sometimes it has to be given by NG tube which although discomforting² but is more safe.⁷

Preoperative bowel preparation is safer and effective before colostomy closure.

Preoperative bowel preparation is performed in stoma reversal with the aim to reduce fecal and bacterial load.⁸ Bowel cleansing is done either mechanically, chemically or by combination of both.⁹ We conducted this study in an attempt to address the issue by performing randomized prospective controlled study to see the effectiveness of preoperative bowel preparation in pediatric patients undergoing stoma closure to re-
Bowel Preparation Vs No Preparation before Colostomy Closure in Pediatric Patients

In this study, we divided patients for colostomy closure into two groups on the basis of bowel preparation with one group undergoing preparation, which we believe plays an important role in achieving low morbidity rates.

Reviewing the literature shows that there is varied incidence of different complications associated with colostomy closure. Skin infection ranges from 0.4-45%, while the frequency of anastomotic leaks differs from 0 to 12.5%. Abdominal abscess, sepsis, post-operative ileus and death are other problems associated with colostomy reversal in children.

MATERIAL AND METHODS

This randomized controlled trial study was conducted in Department of Pediatric Surgery, Khyber Teaching Hospital, Peshawar, Pakistan from August 2015 to July 2017. Eighty-five patients aged 6 months to 16 years were included in the study. They were divided randomly into two groups with one getting Bowel preparation (BP) and the other did not receive any bowel preparation (NBP). All patients were admitted in our unit, and those with any known allergy or contraindication to polyethylene glycol, hepatic, renal or cardiopulmonary abnormality, bleeding diathesis, local skin site infections were excluded from this study. Parents’ refusal was also considered. After randomizing 43 patients were included in BP group and 42 in NBP group. The preoperative bowel preparation was done in a same way for all the patients included in this study. Normal saline was used for proximal colon and distal loop wash. It is used commonly for this purpose because it is readily available and low-priced. It is isotonic as well, so there are less chance of physiological disturbances and electrolyte imbalances.

All patients were started on a clear liquid diet and BP group patients were given intravenous fluid at a weight based maintenance rate in addition. Bowel preparation was started for BP group 2 days before surgery with normal saline distal loop wash (20ml/kg bd) and Movicol sachet (1 half strength sachet for children up to 5 years, 2 half strength sachets for children 5-11 years and 1 full strength sachet for greater than 11 years) per oral. If the patient was unable to take the prep orally, then it was given through the NG tube. The main disadvantage of PEG is its salty taste and occasional symptoms, vomiting, bloating and cramping. Mannitol was not used for bowel preparation to avoid excessive diarrhea electrolyte imbalances and fear of cautery explosions during surgery. Hypertonic saline and other bowel preparatory solutions (Oral sodium phosphate (OSP) Oral sodium phosphate tablets Magnesium citrate Bisacodyl) have limited use in pediatric population.

Preoperative anesthesia workup was done and patients remained NPO overnight before surgery as per anesthesia protocol. Weight based maintenance fluids were continued on the day of surgery. All patients were given intravenous ceftriaxone (50mg/kg) and metronidazole (10mg/kg) – 1 h prior to incision and continued for 3 to 5 days post operatively. NG tube was removed and patients were started orally on the return of bowel function. The original diagnoses of the patients were: anorectal malformation (67), Hirschsprung’s disease (07), and others (11). Any complications or morbidities were noted at the time of discharge. Initial follow up was scheduled in two weeks to OPD. At 4 to 6 weeks postoperatively the patients were evaluated in OPD to determine postoperative progress and to assess for any complications.

RESULTS

A total of 85 patients were included in the study. Out of these, 51.8% (n=44) were males while 48.2% (n=41) were females. The age of the patients ranged from 06 months to 16 years (mean: 3.38 ± 2.84 years) mean length of stay was (5.58 ± 2.27 days) post-operatively. There was no mortality reported in this study with a mean follow up of (32.6 ± 3.24 days).

The most common preoperative diagnosis was anorectal malformation total of 78.8% (n=67) including 41.9% (n=34) in the bowel prep group and 40.7% (n=33) in the no bowel prep group.

Second most common disease was Hirschsprung’s disease total 7.2% (n=7) patients, 4.93% (n=4) in BP group and 3.7% (n=3) in NBP group. 12.90% (n=11) had other diseases, 8.20% (n=7) in BP group and 4.7% (n=4) in the NBP group respectively.

The quality of the bowel preparation was noted in each of the patients in the bowel prep group by observing clear effluent per rectally and proximal stoma site, all with satisfactory preps.

TABLE.1 Overall complication rate in both groups

There was a significant difference in overall complication rates between the bowel prep and no bowel prep groups, with no=15 (35.70%) post-operative compli-
Bowel Preparation Vs No Preparation before Colostomy Closure in Pediatric Patients

cations in the NBP group while \(n=04\) (9.30%) in BP group \((p<0.003)\). Two (4.7%) patients in the bowel prep group suffered from post-operative wound infections, compared to 10 (23.80%) in the no bowel prep group \((p<0.01)\). There were no intra-abdominal abscesses in the bowel prep group, and 03 (7.10%) in the no bowel prep group, requiring percutaneous drainage \((p<0.63)\). Both groups had no sepsis or death. Two anastomotic leaks were found in each group (4.80%) in NBP and (4.65%) in BP \((p<0.98)\). There were no extra-abdominal complications in either of the groups.

### TABLE 2: Individual complications in BP and NBP

<table>
<thead>
<tr>
<th>Complication</th>
<th>Group</th>
<th>(N)</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>(P) value</th>
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<tbody>
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<td>intra-abdominal abscess</td>
<td>NBP</td>
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<td>1.9286</td>
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<tr>
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<td>43</td>
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<td>.21308</td>
<td>.03249</td>
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<tr>
<td>skin infection</td>
<td>NBP</td>
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<td>1.7619</td>
<td>.43108</td>
<td>.06652</td>
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<tr>
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<td>BP</td>
<td>43</td>
<td>1.9535</td>
<td>.21308</td>
<td>.03249</td>
<td></td>
</tr>
<tr>
<td>anastomotic leak</td>
<td>NBP</td>
<td>42</td>
<td>1.9524</td>
<td>.21554</td>
<td>.03326</td>
<td>0.98</td>
</tr>
<tr>
<td></td>
<td>BP</td>
<td>43</td>
<td>1.9535</td>
<td>.21308</td>
<td>.03249</td>
<td></td>
</tr>
<tr>
<td>Overall complications</td>
<td>NBP</td>
<td>42</td>
<td>1.6429</td>
<td>.48497</td>
<td>.07483</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>BP</td>
<td>43</td>
<td>1.9070</td>
<td>.29390</td>
<td>.04482</td>
<td></td>
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</tbody>
</table>

### DISCUSSION

Bowel preparation has been a common practice in adult patients undergoing stoma closure. Despite the fact that large number of adult population based studies and one small single institution based study done in children have questioned the use of MBP in colorectal surgeries, yet more than 90% surgeons utilize MBP for colorectal surgeries in children. On one hand, there are studies which show that there is no significance of MBP in terms of post operative complications when compared with no bowel preparation. On the other hand, there are some studies which even have shown that after bowel preparation, incidence of anastomotic leak and wound infection is rather increased. Serrurier K et al did a multicentre, retrospective study in which they compared bowel preparation versus no bowel preparation. They found that utilization of MBP led to longer hospital stay, increased incidence of wound infection while children in this had not got any extra protection from other complications.

The results of bowel preparation in our study were encouraging in a sense that the post-operative wound infections were reduced. There were lesser rates of intra-abdominal abscess formation. However, there was no difference in rates of anastomotic leakage between the two groups, suggesting causes other than bowel preparation. Three cases were managed by re-exploration with re-anastomosis and proximal de-functioning stoma and one of them developed chronic fistula and was managed conservatively. Both groups had the same number of anastomotic leaks and none of them led to sepsis or death.

One of the important point in our study was that cases were followed prospectively. Limitation of our study includes small number of patients from which significant difference between the two approaches cannot be established.

In children the research on this topic is limited. Due to this fact, the question still remained unanswered in pediatric age group whether to do a bowel preparation or not. Those in favor of bowel preparation are using different bowel preparation regimens for stoma closure.

### CONCLUSION

In conclusion, bowel preparation is an effective method to reduce post-operative infection related complications in pediatric patients undergoing colostomy reversal.

**Recommendations:** Bowel preparation should be performed in pediatric patients undergoing stoma reversal. Large multicentre prospective trials need to be done to establish the fact that whether there exist significant difference between the two approaches.

### REFERENCES

Bowel Preparation Vs No Preparation before Colostomy Closure in Pediatric Patients


Authors contributions
Akhtar W: Main idea & concept.
Abdullah F: Data collection and Follow up.
Imran M: Bibliography.
Rehman IU: Critical review & final approval.
ABSTRACT

Objective: The aim is to determine the frequency of Urethro-cutaneous fistula and Meatal Stenosis over a period of one year following Snodgrass Repair for Anterior Hypospadias in children.

Methodology: This prospective study was conducted in Pediatric Surgery Unit, Khyber Teaching Hospital, Peshawar, over a period of one year from January 2017 to December 2017. Patients with Anterior hypospadias (distal penile, sub-coronal, coronal) aged between 18 months to 12 years were included. Patients with previous history of hypospadias surgery were excluded from the study. Procedure was performed under general anesthesia and modified Snodgrass repair was performed. The neourethra was tubularised over 6-8Fr feeding tube used as a catheter. Tube was removed on 7th post-operative day in all cases and presence of fistula or meatal stenosis, if any, was recorded. Initial follow up was done in OPD after 1 month. The patients were then re-evaluated after 3 months to assess any of the two complications under question.

Results: TIP repair was performed in 63 patients during this study. Urethro-cutaneous fistula occurred in 7 (11.11%) out of 63 patients while meatal stenosis was present in 4 (6.3%). None of the patients had total disruption or wound infection.

Conclusion: Despite occurrence of fistula and meatal stenosis, TIP repair is a suitable method of treating patients with anterior hypospadias with low rates of complications. It has good aesthetic results and can be done successfully in children who have already been circumcised.

Key Words: Hypospadias, Snodgrass repair, Urethro-cutaneous fistula, Meatal stenosis.

INTRODUCTION

Hypospadias, the second most common congenital defect after undescended testes, can be defined as an arrest in normal development of urethra, foreskin and ventral aspect of the penis, resulting in the anomalous location of external urethral meatus and deficient foreskin. The meatus can be located anywhere from glans up to perineum along the ventral aspect of the penis. The incidence is 1 out of 125 to 250 live births. There is about 7% occurrence of familial hypospadias.

Hypospadias is broadly divided into anterior, middle and posterior. Anterior hypospadias is further classified into Glanular, Coronal, sub-Coronal and Distal Penile Hypospadias. Middle Hypospadias include Mid-penile and Posterior Hypospadias include Proximal penile, Penoscrotal and Perineal.

Despite occurrence of fistula and meatal stenosis, TIP repair is a suitable method of treating patients with anterior hypospadias with low rates of complications. It has good aesthetic results and can be done successfully in children who have already been circumcised.

Management of hypospadias has been the most controversial topic in the past as more than 300 different procedures have been described for hypospadias repair. Procedures are broadly divided into Single-stage or Staged procedures. Anterior Hypospadias are usually managed by single stage procedures (Snod Gross (TIP) repair, MAGPI, MATHIEW etc.) while Posterior Hypospadias are managed by Staged procedures (AVOR BRACKA etc.).

Snod Gross (TIP) repair is one of the most commonly performed single-stage procedure for Anterior Hypospadias. It is an easy and simple proce-
dure with good results and relatively fewer complications. Literature review shows complication rate of 0%-53% in past however in recent studies this rate has dropped to 9% and even less due to few technical modifications like dartos flap technique.14,15,16,17,18 Success rate of up to 95% has been reported in some studies.19,20

The most common complication is urethro-cutaneous fistula constituting more than 60% of all complications.15 Fistula have reported incidence of 0.58%-16%,21,22 while that of meatal stenosis ranges from 0%-17%.6 Other complications include total disruption, wound infection, urethral stricture and are lesser in frequency.6,23,24

The purpose of this study is to determine the frequency of occurrence of Fistula and Meatal stenosis post TIP Repair in our centre.

Snodgrass (TIP) repair with Dartos Flap can be performed in patients having anterior hypospadias as a single stage procedure with fewer complications and good cosmetic results.

MATERIALS AND METHODS:

This cross sectional study was conducted in Pediatric Surgery Unit, Khyber Teaching Hospital, Peshawar, Pakistan over a period of one year from January 2017 to December 2017. All Patients with Anterior hypospadias (distal penile, sub-coronal, coronal) aged between 18 months to 12 years undergoing TIP Repair were included. Patients with previous history of hypospadias surgery were excluded from the study. After obtaining informed consent from the parents regarding this study and procedure, the patients were admitted. A detailed history and thorough examination was performed. Patient were kept fasting over-night. All patients underwent general anesthesia and all patients were given cefperazone/sulbactum on induction. The procedure was carried out by same surgeon as described by Snodgrass and in all cases the neourethra was covered by dartos flap. PDS 6/0 was used as a suture material in all cases. The neourethra was tubularised over 6-8Fr feeding tube used as a catheter. The chordae usually disappeared after degloving the penis while for residual chordae dorsal plication was performed. Patients were continued on iv Cefperazone/sulbactum for 2 days post-operatively and were switched to oral Anti-biotic Co-Amoxiclav on 3rd post-operative day and continued till 10th post-operative day. Tube was removed on 7th post-operative day in all cases and presence fistula or meatal stenosis, if any, was recorded. Initial follow up was done in opd after 1 month. The patients were then re-evaluated after 3 months to assess any of the two complications under question i.e. fistula formation and meatal stenosis. These were documented in a predesigned proforma for each patient. All data was analyzed by usingSPSS version 20.

RESULTS:

Total of 63 patients underwent TIP Repair during this period. Patients were evaluated for Mean operating time and age as well as postop complications. Mean operative time in minutes was 41.82 ± 6.67 with the minimum time of 30 minutes and maximum of 55 minutes. Mean age was 4.17 ± 2.24 in years ranging from 18 months to 12 years.

Urethro-cutaneous fistula occurred in 11.11% (n=7) out of 63 patients. 3 fistulae were present on the removal of stent. 4 patients presented with fistulae on the 1st follow up after 1 month. Meatal stenosis was present in 6.3% (n=4). None of the patients had total disruption or wound infection.

Table.1 Age-wise distribution of urethro-cutaneous fistula.

<table>
<thead>
<tr>
<th>Age</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5-3 years</td>
<td>1 (3.3%)</td>
<td>29 (96.7%)</td>
<td>30 (47.6%)</td>
</tr>
<tr>
<td>4-8 years</td>
<td>3 (11.11%)</td>
<td>24 (88.89%)</td>
<td>27 (42.8%)</td>
</tr>
<tr>
<td>8-12 years</td>
<td>3 (50%)</td>
<td>3 (50%)</td>
<td>6 (9.5%)</td>
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<tr>
<td>All age groups</td>
<td>7 (11.11%)</td>
<td>56 (88.89%)</td>
<td>63 (100%)</td>
</tr>
</tbody>
</table>

Table.2 Age-wise distribution of meatal stenosis.

<table>
<thead>
<tr>
<th>Age</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5-3 years</td>
<td>1 (3.3%)</td>
<td>29 (96.6%)</td>
<td>30 (47.6%)</td>
</tr>
<tr>
<td>4-8 years</td>
<td>2 (7.4%)</td>
<td>25 (92%)</td>
<td>27 (42.8%)</td>
</tr>
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<td>8-12 years</td>
<td>0 (0%)</td>
<td>6 (100%)</td>
<td>6 (9.5%)</td>
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<tr>
<td>All age groups</td>
<td>4 (6.3%)</td>
<td>59 (93.7%)</td>
<td>63 (100%)</td>
</tr>
</tbody>
</table>

DISCUSSION:

Post-operative complications is a possibility after any sort of surgical procedure.24 In case of hypospadias repair, the existence of more than 300 different types of surgical procedures indicates that the complication rates are much higher after hypospadias repair.25 The overall complications rate ranges from 6 to 30% in different types of hypospadias repair.24

Snod Gross repair is the most commonly performed surgery for Anterior hypospadias. It is a simple, easily performed surgery with relatively good cosmetic results and can be performed in patients who have already been circumcised.26,27 The overall complication rate of this procedure ranges from 0 to 50%,14,15,16,17,18

The most common complication is Urethro-cutaneous fistula (UCF), with the reported incidence of 3-33%.4 Several factors determine the occurrence of this complication following hypospadias
repair. These include type of hypospadias, surgical technique, penile size, age, experience of operating surgeon as well as the type of suture material used. Recently the types of operations used for hypospadias repair have been greatly reduced, due to increased understanding of these factors.28,29

Different factors as mentioned above plays a key role to prevent this complication. In our study we tried to standardize these factors using same suture material, same surgeon and same surgical technique i.e. Snodgrass repair with dartos flap. The use of dartos flap has been reported to reduce the rate of fistula occurrence.

In some centres this frequency has dropped to 2.5% however most of the centres around the world still reports the incidence ranging from 0-16%. In our study the UCF rate is 11.1%. In similar study carried out by Uzair et al the fistula rate was 9.9%33 and AhmadK reported post Snodgrass repair fistula rate of 11.8% which is almost the same as ours.36 our study also shows that the rate of urethrocutaneous fistula increases with the age of the patient. The rate of fistula was higher in the age group 8-12 years.

Meatal stenosis is the other complication we encountered in our study. The reported incidence ranges from 0-17% in different studies. Snodgrass reported the incidence of meatal stenosis of 0-1%.30 Some studies reported meatal stenosis of up to 20%.31 In our study the rate of meatal stenosis is 6.3%.

The increased incidence of meatal stenosis results from stitching the neo-urethra beyond mid-glanular level and to secure neourethra with the neo-meatus, hence meatal stenosis.42 Selection of proper candidate for the procedure may also be an important contributory factor.

Overall the complications following the modified Snodgrass repair are low as compared to standard Snodgrass repair. These complications can be reduced further by strictly following the protocols, handling the tissues gently and getting trained in set-ups dedicated for hypospadias repair.

CONCLUSION:

Snodgrass (TIP) repair with Dartos Flap can be performed in patients having anterior hypospadias as a single stage procedure with fewer complications and good cosmetic results.

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Anti-VEGF treatment may not stop diabetic retinopathy
Susan Bressler, MD, Johns Hopkins Medicine in Baltimore

Vascular endothelial growth-factor (VEGF) inhibitors do not necessarily stop the progression of diabetic retinopathy in people with macular edema, new research shows. Some people who aren’t improved at all, and their level of retinopathy may worsen. Aflibercept might be more effective for the proliferative form of the disease.

Previous research has shown that retinopathy is less likely to worsen and is more likely to improve after treatment with ranibizumab (Lucentis, Genentech) or aflibercept (Eylea, Regeneron) than after treatment with laser photocoagulation. The same appears true for bevacizumab (Avastin, Genentech), but the data available are not as strong.


In their study, Dr Bressler and her colleagues assessed 650 eyes with diabetic macular edema and vision impairment. Patients were randomly assigned to one of three treatment regimens for 2 years: 174 patients received aflibercept 2 mg, 168 received ranibizumab 0.3 mg, and 153 received bevacizumab 1.25 mg up to 4 weeks.

The team used clinical events and fundus photos to identify disease progression. The clinical events consisted of pan-retinal photocoagulation, vitrectomy or injections for proliferative diabetic retinopathy, vitreous hemorrhage, retinal detachment, neovascularization of the iris, neovascularization of the angle, and neovascular glaucoma.

The fundus photo observations consisted of a worsening of two or more levels on the ETDRS retinopathy scale, progression from nonproliferative to proliferative diabetic retinopathy, and progression from low to high-risk proliferative diabetic retinopathy or to advanced proliferative diabetic retinopathy. The team defined improvement as the absence of these signs of worsening and improvement on fundus photos. If a patient had active proliferative diabetic retinopathy at baseline, it had to become inactive or nonproliferative. Other degrees of retinopathy had to improve by at least two levels. Over the 2-year period, the cumulative probability of diabetic retinopathy worsening in the three groups was less than 10%, and there was no significant difference among the drugs.

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Ophthalmology Update Vol. 16 No.4, Oct - Dec 2018

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ABSTRACT:
Objective: to evaluate the mean increase in vertical skeletal pattern that occurs after Distalization by using distal jet appliance in class-II malocclusion patients. It was a Quasi experimental trial
At the Department of Orthodontics, Nishtar Institute of Dentistry, de Montmorency College of Dentistry and Punjab Dental Hospital. Study duration was from June 2014 to January 2017.
Methodology: A total of 40 patients were enrolled in this study from multiple centers of Punjab. The recorded data was entered and analyzed using SPSS version 23. Quantitative data like age and baseline measurements (P1) of vertical skeletal pattern (i.e. FMAº, SN.Gnº, SN.MPº) and after Distalization measurements (P2) were presented in the form of mean ± S.D. qualitative variables like gender were presented in the form of frequency and percentage. A P-value of less than 0.05 will be considered significant.
Results: A total of 40 patients with Angle’s class II malocclusion with mean age of 13.15 ± 0.60 years were included in this study. The minimum age was 12 years while maximum age was 14 years. The mean decrease in PTVMax. 1st Molar Centroid was 3.63 ± 0.81 mm. The figure showing that maximum number of patients showed decreased at 38 mm. The mean increase in PPMAX. 1st Molar Centroid was 0.69 ± 0.36 mm. The figure showing that maximum number of patients showed an increase of 0.5-0.75 mm. The mean increase in FMA was 1.13 ± 0.81º. The figure showing that maximum number of patients showed an increase of 0.5-1.5 degrees.
Conclusion: Our study was focused only on the skeletal changes occurred in vertical pattern of patients who were with low to normal vertical proportions at the start of treatment.
Keywords: Distalization, Distal Jet appliance, Malocclusion, Skeletal Pattern.

INTRODUCTION:
The most common presentation for orthodontic treatment is class-II malocclusion frequently accompanied by a class-II molar relationship. The primary goal of orthodontic treatment is to achieve an ideal occlusion that involves molars in class-I relationship.1

According to Moyers et. al. type A class-II malocclusion is characterized by absence of skeletal involvement, requiring Distalization of maxillary teeth for normal molar and incisor relationships without changing favorable skeletal relationship.2 Distalization of maxillary molars is a popular non-extraction treatment alternative in some patients with class-II malocclusion.3

There are numerous methods to move teeth distally; some require patient’s active compliance whereas others don’t.3 Extra-oral traction with head-gears, removable appliances with springs, and class-II intermaxillary elastics are highly compliance dependent. Non-compliance methods include a variety of intramaxillary appliances e.g. Jones jig, distal jet, pendulum appliance, frog appliance, Keles slider, repelling magnets, compressed coil springs, molar distalizing bows and currently orthodontic implant supported distalizing appliances.4,5 Non-compliance appliances are superior to those demanding co-operation. Distal jet is one of the most popular and effective distalizing appliance.2 Clinical studies on distal jet have confirmed the mesial-inward rotation, distal tipping and Distalization of maxillary molars.6,1 Distal jet also leads to mild extrusions and distal tipping of molar crowns leading to backward rotation of the mandible.2

The skeletal changes occur in vertical pattern of patients who had low to normal vertical proportions at the start of treatment.

Molar Distalization is contraindicated in hypodivergent patients because when maxillary molars are distalized into the wedge of occlusion, they will prop open the bite. This effect along with backward rotation of mandible leads to increase in vertical dimension, especially in high angle cases. A previous study has observed increase in vertical skeletal pattern with increase in measurements of FMA 0.99º ± 0.15º, NS.Gn 0.46º ± 0.24º and SN.MP. 0.47º ± 0.40º.2

The rationale of this study is to evaluate the in-
crease in vertical skeletal pattern that occurs as a side effect of Distalization with distal jet appliance. We want to work on this project so that an efficient and better treatment planning can be devised in class-II malocclusion especially in patients with already increased vertical dimensions.

METHODOLOGY:
This Quasi experimental trial was conducted and completed in department of Orthodontics, Nishtar Institute of Dentistry, de’Montmorency College of Dentistry and Punjab Dental Hospital. Study was started after permission from ethical board of NID. Consent was obtained from patients after complete information and purpose of their inclusion in research. Sample size was calculated from online source openepi.com by using 95% CI, 80% study power and increase in measurements of FMA 0.99º ± 0.15º, NS.Gn 0.46º ± 0.24º and SN.MP. 0.47º ± 0.40. and the subjects with age range 12-14year. Bilateral angle class-II malocclusion (3mm/ End-on C-II molars), and the cases with half cusp or end-on C-II molar relationship were selected clinically on intra-oral examination and also by confirming the molar relationship from diagnostic models after taking wax bite registration in centric occlusion fulfilling the C-II molar relationship criteria by angle. The sample in this study was considered Class-II if 3mm or more discrepancy existed between the mesio-buccal cusp of the maxillary first molar and buccal groove of the mandibular first molar.

Mild skeletal class-II with ANB 4-5 degrees. A mandibular arch was planned for non-extraction treatment where there was no arch length discrepancy or mild crowding, maxillary arch length discrepancy ranged between 5-7 mm. Soft tissue profiles did not permit any extraction therapy. IMPA normal of 90 degrees with minor deviations and normal curve of Spee. Normal or low angle vertical pattern with SN-mandibular angle 32 degrees or less. Class-II division I with mild or up to 5mm proclination Class-II division II with mild crowding. All second molars especially maxillary second molars fully erupted into the occlusion. No other orthodontic treatment or molar distalization procedure performed before or during the study. Good oral hygiene and commitment to maintain proper oral health care were included. Patients with mixed dentition, excessive proclination of anterior teeth, an end-on or full class II molar relationship due to retrognathic mandible, TMJ problems, Cross bites, severe carious lesions, mobility of the maxillary deciduous second molars, flat palate, ectopic maxillary canines, anterior open bites, vertical growth pattern, parafunctional/tongue habits were excluded from the study.

Based on selection criteria, a complete set of baseline pretreatment records including history, clinical examination, Lateral cephalometric radiograph, OPG, upper/lower study casts, extra-oral and intra-oral photographs were taken for each patient and same records were repeated after distalization.

Lateral cephalograms (lateral Ceph) were used as diagnostic aid to evaluate changes in the vertical dimensions with distalization. The predistalization lateral cephalograms (P1) were the part of base line record and were taken under standardized conditions at Radiology Department of Punjab Dental Hospital. The post-distalization lateral cephalograms (P2) were taken under same conditions after the achievement of desired distalization. The data were evaluated and in SPSS version 23.0. Quantitative data like age and baseline measurements (P1) of vertical skeletal pattern (i.e. FMA’, SN.Gn’, SN.MP’) and after distalization measurements (P2) were presented in the form of mean ±S.D. Qualitative variables like gender were presented in the form of frequency and percentage. Mean increase in vertical skeletal pattern was obtained by subtracting post distalization measurements from baseline. A p-value of less than 0.05 will be considered significant.

RESULTS
A total of 40 patients with Angle’s class II malocclusion with mean age of 13.15±0.60 years were included in this study. The minimum age was 12 years while maximum age was 14 years . There were 17(42.5%) male patients while 23(57.5%) were females (Table-1). The patients were assessed clinically and radiographically and underwent distalization. Pre and post distalization lateral cephalometric analysis was done and values were calculated in millimeter and degrees.

The mean PTV Max. 1st Molar Centroid was 21.67±1.66mm at baseline which was decreased to 18.04±1.84mm after distalization. The mean decrease in this linear measurement was 3.63±0.81mm. There was significant decrease in PTV Max. 1st Molar Centroid after distalization (P<0.05) This reflects the mean measurement of distalization.

The mean PPM Max. 1st Molar Centroid was 17.03±1.22mm at baseline which was increased to 17.73±1.32mm after distalization. The mean increase in this linear measurement was 0.70±0.36mm. There was significant increase in PPM Max. 1st Molar Centroid after distalization (P<0.05) (This reflects the mean measurement of vertical dental (extrusion of maxillary 1st molar) change secondary to distalization.

The mean FMA was 24.66±3.10º at baseline which was increased to 25.79±3.03º after distalization. The mean increase in FMA angle was 1.13±0.81º. There was significant increase in FMA after distalization (P<0.05) The mean NS-Gn was 65.37±2.39º at baseline which was increased to 66.51±2.24º after distalization. The mean increase in NS-Gn angle was 1.14±0.59º. There was significant increase in NS-Gn after distalization (P<0.05) The mean SN-MP was 32.70±3.96º at baseline which was increased to 33.83±3.85º after distalization. The mean increase in SN-MP angle was 1.13±0.66º. There was significant increase in SN-MP after distaliza-
tion (P<0.05) All these values also represent an increase in vertical skeletal change consequent to maxillary molar distalization.

The mean decrease in PTVMax. 1st Molar Centroid was 3.63±0.81 mm. The figure showing that maximum number of patients showed decreased at 38 mm. The mean increase in PPMax. 1st Molar Centroid was 0.69±0.36 mm. The figure showing that maximum number of patients showed an increase of 0.5-0.75 mm. The mean increase in FMA was 1.13±0.81°. The figure showing that maximum number of patients showed an increase of 0.5-1.5 degrees. The mean increase in NS-Gn was 1.14±0.59°.

**DISCUSSION:**

The primary goal of orthodontic treatment is attainment of an “ideal occlusion”, this involves molars placement in class I relationship, which was first defined by Angle and later redefined by Andrews. Studies regarding isolated vertical skeletal changes after maxillary molar distalization with distal jet in our community are limited. Symptoms associated with Angle’s Class II malocclusion are the common complaints of patients which compel them to present to orthodontists for treatment and accounts for about in 15% to 40% of population.7 Our study was focused only on the skeletal changes occurred in vertical pattern of patients who were with low to normal vertical proportions at the start of treatment.

These changes are similar but slightly differ from other studies carried out with same appliance. The findings of study conducted by Ngantung V et al. showed distalization of 2.12±1.84 and extrusion of molars (PP-maxillary first molar centroid) 0.01±1.72, increase in Lower anterior face height (%) 0.55±1.10 and FMA angle 0.43±1.59°. Bolla et al. study showed 3.2 mm maxillary first molar distalization with 1.3° distal tipping and 0.9 mm molar extrusion.9 Maxillary molar distalization achieved by other distalizing devices such as pendulum appliance and intraoral bodily molar distalizer showed greater magnitude of molar distalization but with more tipping. The results of. Ghosh and Nanda, showed 5.7 mm molar distalization, 10.6° distal tipping and 0.7 mm extrusion.10 Keles and Sayinsu evaluated the effects of intraoral bodily molar distalizer and concluded 5.23 mm maxillary first molar distalization without any tipping or extrusion.11

A study conducted with distal jet in the same center showed 3.88 mm distalization during 7.11 months with 0.20 mm extrusion of maxillary first molars.12 Another study has shown that the increase in vertical skeletal pattern with the mean increase in FMA of 0.99±0.15°, NS-Gn of 0.46±0.24° and SN.MP of 0.47±0.40°.2 These findings are also compatible with our study showing that vertical change occurred as mean increase in vertical dimension by moving mandible downward and backwards.

In a study by Chiu et al, upper first molars were extruded 0.5-1.0 mm which is greater extrusion than our study and also showed a significant mean increase in lower anterior facial height (ANS to Me) 2.4-2.5 mm and mean increase in FMA (FH to mandibular plane) was 0.7°-1.3° which is almost same as in our study.13

In a recent retrospective study, maxillary first molars were distalized 2.16±0.84 mm and a significant clockwise rotation of the mandible i.e. 1.97°±1.32° and a significant increase in lower anterior facial height 3.35±1.48 mm was observed but these changes in ver-

### Table-1 Demographic variables

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>13.15 ± 0.60</td>
</tr>
<tr>
<td>Male</td>
<td>17.15 (42.5%)</td>
</tr>
<tr>
<td>Female</td>
<td>23 (57.5%)</td>
</tr>
</tbody>
</table>

### Table-2 Descriptive Statistics

<table>
<thead>
<tr>
<th>PTV at baseline</th>
<th>PTV after distalization</th>
<th>PTV decrease</th>
<th>P - Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.67 ± 1.66</td>
<td>18.04 ± 1.84</td>
<td>3.63 ± 0.81</td>
<td>0.0</td>
</tr>
<tr>
<td>PP at baseline</td>
<td>PP after distalization</td>
<td>PP increase</td>
<td>P - Value</td>
</tr>
<tr>
<td>17.03 ± 1.22</td>
<td>17.73 ± 1.32</td>
<td>0.70 ± 0.36</td>
<td>0.0</td>
</tr>
<tr>
<td>FMA at baseline</td>
<td>FMA after distalization</td>
<td>FMA increase</td>
<td>P - Value</td>
</tr>
<tr>
<td>24.66 ± 3.10</td>
<td>25.79 ± 3.03</td>
<td>1.13 ± 0.81</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### Table-3 Descriptive Statistics

<table>
<thead>
<tr>
<th>NS-Gn at baseline</th>
<th>NS-Gn after distalization</th>
<th>NS-Gn increase</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>65.37 ± 2.39</td>
<td>66.51 ± 2.24</td>
<td>1.14 ± 0.59</td>
<td>0.0</td>
</tr>
<tr>
<td>SN-MP at baseline</td>
<td>SN-MP after distalization</td>
<td>SN-MP increase</td>
<td>P value</td>
</tr>
<tr>
<td>32.70 ± 3.96</td>
<td>33.83 ± 3.85</td>
<td>1.13 ± 0.66</td>
<td>0.0</td>
</tr>
</tbody>
</table>
tical dimensions had a negligible impact on clinical appearance.  

Recently Cozzani M. et al. did a comparative study on distal jet by comparing skeletal anchored (DS) with conventional distal jet (DJ). The findings showed maxillary molar distalization $4.7 \pm 1.6$ mm with the skeletal anchored (DS) and $4.4 \pm 2.5$ mm with conventional distal jet (DJ) in full cusp class II patients. Molar extrusion with respect to the palatal plane (PPu6), was similar almost between the two groups $0.7 \pm 1.9$ mm in the DS group and $0.4 \pm 2.5$ mm in the DJ group.

Vertical skeletal variables included in our study are very important baseline angular cephalometric findings regarding diagnosis, treatment planning and prognosis of an orthodontic treatment. Our study has shown a significant increase in these three measurements which results in increase in vertical skeletal dimensions after distalization. Increase in vertical skeletal pattern results in increase in facial proportions which is esthetically unpleasant especially in those individuals who are having tendency towards high angle and also worsen the class II malocclusion by rotating the mandible downwards and backwards.

In our study mean age was 13.15 months, at this age boys are usually at their growing age so individuals who are growing at the start of treatment with vertically low to normal angle can compensate the vertical skeletal change which occurs as a result of distalization by increase in mandibular ramus height with growth and end up with no clinically significant vertical change. In our study we found that the skeletal anchored (DS) group presented a statistically significant increase in vertical skeletal linear measurements like lower anterior mandibular plane and Frankford horizontal plane compared to the DS group.

Our study was dependent on variable anatomical points like sella, nasion, porion and orbitale on cephalometrics. These points were the baseline for mandibular plane and Frankford horizontal plane construction which could result in incorrect conclusion from the analysis. These angular measurements directly depend on the orientation of the mandibular plane with reference to sella-nasion plane and Frankfort horizontal plane. There are many previous studies which include vertical skeletal linear measurements like lower anterior or facial height which in most of the studies increased after distalization. When S point is positioned downwards, the inclination of SN plane will be increased and appeared to be large SN-MP angle and Y-axis even than mandibular plane is at normal inclination, while lower anterior facial height is independent of SN plane.

CONCLUSION:

Our study was focused only on the skeletal changes occurred in vertical pattern of patients who were with low to normal vertical proportions at the start of treatment. Therefore, the results of this study provide guidance for selection of patients with class II malocclusion for distalization of molars. Moreover, cross comparative and randomized control trials with larger sample size are required to further explore this topic to develop final conclusion in this regard.

REFERENCES:
Management of Tibial Plateau Fracture

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ABSTRACT:
Background: Tibial plateau fractures are one of the most challenging problems in orthopaedic surgery. Fractures of the tibial plateau, intra-articular injuries of the knee joint are often complex, difficult to treat and have a high complication rate. The Ilizarov technique solves many problems encountered in management of such fractures and provides a method for closed reduction and fixation that does not necessitate excessive soft-tissue stripping, protecting vascularity, emphasize restoring both joint congruity and the mechanical axis of the limb.

Objectives: The main objective of this study is to evaluate functional outcome of tibial plateau fractures using Ilizarov external fixator.

Materials and Methods: This study was conducted in Department of Orthopedics and Trauma, Hayatabad Medical Complex and Khyber Teaching hospital, Peshawar from January 2016 till December 2017.

Results: 20 patients were treated, 12 (60%) were male and 8 (40%) female. The mean age was 33.6 years (range: 18 to 54 years). All patients were followed up was 9.6 months (range 7-12) months. Fractures healed with no occurrence of nonunion. Fracture healing time was 12-18 weeks with an average of 14.05 weeks. The time of external fixator removal on average was 17.9(range of 15-22 weeks). The complications which are observed in patients were pin track infection (k-wire and Shawn pin), knee stiffness, equinus deformity of foot, quality of articular reduction, mal-union and poor compliance. Full weight-bearing was allowed at a mean of 5 months. Using the knee society clinical rating system, 9 knees were rated as excellent, 7 as good, one as fair, and 2 as poor. One patient was lost in follow up. Six patients achieved full extension and eight had an extension deficit of less than 6°. Two had an extension lag of 6° to 10° and three more than 10°. 14 patients achieved flexion of more than 110° and 5 of these were able to flex the knee to more than 130°. All knees were stable. Thigh atrophy of more than 1 cm was noted in only 3 patients.

Conclusion: The method is well suited to the management of complex fractures of the tibial plateau when extensive dissection and internal fixation are contraindicated due to the comminuting and soft tissue compromise.

Key words: Ilizarov frame, tibial plateau, knee stiffness.

INTRODUCTION:
Experienced trauma surgeon considers it difficult to treat the high energy fractures of comminuted tibial plateau fractures. With the advent of various surgical devices, however, there has been marked improvement in functional outcome. In order to treat these fractures, different methods of fixation are used. These include closed reduction and cast bracing, open reduction and internal fixation, circular frame/ Ilizarov application, percutaneous screw fixation wire guided cannulated screw and various other. There are advantages and disadvantages of each technique. The ultimate goal of managing these fractures is to reload joint congruity, ensure joint stability, and alignment. Other goals include achieving full range of motion and to minimize the risk of post-traumatic osteoarthritis.

The method is well suited to the management of complex fractures of the tibial plateau when extensive dissection and internal fixation are contraindicated due to the comminuting and soft tissue compromise.

The soft tissue damage must be considered, while treating these fractures in addition to fracture. Cases in which patients were treated with open reduction and internal fixation of tibial plateau fractures with poor soft tissue envelope, there many authors have encountered poor results in. there have been many complications in open reduction and internal fixation. A high incidence of wound complications with possibl-
ocular external fixation has shown the ability to decrease soft tissue complications. The Ilizarov technique has benefits, since the reduction and fixation of the fracture fragments can be made with almost no soft-tissue exposure and blood. Both during and after surgery, the fixator allows for the compression/distraction and for adjustment of the alignment. Another advantage is the fixation is stable enough to allow early weight-bearing while using Ilizarov technique. Outcome from the management of high energy tibial plateau fractures (Schatzker type VI) through circular Ilizarov external fixation has been shown through this report/study.

**MATERIAL AND METHODS:**

The retrospective study was conducted after approval from ethical committee of Hayatabad Medical Complex and Khyber Teaching Hospital, Peshawar. The inpatient record of patients with Schatzker type VI tibial plateau fractures treated with Ilizarov external fixator between January 2016 and December 2017 were searched from medical record section of the department of trauma and orthopaedics.

More than 50 consecutive patients of tibial plateau fractures treated with different methods were identified. Patients excluded from the study were tibial plateau fractures of Schatzker types I, II, III, and IV, V, concomitant fractures (spine or pelvic fractures and ipsilateral femoral shaft fracture, as they could alter the functional outcome of patients) and those lost to follow-up and treated by open reduction and internal fixation.

24 patients were excluded from the study who did not meet the inclusion criteria. six patients could not be located or lost to follow-up. So, only 20 patients (12 males and 8 females) were included in this study. The mean age was 33.6 years (range: 18 to 54 years). The mechanism of injury was a road traffic accident (Motor vehicle and pedestrian accident) in 12 cases and a fall from a height in 8 cases. The fractures were closed in 15 cases and open in 5 cases. The open fractures were Gustilo–Anderson type I in two cases and type II in three cases. All patients were treated with fine-wire Ilizarov circular external fixators for definitive management.

The hospital records included clinical history sheet and operative notes. They were studied to determine the mode of injury, age, gender, delay in surgery, treatment given and associated complications of either the fracture or treatment. The data regarding comorbid conditions, associated limb injuries, and side of injury was also collected. The surgery was delayed in cases with soft tissue injury indicated by soft tissue edema or blister formation. The patients were taken up for surgery even with soft tissue edema and blisters at the fracture site.

All the fractures were Schatzker type VI. Radiology including digital X-rays (antero-posterior and lateral view) was carried out in all the patients whereas computed tomography (2D and 3D) was performed in 12 cases to assess the degree of comminution, the amount of depression and to detect the main fragments through which the beaded wires could be inserted to achieve maximum possible joint congruity and fracture reduction. The mean interval between admission and circular fixator application was 8 days (range 7-9).

Surgical Technique: Because of high energy trauma and compromised condition of surrounding soft tissue, all the patients with Shatzker type VI tibial plateau were started on broad spectrum IV antibiotics (Cefazolin 1gm, TDS and gentacin in open fractures) since the time of admission to the surgery and then continued postoperatively for 3 to 5 days. The operative procedures were performed in a standard operating room with traction table (foot fixed in a shoe) and image intensifier, under regional/spinal anaesthesia under tourniquet control. The fracture reduction was visualized with an image intensifier.

Antero-posterior and lateral view fluoroscopy was used during reduction, pin insertion and assembly of the frame. The axial reduction was achieved with traction. The joint surface was reconstructed if necessary, using closed pressure with percutaneously inserted elevators, reduction forces or and wires with olives. Standard and appropriately sized three or four Ringsilizarov construct was used for tibial plateau fracture. First of all 3 to 4 wires (20mm) with olives along with the ring were placed at the level of or above the fibular head to reduce the fracture (joint line/surface and lengthwise) with an overall divergence of 30 degrees at least. 2nd and 3rd ring along with the three simple wires (16 to 18mm) and 3.5 to 4mm Shawnn pin one in each ring were placed below the fracture at mid-shaft and lower 1/3rd of tibia in safe zone. In two patients for much stability to the frame construct 4th ring with simple wires were fixed in tibia whereas in another one patient in distal femur. After that rings were connected by steel rods with each other and the wires were tensioned to at least 110 Kg to 130 Kg. No post-operative corrections were needed. The “Kurgan protocol” was used for postoperative pin site dressings.

During the post operative period IV antibiotics (Cefazolin 1gm, TDS) were continued for 3 to 5 days. Double IV analgesia including Inj. Tramol (TDS along the inj. Gravinate) and Inj. Toradol (SOS) were used for pain. Proton pump inhibitors were also administered on OD basis. Physiotherapy (quadriceps exercise and passive dorsiflexion and plantar flexion at ankle) was started immediately after the operation to maintain
knee and ankle motion and the patients were allowed to start bearable weight-bearing. The patients were encouraged to do active assisted knee bending from 14th postoperative day. Weight bearing was increased as tolerated. Patients with marked articular comminution were kept non-weight bearing for 6 weeks.

The femoral ring and wires were used in 3 of the 20 type VI fractures and was removed at 8 weeks. The fractures were regarded as being healed when antero-posterior and lateral radiographs showed a bridging callus and the patients were able to walk without pain.

All the patients were followed up clinically at two or four weeks and then monthly till the external fixator removal at mean 17.9 weeks (range 15-22) up to mean 9.6 months (range 7-12 months). Radiography (AP and Lat Digital X-rays) was performed at the same intervals. Radiography was studied to confirm the correct classification of the fracture, treatment employed, articular reduction achieved, and any loss of articular reduction or mal-alignment. Radiographs were assessed by all the authors to assess the articular reduction. The joint reduction was considered to be satisfactory if articular depression was less than or equal to five millimeters and plateau widening was less than or equal to five millimeters compared to the width of the distal femoral condyle. Radiographic, clinical, and functional evaluation was done using the method the Knee Society clinical rating score.

RESULTS:
All fractures united, except one with varus-malunion. Fracture healing time was 14.05 weeks with an average of 12-18 weeks. Weight-bearing was allowed since the surgery and it is increased as tolerated. The fixators were removed under anesthesia (IV. ketamine). The time of external fixator removal on average was 17.9 weeks (range of 15-22 weeks). All the patients were available for follow-up except one. The average follow-up was 9.6 months (range 7-12 months). Clinical and radiographic outcome The radiographic reduction of the fractures was rated as excellent in 12 and good in 7, according to Rasmussen’s criteria[10]. Using the Knee Society clinical rating system, 9 knees were rated as excellent, 7 as good, one as fair, and two as poor. One patient was lost in follow up. Six patients achieved full extension and eight had an extension deficit of less than 6°. Two had an extension lag of 6° to 10° and three more than 10°. 14 patients achieved flexion of more than 110° where as 5 of these were able to flex the knee to more than 130°. All knees were stable. Thigh atrophy of more than 1 cm was noted in only three patients. The maximum range of motion at knee was 10 to 130° however minimum range of motion was 10° to 110°.

All the patients were followed up with Oxford knee score questionnaire. The patients were asked twelve questions about the degree of pain in knee, any difficulty in toilet activities, ability to perform household activities, climbing up or down stairs, ability to knee, night pains, any limp in the operated limb, ability to kneel and stand again, and any discomfort in washing and drying oneself due to knee and various other questions mentioned in Oxford knee score. The maximum attainable score was 60. The patients were graded as poor (0 to 19), moderate (20 to 29), good (30 to 39), and excellent (40 to 48). Using the Knee Society clinical rating system, 9 knees were rated as excellent (43%), 7 as good (35%), one as fair (7.1%), and two as poor (14.2%). The patients who had scored more than 40 were considered as cases with satisfactory functional outcome and minimal disability.

The complications which are observed in patients were (i) Pin track infection i.e. at the fracture along the k-wires in 11 patients (57%) and Shawn pin in 8 patients (43%). Initially advised empirical antibiotic (tab. Cefixime 400mg, OD and tab. Augmentum 1gm, twice daily for 14 days) and local treatment of infected sites, out of eleven, 6 patients with infected k-wires site responded but only two patients were oozing whereas only 1 patient out of 8 with infected Shawn pins were oozing till the removal of Ilizarov external fixator, (ii) Knee stiffness in 11 (57%), all improved with physiotherapy, (iii) Quality of articular reduction, at final follow-up, radiographs showed articular depression more than 3 mm in three (21%) cases and less than 3 mm in four (28%) cases, (iv) Malunion, in the form of varus deformity 10° in 1 case, (V) Only one patient is lost in follow up.

Fig: 1
A. Pro-OP
B. Post-OP
C. After Removal of Ilizarov

DISCUSSION:

Treatment of high energy tibial plateau fractures remains challenging task in orthopaedics. Along the restoration of articular congruity, the soft tissue envelope of tibial plateau is also important for fracture healing. The final outcome depends on many factors: the extent of damage to soft tissues and articular cartilage, the accuracy of reduction, the stability of the knee joint, the stability of fixation, and the overall alignment of the limb. All of these factors should be optimized in the care of tibial plateau fractures. Many options are available for the management of such fractures but ilizarov is the best option in the management of com-
munitied tibial plateau fracture (schatzker type VI). The presence of fracture site blisters or extensive subcutaneous haemorrhage and bruising does not hinder percutaneous placement of the wires which avoids additional devitalization of the bone since the periosteal and endosteal blood supply are not further damaged. Small tensioned wires allow capture of small bone fragments and olive wires can compress the condylar fractures as would lag screws. Maintenance of the mechanical axis can be continually monitored by adjustment of the frame.

Many options are available for the management of such fractures. Traditionally dual plating was considered to be the best mechanical method of stabilization for these fractures, as it addresses both the medial and lateral columns to achieve reduction and stability. The dual plate fixation has been associated with potentially devastating complications such as fixation failure, malunion, nonunion, joint stiffness, secondary posttraumatic osteoarthritis, infection, and most importantly severe soft tissue complications (i.e. wound infection and dehiscence) as it requires soft tissue dissection. Moore et al. reported a 23% rate of infection in association with comminuted tibial plateau fractures after internal fixation. They noted wound dehiscence in 8 out of 11 knees that had been treated with medial and lateral plates. Young et al. reported deep infection in 7 out of 8 fractures that had been treated with both medial and lateral plates.

However, recent biomechanical studies proved that Ilizarov circular external fixator provides adequate mechanical stability for the fixation of tibial plateau fractures as it allows for early joint mobilisation without risking loss of reduction.

There are several studies which have shown the good functional outcome and decreased complication rate as compared to dual plate osteosynthesis. Kataria et al. [11] reported a series of 38 patients treated with small-wire external fixators and had no incidences of complications (i.e. non-union or septic arthritis). Ali AM et al. [12] reported 20 patients treated with Ilizarov and all patients achieved bone union, good to excellent functional outcome (i.e. ROM and stability) and no osteomyelitis or septic arthritis. Dendrinos GK et al. reported a series of 24 patients that were treated with the Ilizarov circular fixator. 13 achieved full extension, 7 less than 5 degrees of extension lag (>80% good to excellent result), 17 flexion >110 degrees of which 5 >130.22. All fractures united, and there was no incidence of osteomyelitis or septic arthritis. Watson et al. demonstrated that four olive wires combined with a lag screw provided the most stability, even when compared to dual plating [13].

Barbary et al treated 30 fractures with Ilizarov fixators, out of which 25 patients had excellent to good outcomes. [14] Khalily et al compared the external fixator with hybrid fixators and found that the Ilizarov fixator had reduced fracture site movements as compared to hybrid configurations. [15] Egol et al had 95 percent union rate at 4 months after surgery and found that it allowed earlier range of motion at the knee [16], while Mikulak et al had found that all fractures achieved union at 17.7 weeks [17]. In case of complications, Ali reported pin site infections in 20% patients, and skin gaping in only 1 case out of 25. [18] Kumar et al had a similar rate of pin site infection (21%) when using the ilizarov fixator. [19] The current study is comparable to these studies in that no cases of wound dehiscence, osteomyelitis or septic arthritis were seen. From these results it is concluded that an Ilizarov external fixator, succeeds in providing stable fixation for these complex injuries without imparting added trauma to an already compromised soft tissue envelope, and provides good to excellent ROM.

Ilizarov external fixator also provides advantage of early full weight-bearing. Closed Ilizarov does not necessitate extensive soft tissue dissection and stripping so avoids wound dehiscence and necrosis and has lesser chances of infection typically associated with traditional plating technique. Pin tract infection is a major complication and occurs almost in more than half of cases, but can be dealt with through aseptic measures, proper cleansing, antibiotics and diligent care.

CONCLUSION:

The technique is well suited to the management of complex fractures of the tibial plateau when extensive dissection and internal fixation are contraindicated due to the comminution and soft tissue compromise. Ilizarov external fixator is an ideal method for comminuted tibial plateau fracture schatzker type VI, as it provides good functional outcome, however less complications rate.

REFERENCES:

Rising Level of CO2 saps essential nutrients from diet.

*(Journal of Nature Climate Change)*

Researchers from Harvard University School of Public Health have recently warned in the journal of Nature Climate Change that rising level of Carbon Dioxide in the atmosphere threatens to weaken the presence of essential nutrients like iron, zinc and proteins by 17%, causing malnutrition especially in the growing children affecting their immune system and making more vulnerable to Malaria, Typhoid, lung infections and diarrheal diseases. These nutrients are essential for normal human growth and development.

These nutrients are also essential part of 70% of our staple diet like wheat, rice and maize. Humans get three-fifth of dietary protein, four-fifth of iron and 70% of the zinc requirements from plant resources.

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Exploring Gender Differences in Academic Motivation among Adolescents

ABSTRACT

Aim. The present study was to explore relationship between intrinsic and extrinsic motivation on academic performance.

Material & Method: Based on literature review following hypotheses were formulated 1) There will be significant relationship between Intrinsic Motivation, Extrinsic Motivation and A-motivation among adolescents. 2) Male and female adolescents will be different in levels of academic motivation. 3) There will be significant interaction among gender and education with academic motivation.

Result: A sample of 160 college students (80 males and 80 females) was selected from male and female colleges of Mirpur AJK. The age of the participants ranged from 16-20 years (with mean age of 17.56 years). Their educational level was at least intermediate and socioeconomic status was middle and high class. The Academic Motivation Scale was administered to assess academic intrinsic and extrinsic motivation and academic performance was measured through SPSS V 23. In order to interpret the results reliability analysis, Correlation, t-test and were calculated to assess relationship between academic motivation, Extrinsic Motivation and A-motivation among adolescents. Results suggest that male adolescents (M= 55.7, SD= 10) have significantly low rates of Intrinsic Motivation as compared to female adolescents (M= 60.7, SD= 12.1). Similarly, male adolescents (M= 56.3, SD= 10.6) are lower in Extrinsic Motivation as compared to female adolescents (M= 63.9, SD= 12.7). Whereas in A-motivation, male adolescents (M= 15.4, SD= 4.5) rate higher as compared to female adolescents (M= 10.4, SD= 5.1).

Conclusion: Findings of the results illustrates that motivation improves academic performance of the students. In addition, there is gender difference in motivation type and academic performance.

Key Words: Intrinsic Motivation, Extrinsic Motivation, Academic Performance

INTRODUCTION

Academic motivation is the corner stone for success amongst the student’s success is highly dependent on level of motivation they get. College time endows with the foundation to enter the professional education. Some college students are more motivated to learn than others, hence need arises to explore the reasons. Academic motivation is a student’s desire regarding academics when the student’s competence is judged against a standard of performance or excellence. Psychologists noted that motivation should be taken into account in education because of its effective relationship with new learning, abilities, strategies and behaviors and motivation for academic achievement as one of the preliminary constructs for defining such type of motivation7. Self-determination theory is an approach that focuses on self-determined or autonomous and controlled behaviors. It suggests that a person who is unmotivated feels no ambition and excitement towards accomplishing a task and self-determination has diverse theories such as intrinsic motivation, extrinsic motivation and academic motivation5,6.

Motivation improves the academic performance of the students, though there is gender difference in motivation type and academic performance.

Intrinsic motivation is the self-desire to attempt to face new challenges. In this a person does a certain task because they enjoy doing it or have an interest in doing it, they don’t rely on external pressure or a desire
for reward 5. Extrinsic motivation refers to the performance of an activity in order to achieve a desired outcome and it is the opposite of intrinsic motivation. It is behavior that is done to get a reward such as money, grades, and praise. This type of motivation arises from outside the individual rather than the inside. Academic motivation is the state of lacking any motivation to engage in an activity because an individual lacks the ability to do a task or does not value the activity or task itself. The individual will display neither intrinsic nor extrinsic behavior 5, for example, a motivated athlete will not know why they participate in their sports. In addition they won’t find any benefits from participation in the sports or physical activity.

METHODOLOGY

The sample of this study consisted of (N=160) college students. Participants in this study included 80 females and 80 males, who were selected from boys and girls degree colleges District Mirpur AJK. The age of participants ranged from 16-20 years. Convenient sampling was used for the selection of the research sample. Data was collected from both colleges of Mirpur AJK. First of all permission was obtained from the colleges and the questionnaires were filled by participants. Participants were briefed about the nature of study and they were also assured that the information provided by them would be kept secret and will be used only for the research purposes. The research protocols included demographic sheet and Academic Motivation Scale. Demographic sheet was formulated to access the name of the participant, age, gender, current class and family system. Academic Motivations Scale 11 was used to access participant’s academic motivation which was deeply rooted in self-determination theory, the AMS consists of 28 items measured on a 7point Likert scale (ranging from 1 = does not correspond at all to 7 = corresponds exactly). The AMS measures the participants’ perceptions of academic motivation based on three dimensions of Academic Motivation including Intrinsic Motivation, Extrinsic Motivation and A-motivation (4 items). The scale was highly reliable (α=.92) and for its subscales it ranged from α=.92 to α=.71. “Student’s desire regarding academic subjects when the student’s competence is judged against a standard of performance or excellence.”

The index of academic motivation will be scores obtained from intrinsic motivation, extrinsic motivation and academic motivation 11.

RESULTS

Present study examined the relationship between dimensions of Academic Motivation including Intrinsic Motivation, Extrinsic Motivation and A-motivation among adolescents as well as investigated the gender differences present among adolescents related to Academic Motivation. To measure academic motivation among adolescents, Academic Motivation Scale (AMS-college version) was used. Reliability analysis, correlation, t test and Manova were used to test hypotheses of the study. Data was statistically analyzed by statistical package for social sciences (SPSS, v23).

Table 1: Distribution of demographic variables (N=160)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>14(56)</td>
<td>11(44)</td>
<td>25(15.62)</td>
</tr>
<tr>
<td>17</td>
<td>24(41.3)</td>
<td>34(58.6)</td>
<td>58(36.25)</td>
</tr>
<tr>
<td>18</td>
<td>24(57.1)</td>
<td>18(42.8)</td>
<td>42(26.25)</td>
</tr>
<tr>
<td>19</td>
<td>11(47.8)</td>
<td>12(52.17)</td>
<td>23(14.37)</td>
</tr>
<tr>
<td>20</td>
<td>3(37.5)</td>
<td>5(62.5)</td>
<td>8(5)</td>
</tr>
<tr>
<td>21</td>
<td>4(100)</td>
<td>0</td>
<td>4(2.5)</td>
</tr>
<tr>
<td>Family System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint</td>
<td>43(68.2)</td>
<td>20(48.2)</td>
<td>63(39.4)</td>
</tr>
<tr>
<td>Nuclear</td>
<td>37(38.1)</td>
<td>60(61.8)</td>
<td>97(60.6)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>44(55)</td>
<td>36(45)</td>
<td>80(50)</td>
</tr>
<tr>
<td>Second year</td>
<td>36(45)</td>
<td>44(55)</td>
<td>80(50)</td>
</tr>
</tbody>
</table>

Table 1: demonstrates demographic variables of the sample including age, family system and education. It also indicates age ranges 17-21years. The highest percentage of females falls under the age of 17 whereas the highest percentage of males falls under the age of 16. As for the family system, about 40% of the adolescents belong to joint family system and about 60% of the adolescents belong to nuclear family system. In the domain of education, first year and second year students have equal proportion.

Table 2: Psychometric properties of Academic Motivation Scale (N=160)

<table>
<thead>
<tr>
<th>Variable</th>
<th>K</th>
<th>M</th>
<th>S.D</th>
<th>A</th>
<th>Skewness</th>
<th>S.E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic motivation</td>
<td>28</td>
<td>131.4</td>
<td>21.5</td>
<td>.82</td>
<td>.19</td>
<td>1.71</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>12</td>
<td>58.22</td>
<td>11.36</td>
<td>.75</td>
<td>-.04</td>
<td>.89</td>
</tr>
<tr>
<td>Extrinsic Motivation</td>
<td>12</td>
<td>60.14</td>
<td>12.29</td>
<td>.75</td>
<td>-.14</td>
<td>.97</td>
</tr>
<tr>
<td>A-motivation</td>
<td>4</td>
<td>12.98</td>
<td>5.44</td>
<td>.59</td>
<td>-.03</td>
<td>.43</td>
</tr>
</tbody>
</table>

Table 2: indicates the Cronbach’s alpha reliability of Academic Motivation scale and its all subscales. It shows that Academic Motivation Scale has high reliability (α =0.82). All subscales including Intrinsic Motivation (α =0.82), Extrinsic Motivation (α =0.82) and A-motivation (α =0.82) are also highly reliable and the data gathered by these instruments is reliable for data analysis.

Table 3: Correlation matrix for subscales of Academic Motivation (N=160)
Exploring Gender Differences in Academic Motivation among Adolescents

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>gender* edu</th>
<th>Intrinsic</th>
<th>4</th>
<th>149.74</th>
<th>1.40*</th>
<th>.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic motivation</td>
<td>1</td>
<td>.59</td>
<td>- .32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic motivation</td>
<td>-</td>
<td>1</td>
<td>- .48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 indicates correlation coefficients for subscales of academic motivation scale. The results show that Intrinsic Motivation and Extrinsic Motivation are positively correlated (α=.59**, p<.001) with each other whereas A-motivation is negatively correlated with Intrinsic Motivation (α= -.32**, p<.001) as well as with Extrinsic Motivation (α= -.48**, p<.001).

Note. IM=Intrinsic Motivation, EM= Extrinsic Motivation, AM= A-motivation

Table 4 showed the results of t-test for comparing mean differences on the basis of gender on Intrinsic Motivation (IM), Extrinsic Motivation (EM), and A-motivation(AM). Thus indicating that male adolescents (M= 55.7, SD= 10) have significantly low rates of Intrinsic Motivation as compared to female adolescents (M= 60.7, SD= 12.1). Similarly, male adolescents (M= 56.3, SD= 10.6) are lower in Extrinsic Motivation as compared to female adolescents (M= 63.9, SD= 12.7). Whereas in A-motivation, male adolescents (M= 15.4, SD= 4.5) rate higher as compared to female adolescents (M= 10.4, SD= 5.1).

Table 5: Manova for Gender and Education on Intrinsic Motivation, Extrinsic Motivation and A-motivation (N= 160)

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent variable</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extrinsic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( p = <0.01 \)

In MANOVA the results concluded that interaction among gender and education of the sample was significant on intrinsic motivation and extrinsic motivation. Gender and level of education when combined, significantly influence the rates of intrinsic motivation (MS= 149.74, p<.05) and extrinsic motivation (MS= 56.78, p<.05).

**DISCUSSION**

Present study examined the relationship between dimensions of Academic Motivation including Intrinsic Motivation, Extrinsic Motivation and A-motivation among adolescents as well as investigated the gender differences present among adolescents related to Academic Motivation. Academic motivation is the cornerstone for success in college students. Student’s triumph is highly dependent on level of motivation they hold. College time endows with the foundation to enter the professional education. Some college students are more motivated to learn than others, hence need arises to explore the reasons. Academic motivation is a student’s desire regarding academic subjects when the student’s competence is judged against a standard of performance or excellence. Psychologists noted that motivation should be taken into account in education.
because of its effective relationship with new learning, abilities, strategies and behaviors and they have presented motivation for academic achievement as one of the preliminary constructs for defining such type of motivation.

While concluding results table 1 demonstrates that in the domain of education, first year and second year students have equal proportion. First year students have more number of males as compared to females where as in second year there is a larger population of female students. While in Table 2 indicates the Cronbach’s alpha reliability of Academic Motivation scale and its all subscales. It shows that Academic Motivation Scale has high reliability. All subscales including Intrinsic Motivation, Extrinsic Motivation and A-motivation are also highly reliable and the data gathered by these instruments is reliable for data analysis.

The first hypothesis proposed that there will be significant relationship between Intrinsic Motivation, Extrinsic Motivation and A-motivation among adolescents. Table 3 findings are in line with previous research finding which indicated that a significant positive relationship exists between intrinsic motivation and extrinsic motivation.

The aim of the study was to explore relationship between intrinsic and extrinsic motivation on academic performance. A sample of 200 students (100 males and 100 females) was selected from different colleges of Karachi. The age of the participants ranged from 18-21 years (with mean age of 18.56 years). Their educational level was at least intermediate and socioeconomic status was middle and high class. Results suggested that intrinsic and extrinsic motivation and academic performance were positively correlated (r=.563; n=200; sig=.000).

Second hypothesis profess that male and female adolescents will be different in levels of Academic Motivation. Table 4 showed the results of t-test for comparing mean differences on the basis of gender on Intrinsic Motivation (IM), Extrinsic Motivation (EM), and A-motivation(AM). In a previous research done in Karachi, gender difference was found (t=4.324, p <.05) on motivation and academic performance. To conclude, findings of the results illustrates that there is gender difference in motivation type and academic performance. Female college students were more motivated as compared to males; the same hypothesis was proved in a previous research. The results of our study are consistent with the previous research that says that female respondents are more motivated in studies. According to our study males are more a-motivated as compared to females towards their study, which is consistent with many previous research findings. Prior research has also shown consistent results regarding the differences of lack of motivation as stated in the study which investigated gender differences in adolescents’ academic motivation and classroom behavior and gender differences in the extent to which motivation was associated with, and predicted, classroom behavior. Seven hundred and fifty students (384 boys and 366 girls) aged between eleven and sixteen completed a questionnaire examining academic motivation and teachers completed assessments of their classroom behavior. The results stated that girls generally reported higher levels of academic motivation, whilst boys were poorer in academic motivation, having high rates of lack of motivation.

Third hypothesis suggested that there will be significant interaction among gender and education with Academic Motivation. MANOVA for gender and education on academic motivation- Intrinsic Motivation, Extrinsic Motivation and A-motivation was done. The results concluded that interaction among gender and education of the sample was significant on intrinsic motivation and extrinsic motivation. Gender and level of education when combined, significantly influence the rates of intrinsic motivation and extrinsic motivation. Gender and level of education strongly influence extrinsic motivation. Males of first year have lower extrinsic motivation as compared to females of first year. Whereas, males of second year are higher in extrinsic motivation than females of second year.

Findings of the present study concluded that an interaction among gender and education with intrinsic motivation as well as with extrinsic motivation is consistent with previous research stating that a person’s gender and his or her level of education strongly influence the rates of intrinsic motivation as well as extrinsic motivation.

CONCLUSION

Present study examined the relationship between dimensions of Academic Motivation including Intrinsic Motivation, Extrinsic Motivation and A-motivation among adolescents as well as investigated the gender differences present among adolescents related to Academic Motivation. The results show that Intrinsic Motivation and Extrinsic Motivation are positively correlated with each other whereas A-motivation is negatively correlated with Intrinsic Motivation as well as with Extrinsic Motivation. Results further indicated that male adolescents have significantly low rates of Intrinsic Motivation as compared to female adolescents. Similarly, male adolescents are lower in Extrinsic Motivation as compared to female adolescents. Whereas male adolescents rate higher in A-motivation as compared to female adolescents. The results concluded that interaction among gender and education of the sample was significant on intrinsic motivation and extrinsic motivation. When Gender and level of education are interacted, they significantly influence the rates of intrinsic and extrinsic motivation.

Implications, limitations and suggestions: While present research relied more on quantitative and survey research, qualitative research may also be utilized to seek in-depth information on the topic through engaging faculty members and students in group discussions through focus group discussions and interviews.
Further this study can be conducted using large population as the sample of this study was small, it offered some insights, guidelines and caveats for future research. This study is an effective contribution to the understanding of the adaptation and integration of students as well as to study their well being. The sample taken in the study was taken only from private schools. For future studies, corporate evaluations among students of private higher education and public higher education can be conducted with a good sample size.

REFERENCES
ABSTRACT
Objective: To assess the visual outcome of cataract surgery at Hayatabad Medical Complex (HMC) Peshawar on 1st, 3rd and 15th post-operative day and to categorize its visual acuity by World Health Organization (WHO) criteria.
Methodology: The study was conducted from September to November 2015. 120 patients were enrolled for the study were above the age of 40. All patients were admitted through the OPD. 117(97.53%) patients were considered to have a good vision, 2(0.016%) were having borderline and none of the patients were having poor vision. Data was collected on a validated predesigned performa pre operatively on 1st, 3rd and 15th post operation day, and complications were treated accordingly and recorded for those patients who had their V.A less than 6/18 on 15th post-operative day after refraction was done in such cases if patient was not improving due to previous complications, their finding was recorded after thorough examination. Vision was finally recorded.
Results: In total 120 patients were operated, males 87(72.5%), females 33(27.5%). Age group, 40-50 were 5(4.1%), 51-60 were 36(30%), in 61-70 were 56(46.6%), in 71-80 were 21(17.5%) and in 81-90 were 2(1.6%). Good vision was 75(62.5%), 35(29.16%) of them were on borderline and 8(6.66%) of them were having poor vision. According to WHO definition on 15th post-operative day 117(97.53%) were having good vision, 97% were borderline, 2(1.66%) were NPL due to endophthalmitis.
Conclusion: Blindness due to cataract is a significant problem among the developing countries. The visual outcome of cataract surgery was 97%, which can be improved with adequate skills, facilities and quality control. The monitoring of quality outcome needs to be built into the data collection. The use of these indicators facilitates adequate management and evaluation of the efficiency and effectiveness of the intervention and can help to ensure the maximum utilization of the available resources for the cataract surgery.

Key words: visual outcome, cataract surgery, visual acuity.

INTRODUCTION
Recent study estimates that blindness affects 45 million peoples globally with nine out of every ten blind people living in the developing countries. World Health Organization (WHO) launched vision 2020, a global initiative for the elimination of avoidable blindness. The goals of this initiative is to address the major preventable or treatable causes of blindness, particularly in developing countries in order to stop further increase of the global burden of blindness. Among the priority diseases signaled out in the vision 2020 initiatives are cataract and trachoma.

The outcome can be improved with adequate surgical skills, better with routine monitoring of quality. The use of these indicators facilitates adequate management.
are still not prone to effective prevention and great efforts are therefore being made to provide sight restoring surgery, over the last 10 years new technologies and techniques have improved the surgery, after the implantation of intraocular lenses (IOL).

According to population census in 1998 the population of Pakistan stands 130.5 million and an annual growth rate of 2.61 percent. The number of blind is 2.3 million with an estimated 1.5 million blind due to cataract and assuming that the annual incidence of cataract blindness is 20 percent of the prevalence. There will be approximately 300,000 cases of blindness due to cataract annually.

In KPK, annual cataract surgeries are 140,000 and the backlog is increasing. The eye care services below district level are poorly or completely not developed. This study was undertaken to assess the outcome of cataract surgery in terms of day 1 visual acuity and at final follow-up after 6 weeks and to identify factors that might affect poor cataract surgery outcome.

**METHODOLOGY:**
A written permission was obtained from HMC authorities and all the patients who underwent cataract surgery, admitted through Out Patient Department (OPD). Their V.A, and history of systemic diseases was recorded, if the V.A of the persons was less than 6/18, then refraction was done, and the final vision was recorded. Surgery was performed on the same day or the next day. Cataract operated patients were examined in the OPD, and their V.A was again recorded. Patients were followed at first post operative day, third post operative day and fifteenth post operative day.

**Inclusion criteria:** All patients aged 40 and above with cataract.

**Exclusion criteria:** All those patients below age 40 or with mental health issues, and no perception of light.

120 patients who had undergone cataract surgery at HMC Peshawar were registered on a pre-designed proforma, the hospital post-operative protocol was followed on 1st, 3rd and 15th post operative day and their visual acuity was recorded. They were examined on the slit lamp, if necessary fundoscopy was also done and if the person vision was less than 6/18, refraction was done and the final vision was recorded. On the 15th post operated day best available correction and V.A of the patient was done. If the patient was not improving up to 6/18 and if in the previous record he/she was not having any complication. Then person was examined thoroughly and the findings were recorded. The study continued on all working days from September to November 2015.

### RESULTS

**Table-1. Age and gender of patients**

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-50</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>51-60</td>
<td>28</td>
<td>30%</td>
</tr>
<tr>
<td>61-70</td>
<td>40</td>
<td>46.6%</td>
</tr>
<tr>
<td>71-80</td>
<td>16</td>
<td>21%</td>
</tr>
<tr>
<td>81-90</td>
<td>1</td>
<td>1.6%</td>
</tr>
<tr>
<td>Total</td>
<td>87(72.5%)</td>
<td></td>
</tr>
</tbody>
</table>

**Table-2. Pre operative ocular condition.**

<table>
<thead>
<tr>
<th>Pre operative condition</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>96</td>
<td>80%</td>
</tr>
<tr>
<td>Corneal opacities</td>
<td>16</td>
<td>13.3%</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>4</td>
<td>3.3%</td>
</tr>
<tr>
<td>Ant/post. seg pathology</td>
<td>4</td>
<td>3.3%</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table-3: Systemic diseases of persons before surgery.**

<table>
<thead>
<tr>
<th>Systemic diseases</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>80</td>
<td>66.6%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>30</td>
<td>25%</td>
</tr>
<tr>
<td>Diabetic</td>
<td>10</td>
<td>8.3%</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table-4 Intra Operative Complications.**

<table>
<thead>
<tr>
<th>Intra-operative complications</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>120</td>
<td>100%</td>
</tr>
<tr>
<td>Post. cap. rupture/vit loss</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loose suture</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100%</td>
</tr>
</tbody>
</table>

There were no intra operative complications occur during my study time period.

**Table-5. Post operative condition of the eyes.**

<table>
<thead>
<tr>
<th>Post op Complications</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>118</td>
<td>98.3%</td>
</tr>
<tr>
<td>Endophthalmitis</td>
<td>2</td>
<td>1.66%</td>
</tr>
<tr>
<td>Hypopion</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Severe uveitis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table-6. Gender vs Occupation.**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>24</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>Unemployed</td>
<td>40</td>
<td>16</td>
<td>56</td>
</tr>
<tr>
<td>Farmer</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>House wife</td>
<td>0</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>40</td>
<td>120</td>
</tr>
</tbody>
</table>
Table 7: Visual Acuity of the persons before surgery and on 1st, 3rd and 15th post op day.

<table>
<thead>
<tr>
<th>Visual Acuity</th>
<th>Pre op V.A</th>
<th>1st post op day</th>
<th>3rd post op day</th>
<th>15th post op day</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6-6/18 (Good)</td>
<td>0</td>
<td>16</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>&lt;6/18-6/60 (Borderline)</td>
<td>24</td>
<td>56</td>
<td>80</td>
<td>38</td>
</tr>
<tr>
<td>&lt;6/60-3/60 (Poor)</td>
<td>96</td>
<td>46</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>NPL</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Total 120 persons were included in the study. The visual acuity of the person at the time of admission were recorded. 24 persons (20%) were having visual acuity in borderline at the time of admission. 96 persons 80% were having poor visual acuity at the time of admission. No one was NPL. On 1st post operative day 16 were having good vision, 56 were having borderline, 46 were having poor and 2 were NPL due to endophthalmitis. On 3rd post operative day 97% were having good vision, 80 were borderline, 14 were having poor vision and 2 were NPL due to endophthalmitis. On 15th post operative day 80 were having good vision, 38 were borderline, no one has poor vision and 2 had endophthalmitis and NPL.

DISCUSSION:

In this study, we have examined postoperative visual acuity as one measure of visual outcome for cataract surgeries at HMC Peshawar. The visual acuity of operated eye was assessed on the first, third and fifteenth day. There was no loss to follow up during the study. The surgical results shows that 98.3% were having no complications, two had endophthalmitis were recorded.

There were 80 persons who presented good vision on 15th post operative day, 38 were borderline. None with poor vision, IOL was used in all cases except where implantation was not indicated. The visual outcome while comparing to other studies done in the developing world is encouraging. Those with good outcome were 66.6%. These results may be associated with the ideal institutional setting. The controlled circumstances, in which anesthesia, pre operative assessment, intra operative and post operative care of the patient are important factors.

Clinical trials in India and Nepal have shown that under optimal conditions more than 90% of eyes with cataract achieved best corrected visual acuity of 6/18 or better. The variation in visual outcome between various surgical techniques is minimal. Less than 3% of the operated patients had a best corrected vision of less than 6/60. These clinical trials results may reflects one end of the spectrum, suggesting what may be possible in an ideal setting under very controlled circumstances, while setting general standards for hospital in a developing country situation, this aspect would have to be taken into account. However population based surveys show that all patients operated for cataract, 21-53% had a呈现 visual acuity of less than 6/60, with best correction, 11-21% still had acuity less than 6/60. These figures include patients operated on recently as well as those who had surgery decades earlier.

According to Lalit Dendona 1994, his study outcome related to cataract surgery showed that the high rate of visual outcome, predominantly was a result of surgery related to inadequate suggesting that the more attention was needed to improve the visual outcome of cataract surgery. They suggested that on cataract related visual impairment in India. The strongest association of very poor outcome was related to intra capsular cataract extraction which was nine times more likely than extra capsular cataract extraction to have very poor outcome from surgery. Surgeries are performed on many patients in the same room, often without gloves is another phenomenon that perhaps contributes to the high rate of very poor outcome is the trend of “cataract surgical camps”. Recent data from Nepal and China have also shown quite high rate of adverse outcome after cataract surgery in similar circumstances.

CONCLUSION:

The outcome can be improved with adequate surgical skills with better facilities and better quality control and routine monitoring. The visual outcome of cataract surgery was good nearly 97%. The use of these indicators facilitates adequate management and evaluation of the efficiency and effectiveness of the intervention which can help to ensure the maximum utilization of the available resources for cataract surgery.

Recommendations: Every patient should be thoroughly examined before surgery and if the person is having other pathology, they should be informed about possible poor visual outcome. Wherever possible, careful postoperative follow up with early detection and treatment of postoperative complications will allow a further improvement in the outcome. Follow up on 3rd and 15th day will be very helpful.

REFERENCES

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GROWING MORTALITY & MORBIDITY WITH AIR & WATER POLLUTION

(Clean Air for Healthy Brain, Message on World Brain Day)

The latest annual estimation of air & water pollution are causing 9 million deaths worldwide. Most of the deaths are related to cardiac disorders, CCF, neurological strokes, lung and cancer as observed by the World Federation of Neurology on the occasion World Brain Day, as data collected from 188 countries. Air pollution, specifically, attributed to 30% of the brain strokes. The adverse effect of air-pollution is most important in low and medium income countries especially to seniors who are vulnerable with vascular diseases as risk factors. Moreover, environmental pollution has a potential risk for neurodevelopmental and neurodegenerative diseases.
Comparison of Post-operative Pain Scores after using 0.2% glyceryl trinitrate (GTN) Ointment & Placebo in Patients with Open Hemorrhoidectomy.

Kaleem Ullah FCPS., MRCS,¹ Shehryar Noor MBBS² Azam Shoaib MBBS³

INTRODUCTION
Hemorrhoids are engorged veins in the anal canal, occurs in 3rd decade with equal prevalence in both sexes.¹,² It is the most common ano-rectal disorder that presents in surgical OPD.³,⁴ About 80% of the population has asymptomatic hemorrhoids and only 4.4% become symptomatic.³,⁵ Thus global population incidence is 4%.⁶ Milligan Morgan hemorrhoidectomy is most commonly practiced¹,⁷,⁸ and is the gold standard for 3rd and 4th degree hemorrhoids⁴,⁹,¹⁰ but is often associated with significant postoperative complications i.e. pain, bleeding, pruritus and anal stenosis.⁴,⁹

Most common complication of open hemorrhoidectomy is postoperative pain.⁵,⁷,⁸ Inadequate pain control can cause urinary retention and requires increased opioids usage thus causing postoperative nausea and vomiting.⁸ Thus pain management is most bothersome complication for patients and doctors.¹¹

Patients are advised to apply GTN ointment in post-hemorrhoidectomy cases in order to aid in pain relief. Some patients may complain of headache which should be managed with simple analgesics. If patients complain remains with GTN ointment, still they will get benefit in pain reduction with quicker wound healing.

Patients are advised to apply GTN ointment in post-hemorrhoidectomy cases in order to aid in pain relief. Some patients may complain of headache which should be managed with simple analgesics. If patients complain remains with GTN ointment, still they will get benefit in pain reduction with quicker wound healing.

Post hemorrhoidectomy pain is due to internal anal muscle spasm.⁵,⁸,⁹ Eisen hammer was the first who gave this idea.¹² This spasm increases the anal pressure and thus propagates the pain further.⁵,⁸ It is also believed that postoperative pain is due to poor and delayed wound healing.⁵,⁸,¹³ Internal anal sphincter (IAS) is innervated by neurons which releases nitric oxide (NO) causes relaxation of smooth muscle.⁵,⁸ Many surgical and pharmalogical interventions have been
Comparison of Post-operative Pain Scores after using 0.2% glyceryl trinitrate (GTN) Ointment & Placebo in Patients with ..........
in placebo. While 39.35 years +13.89 in GTN group The overall age of the patients was 38.97 years +13.23SD. Pain wise distribution showed that placebo group have average pain of 6.75+1.395SD while in GTN group it was 5.58+2.45SD which was significant with p-value = 0.0032 (Table 2). Similarly when pain of the patients was stratified among gender it showed that pain was insignificant in male and female in both the groups(Table 3).

Table 1. Gender wise distribution in both groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>No of patients in Group A (GTN)</th>
<th>No of patients in Group B (Placebo)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>29</td>
<td>26</td>
<td>55</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>46</td>
<td>92</td>
</tr>
</tbody>
</table>

Table 2. Comparison of Pain in both Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Numbers</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (GTN)</td>
<td>46</td>
<td>5.5891</td>
<td>2.45983</td>
<td>0.032</td>
</tr>
<tr>
<td>Group B (Placebo)</td>
<td>46</td>
<td>6.7543</td>
<td>2.67363</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Gender wise distribution of pain in both groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>Groups</th>
<th>GTN</th>
<th>Placebo</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>No of patients</td>
<td>Mean</td>
<td>Std. Deviation</td>
<td>No of patients</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>5.68</td>
<td>2.39</td>
<td>26</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>5.44</td>
<td>2.65</td>
<td>20</td>
</tr>
</tbody>
</table>

DISCUSSION

It has been estimated that in US around 10 million people suffer from haemorrhoids with a prevalence of around 4.4%and nearly 37 haemorrhoidectomies being performed per 100,000 people peryear. Post-operative pain is a big problem, with studies presenting that patients need 4 to 16 days to return to normal daily activity. There are various surgical procedures such as the open haemorrhoidectomy of Milligan-Morgan or Ferguson techniques for treating haemorrhoids. In addition there are also other procedures which are carried out with the ambition of having low recurrence, least post-operative pain and early return to work. Pain after hemorrhoidectomy is a common and distressing experience for patients. It may result in late discharge, late recovery and return to work. Several invasive and noninvasive attempts have been made to reduce or alleviate pain after hemorrhoidectomy. The origin of such pain is undetermined and seems to be multifactorial. Current theories propose that hypertonia of the internal anal sphincter is associated with pathogenesis of anal fissure and pain after hemorrhoidectomy.

Topical GTN has been shown to reduce postoperative pain and to improve wound healing. Studies performed on the benefit of treatment with GTN after hemorrhoidectomy have shown mixed results, with some reporting that GTN decreased pain after open hemorrhoidectomy compared with placebo, whereas other investigators lacked power based on their low number of participants. For example, GTN improved healing rates without improving pain in subjects in a small study of 40 patients.

These mixed results prompted a meta-analysis in 2010 that reviewed 5 robust trials and found that the usage of GTN ointment in post-hemorrhoidectomy patients has a significant analgesic effect. It also showed that GTN ointment application significantly improved wound healing 3 weeks after surgery.

This meta-analysis has shown that the use of GTN ointment in post-haemorrhoidectomy patients is statistically significant in reducing postoperative pain on days 3 and 7. It can be argued that GTN causes relaxation of the internal anal sphincters and thus acts as an analgesic. This was confirmed by Patti et al which showed that Mean Resting Pressure (MRP) was initially elevated when measured at 5th postoperative day. This study showed a significantly reduced MRP on 5th post-operative day with GTN ointment group (60 _ 20 mm Hg) when compared to the placebo group (110 _ 10 mm Hg). However, other studies such Khubchandani et al showed that the group of patients undergoing haemorrhoidectomy randomised to lateral sphincterotomy did not have reduction in pain when compared to those who did not have the sphincterotomy.

Franceschilli L et al in his study of role of glyceryl trinitrate ointment after haemorrhoidectomy in 203 patients revealed that pain after first week of surgery was significantly lower in GTN Group with mean VAS score of 4.1±1.8 cm vs. 7.5±1.4 cm (in untreated group) that was quite comparable to our study (5.58±2.45SD in treated group) vs (6.75±1.395SD in placebo group).

Similarly in a prospective randomized study of 54 patients by Silieri P et al showed that patients treated with GTN had significantly less pain during the first week after hemorrhoidectomy (3.9±2.1 cm vs. 5.3±2 cm)
expressed as mean VAS score). Like our study, this study also highlights the use of GTN in relieving postoperative pain in patients of hemorrhoidectomy.

CONCLUSION

It is concluded that patients can be advised to apply GTN ointment post-haemorrhoidectomy to aid in pain relief. Some patients may complain of headache which should be managed with simple analgesics. If patients remain compliant with GTN ointment, they will get benefit in post-operative pain reduction after quicker wound healing.

REFERENCES

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Comparison of Conventional Pyodine Dressing with Hydrocolloid (Duoderm) in Diabetic Foot Ulcers in Wound Healing.

Shehryar Noor FCPS, MRCS¹. Kaleem Ullah MBBS.,² ZakaUllah Jan MBBSFCPS³, Azam Shoaib MBBS⁴

Khyber Teaching Hospital, Peshawar

ABSTRACT
Objective: To compare the efficacy of conventional pyodine dressing with duoderm dressing in diabetic foot ulcers in terms of wound healing.

Methodology: This comparative study was conducted in the department of Surgery, Khyber Teaching Hospital Peshawar from January 2015 to December, 2015. Total of 179 diabetic foot ulcer patients were divided into two groups, group A having 90 patients and group B having 89 patients. The efficacy of conventional pyodine dressing (Group A) was compared with Duoderm dressing (Group B) in diabetic foot ulcer patients in terms of wound healing.

Results: Among 179 patients with diabetic foot ulcer, healing rate was 74.44% in Group A (pyodine dressing) and in 80.89 % Group B (duoderm dressing) patients.

Conclusion: In our population the efficacy of duoderm dressing in diabetic foot ulcer is high in terms of wound healing as compared to conventional pyodine dressing.

Key words: Efficacy, pyodine, Duoderm dressing, Diabetic Foot Ulcer, Wound Healing

INTRODUCTION
Diabetic foot is one of the most serious complications of diabetes.¹ It is also one of the preventable and curable complication. Lifetime incidence of foot ulcer in diabetes is 25%.² In United States, 60% of all lower limb amputations occurs amongst diabetics.³ The term ‘Diabetic Foot’ consists of a mix of pathologies including neuropathy, microvascular disease, Charcot’s neuropatho-arthropathy, ulceration and osteomyelitis.⁴

Diabetic foot ultimately results in amputation if not treated properly and is associated with high morbidity and mortality.⁵ Despite prospective study of diabetic patients admitted in efforts to control diabetes and to improve limb salvage, the number of amputations performed in the united states continues to rise.⁶ Quality of life is poor for the patient with a chronic foot ulcer, but it is still worse after an amputation. Early recognition, Good diabetic control and modification of risk factors will reduce the number of major amputations in the diabetic foot patients.⁷ ⁸ All attempts should be made to prevent diabetic foot ulceration and to treat existing ulcers by multidisciplinary team in order to reduce amputation rate. Even when healed, diabetic foot should be regarded as a life-long condition and should be treated accordingly to prevent recurrence.⁹ Gul A et al all presented a study of diabetic foot disease with 200 patients with diabetic foot ulcers; 65% males and 35% females with average age of 53.40years.¹⁰

Hydrocolloid Duoderm dressing is effective in treating diabetic foot ulcers and its efficacy is higher than conventional Pyodine dressing.

In a survey by WHO, it was shown that in 1995 Pakistan was 8th on the list of top ten countries with high prevalence of diabetes and there were 4.3 million people with Diabetes mellitus. However it is estimated that in the year 2025, Pakistan will be 4th on the list with 14.5 million people with this disease.¹¹ People with diabetes are more likely to be admitted to the hospital with a foot ulcer than with any other complication and are more likely to have an amputation.¹²

The rationale of this study was to compare the efficacy of conventional pyodine dressing with hydrocolloid (duoderm) dressing in diabetic foot ulcers in...
Comparison of Conventional Pyodine Dressing with Hydrocolloid (Duoderm) in Diabetic Foot Ulcers in Wound Healing.

Materials and Methods

This randomized control study was conducted over a period of one year in the department of Surgery, Khyber Teaching Hospital; Peshawar from January 2015, to December, 2015. Total of 179 (122 male and 57 female) patients were studied. Patients were divided into two groups with simple convenient method. Group A having 90 patients and group B having 89 patients. All the patients with Type II diabetes mellitus having diabetic foot ulcer were included and those having osteomyelitis and gangrene of foot were excluded from this study.

This study was conducted after approval from the ethical board and research committee of the Hospital. All the patients meeting the inclusion criteria were admitted from out patients/emergency department and after taking informed consent for study, Patients were divided into two groups with simple convenient method. Detailed history was taken from each patient and clinical examination was performed. All baseline investigations along with HBA1c, X-ray foot, duplex ultrasound of lower limbs were done. All the patients were put on insulin peri-operatively. After surgical debridement, patients were treated with intravenous antibiotics for 3 days and were followed by oral antibiotics for a period of 2 weeks according to culture and sensitivity report, keeping blood sugar levels in control. Patients were advised regular wound dressing. In Group A patients wound’s dressing was done with pyodine soaked gauze and covered with a secondary dressing of dry gauze packs. Pyodine soaked dressing was changed once a day or when exudate was visible through secondary dressing. While in Group B patient’s duoderm dressing was applied and then repeated on every fifth day. Patients were followed on weekly basis for 8 weeks. Non healed patients were further subjected to dressing and debridement if needed. A final assessment for wound healing was made at 8 weeks or earlier if the patient’s wound healed before 8 weeks. Wounds having granulation tissue with no necrotic slough, exudative discharge and with negative wound culture were labeled as healed wounds.

To collect the information for each patient, a study proforma was used. All the information including name, age, gender, wound healing and healing time was recorded. A strict exclusion criterion was followed. Data was analyzed by using SPSS version 20.0. Frequency was computed for categorical variables like gender, age, healing rate and healing time.

Results

In total 179 patients, there were 57 (31.84%) females and 122(68.16%) male patients. Male to female ratio was 2.14:1. Average age of the patients was 50.64+9.24SD with range 35-65 years. Group A having 90 patients and group B having 89 patients. There were 64 male and 26 female patients in group A while 58 male and 31 female in group B. Healing rate was 74.44% (67) in Group A while 80.89% (72 patients) in Group B patients.

Table 1: Gender wise distribution of the patients

<table>
<thead>
<tr>
<th>GENDER</th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients in group A</td>
<td>64(71.11%)</td>
<td>26(28.89%)</td>
<td>90(100%)</td>
</tr>
<tr>
<td>No. of patients in group B</td>
<td>58(65.17%)</td>
<td>31(34.83%)</td>
<td>89(100%)</td>
</tr>
<tr>
<td>Total no. of patients</td>
<td>122(68.16%)</td>
<td>57(31.84%)</td>
<td>179(100%)</td>
</tr>
</tbody>
</table>

Table 2: Age wise distribution of patients in both groups

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>NO. of patients in Group A</th>
<th>NO. of  patients in Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40</td>
<td>18(20%)</td>
<td>16(17.98%)</td>
</tr>
<tr>
<td>41-50</td>
<td>35(38.89%)</td>
<td>32(35.56%)</td>
</tr>
<tr>
<td>51-60</td>
<td>18(20%)</td>
<td>23(25.84%)</td>
</tr>
<tr>
<td>≥61</td>
<td>19(21.11%)</td>
<td>18(20.22%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>90(100%)</td>
<td>89(100%)</td>
</tr>
</tbody>
</table>

Table 3: Comparison of healing rate in both groups

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Number of patient Healed patients</th>
<th>Number non-Healed patients</th>
<th>Total</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>67(74.44%)</td>
<td>239(25.5%)</td>
<td>90(100%)</td>
<td>0.29</td>
</tr>
<tr>
<td>B</td>
<td>72(80.89%)</td>
<td>17(19.10%)</td>
<td>89(100%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139(77.65%)</td>
<td>40(22.34%)</td>
<td>179(100%)</td>
<td></td>
</tr>
</tbody>
</table>
Comparison of Conventional Pyodine Dressing with Hydrocolloid (Duoderm) in Diabetic Foot Ulcers in Wound Healing.

<table>
<thead>
<tr>
<th>Group</th>
<th>Healing time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-3 weeks</td>
<td>4-6 weeks</td>
</tr>
<tr>
<td>Group A</td>
<td>15(22.3%)</td>
<td>40(59.7%)</td>
</tr>
<tr>
<td>Group B</td>
<td>19(26.4%)</td>
<td>44(61.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>34(24.47%)</td>
<td>84(60.43%)</td>
</tr>
</tbody>
</table>

DISCUSSION

Foot ulcers and infections are the major sources of morbidity in individuals with diabetes mellitus. Approximately 15% of individuals with diabetes develop foot ulcer and a significant subset will ultimately undergo amputation (14% to 24% risk with that ulcer or subsequent ulceration). It has been estimated worldwide that every 30 seconds a lower limb is lost because of diabetes and its incidence will increase due to the expected rise in type 2 diabetes in future.12

Wound dressing is an intervention with demonstrated efficacy in diabetic foot ulcers. The use of dressings reduces swelling, removes necrotic tissues, promotes granulation tissue and treats infections.13 Many substances act as an antimicrobial agent and were utilized to cover wounds for thousands of years.14 In 19th century the discovery of chemical preservatives and disinfectants, gave better understanding about the nature of infection and inflammation and allowed increased control of wound infection.15 Pyodine is an element that was discovered in 1811. It is a dark violet solid that dissolves in alcohol and potassium iodide. Its first reported use in treating wounds was by Davies in 1839.16

Duoderm is an occlusive hydrocolloid dressing. Hydocolloids form a gel, which provides moist environment at the wound site. The outer layer of duoderm dressing is made of polyurethane foam which is impermeable to water, gases, vapor and bacteria.1 In current study the age of the study population ranged from 35-65 years with mean age of 50.64years±9.24SD which is younger than some reported age in literature.18 Male to female ratio was 2.14:1 in this study which is comparable with other published studies, may be due to male dominant society.10

Gul A et al presented a study of diabetic foot disease with 200 patients of diabetic foot ulcers; there were 65% males and 35% females with average age of 53.40 years.10 In this study, males were 72.3% and 27.69% with average age 52 years. This also matches with this study regarding presentation of age and male to female ratio.

CONCLUSION

Today complications due to diabetes are not only the most prevalent, but are the most challenging issue in this era of diabetic management. In conclusion, duoderm dressing is effective in treating diabetic foot ulcers and its efficacy is higher than conventional pyodine dressing as concluded by our study. So, further studies are recommended.

REFERENCES

New Rules for Promotion of Teaching Faculty in Medical Colleges in Pakistan.

Medical & Dental Council of Pakistan (PMDC) has announced new regulations based on research work and teaching experience for the fresh appointments as well as promotions in the medical institutions. But for fresh appointments, the regulations will come into force from August’2018. In order to promote research, the number of mandatory original articles for various posts of Asstt. Prof. Associate Prof and professors’ promotions have been increased.

After December 31, 2018, for Assistant Professors at least two original research papers in relevant subjects will be required for initial appointment. For promotion from Assistant to Associate professor, 5 original research papers with 5 years teaching experience will be mandatory. For promotion from Associate professor to Professor, at least 8 original research publications with 9 years of teaching experience will be required.

We need to be more focused on research work. Under the new rules, all the medical & dental institutions have been directed to establish Medical Education Department with a counseling cell with qualified and experienced faculty. It will play a pivotal role in steering the educational activities.

The faculty of medical colleges have also been redefined with latest skills and techniques. Since the medical education is being upgraded across the globe due to which there is a need to change the old discipline/subjects. It will also be ensured that holders of FCPS in clinical subjects will only be appointed for clinical faculty and in future, holders non-medical qualifications will not be appointed against Basic Medical Subjects.

Ophthalmology Update cordially welcomes the participants of Quetta Conference
ABSTRACT:
Objective: To determine the frequency of amblyopia and factors leading to amblyopia in age 5 to 15 years old children in schools.
Methods: A cross sectional study was conducted in different regions of Khyber Agency. The target population was school children age 5 to 15. Data were collected from September 2015 to Dec 2015. The total number of children was 1600, of whom 800 (50%) were males and 800(50%) were females. The eye examination included an assessment of eye health and presence of amblyopia noted.
Results: The overall frequency of amblyopia was found 1.12%. In males it was 61.1% and in females was 38.9%. Also it was noticed that age 5 to 10 has 77.8% and age 11 to 15 has 22.2% amblyopia. Refractive error was 50%, strabismus amblyopia 50%. The frequency of mixed and stimulus deprivative amblyopia was not detected.
Conclusion: Refractive errors and strabismus are commonly responsible for causing amblyopia.
Key Words: Amblyopia , strabismus, refractive error, school children.

INTRODUCTION
A blurred vision with normal fundi and clear optical media in both eyes called amblyopia, It is a major public health problem. Early detection of amblyogenic risk factors, such as strabismus, refractive error and anatomic obstruction can enhance early treatment and increase the chance for recovery of vision.
According to a study1, amblyopia is a condition which the process of sending visual information to the visual cortex of the brain doesn’t function properly and hence a blurred image is perceived to the brain causing blurring of vision even when all the structures of the eye are normal. In clinical practice it is defined as a difference of two lines in visual acuity between the two eyes when there is no ocular pathology and in the presence of amblyogenic factors such as strabismus, high refractive error, anisometropia2. Amblyopia usually occurs unilaterally but it can be bilateral i.e. in Case of congenital cataract3 Amblyopia is the main cause of visual defects in children it was estimated that amblyopia effects between 2-5% of the world’s population1. It is develops during the sensitive period of visual maturation, which continues in approximately 8 years of age.4Before treating amblyopia it may be necessary to first treat the strabismus, surgery may be performed on the eye muscles to straighten the eyes.

The NEI is supporting a one year follow up study to determine the percentage of amblyopia that recurs among the children who responded well to treatment as well as many other clinical studies of amblyopia at eye centers nationwide.5 Obstruction to visual axis such as cataract causes unequal clarity of the retinal images during the critical period in early childhood.
The prevalence of amblyopia is higher in young age group as compared to older age children where males are more affected than females. Refractive error and strabismus is commonly responsible for causing amblyopia and adversely affects the mental and physical health as well as social outlook of amblyopes.

METHODOLOGY

A cross sectional study was conducted in Tehsil Bara District Khyber Agency. The target population was school children age 5 to 15. A written request was sent to the principals of respected schools, seeking permission and selection for school based vision screening and after approval the data collection was started from September 2015 to Dec 2015. The total number of children was 1600, of whom 800 (50%) were males and 800(50%) were females. The eye examination included visual acuity, fixation pattern, refractive status, ocular alignment, motility, pupil examination, anterior and posterior segment examination, refraction and funduscopic examination were recorded. Monocular distance visual acuity (VA) was tested with and without correction with a Snellen’s chart, pinhole acuity was assessed for any child with 6/18 or if there was more than 1 line (5 letters) difference between eyes and strabismus was defined with any child with tropia at distance or near, with or without spectacles.

Unilateral amblyopia was defined, as a ≥2 line difference in best VA, when <20/30 in the worse eye and with amblyogenic factors such as past or current strabismus, anisometropia (≥1.00 D difference in hyperopia, ≥3.00 difference in myopia, or ≥1.50 D difference in astigmatism), bilateral amblyopia was defined as best corrected VA (BCVA) in both eyes <20/40 in the presence of amblyogenic factors such as hyperopia >5D, myopia >8.00 D or astigmatism >2.50. Data was analysed by SPSS 17 info software.

Inclusion Criteria: School children age 5 to 15 years old were included in this study.

Exclusion criteria: Children below and above age (5 to 15 years), mentally retarded, uncooperative children and other pathologies were excluded.

Amblyopia is a condition easily detectable by the eye examinations, requires no special tests or equipment’s, it may be unilateral or bilateral, the individual’s corrected visual acuity of 6/12 or less is marked as amblyopia. Amblyopia treatment involves the primary factors such as strabismus, refractive error or congenital cataract. The main target of research survey estimated the prevalence of amblyopia in association with refractive error, squint or visual deprivation caused by media opacities or ptosis among school children’s at Bara Khyber agency in 4 different schools ranging from 15 to 15 years.

RESULTS

The frequency of amblyopia in the selected age groups were obtained age wise, gender wise, the type of refractive error associated with amblyopia and in relation with its different types. The overall percentage of amblyopia was found 1.12% when the whole data was analysed. The frequency of amblyopia according to gender wise was found as i.e. in males it was 61.1% and females was 38.9%.

In age wise calculation it was categorised in two groups (age 5 to 10)77.8% and (age 11 to 15)22.2%.

In relation with different types of amblyopia was found, the prevalence of refractive was 66.7%, strabismic amblyopia 33.3% and mixed and stimulus derivative amblyopia frequency were not detected.

The frequency of overall amblyopia is indicated in the following table is 1.25%.

Table 1. Visual acuity without assessment: (n=18)

<table>
<thead>
<tr>
<th>V.A-without assessment</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6 to 6/12</td>
<td>2</td>
</tr>
<tr>
<td>6/18 to 6/36</td>
<td>12</td>
</tr>
<tr>
<td>6/60 and less</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

Table 2. Frequency of amblyopia: (n=1600)

<table>
<thead>
<tr>
<th>NO</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMBLYOPIA</td>
<td>18</td>
<td>1.27</td>
</tr>
<tr>
<td>NO</td>
<td>1582</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1600</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 3. Best Corrected Visual Acuity after assessment: (n=18)

<table>
<thead>
<tr>
<th>BCVA</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/18 to 6/36</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>6/12 to 6/12</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Laterality of Amblyopia: (n=18)

<table>
<thead>
<tr>
<th>Amblyopic Eye</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right eye</td>
<td>5</td>
</tr>
<tr>
<td>Left eye</td>
<td>12</td>
</tr>
<tr>
<td>Both eyes</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 5. Types of Amblyopia:

<table>
<thead>
<tr>
<th>Types</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defocused</td>
<td>9</td>
</tr>
<tr>
<td>Deviated Amblyopia</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
</tr>
</tbody>
</table>

A cross sectional study was conducted in Tehsil Bara District Khyber Agency. The target population was school children age 5 to 15. A written request was sent to the principals of respected schools, seeking permission and selection for school based vision screening and after approval the data collections was started from September 2015 to Dec 2015. The total number of children was 1600, of whom 800 (50%) were males and 800(50%) were females. The eye examination included visual acuity, fixation pattern, refractive status, ocular alignment, motility, pupil examination, anterior and posterior segment examination, refraction and fundoscopic examination were recorded. Monocular distance visual acuity (VA) was tested with and without correction with a snellen’s chart, pinhole acuity was assessed for any child with 6/18 or if there was more than 1 line (5 letter) difference between eyes and strabismus was defined with any child with tropia at distance or near, with or without spectacles.

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**DISCUSSION**

A global initiative for the elimination of avoidable blindness by the world health organisation (WHO), international agency or prevention of blindness (IAPB) and other partner organisation also including refractive errors among the five condition of immediate priority. In this cross sectional study conducted in Bara Khyber Agency 18(1.12%) amblyopic patients were detected out of 1600 children through screening program.

These children were assessed for distance vision with Snellen chart, those reduced visual vision, visual acuity was detected with pinhole testing but amblyopes got an improvement of no more than two lines, funduscopy and patient history was also carried out. Patients with reduced vision were prescribed spectacles and amblyopia therapy.

Prevalence of amblyopia was determined at different ages with respect to its various types and according to the degree of amblyopia occurred, however it was found that most of the amblyopes were unaware of their reduced vision. Research showed that refractive error (e.g. astigmatism, spherical error and refractive error) with strabismus and amblyopia show that because of refractive changes during childhood,
more than one measurement is required to determine a child’s risk of developing amblyopia or strabismus. This is due to the process of emmetropisation.

The data was collected and analysed according to our research protocol which indicates that amblyopia is frequently found more in males (61.1%) are more pronounced with amblyopia than females (38.9%) which shows relevance with previous studies conducted on amblyopia, most frequent age of amblyopia was found below 10 years, showing high prevalence.

CONCLUSION:

The prevalence of amblyopia with respect to age and gender indicated that it is higher in young age group as compare to older age children and males are more affected than females. Refractive error and strabismus is commonly responsible for causing amblyopia and adversely affects the mental and physical health as well as social outlook.

Recommendations: There should be a proper orthoptic clinic for the patient at eye OPD. People should be made aware of the vision importance and should be counselled about eye care services. Amblyopia Screening programs should be conducted in different areas as to control and prevent the preventable diseases and In schools eye survey’s should be done to assess the visual functions in children, due to lack of health services peripheral areas should be given more importance.

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1. Moseley Fielder A.Amblopia; A Multidisciplinary Approach Chapter 5 Amblyopia; treatment and evaluation Author Merrick Moseley:Butterworth Heineman, 2002
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