Factors Responsible for Delayed Presentation of Strabismus in Patients aging up to 16 Years
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An inspiring Celebrity

Instructions to Authors
By the end of the year 2020, it is a fitting time to take stock of recent clinical developments, latest technology after reviewing the areas of expertise to shape their specialty to improve the patient care for the future.

Traditional tube shunt and trabeculectomy remained the mainstay therapies for effectively lowering intraocular pressure (IOP). But ophthalmologists have been facing some safety concerns like early or late failures, infections, hypotension and other complications. The question arises how can ophthalmologists provide an alternative treatment like micro-invasive glaucoma surgery (MIGS), through bypassing the resistance of the trabecular meshwork via a tiny stent to increases outflow facility, which resulted in reduced physiological trauma, medication burden, negligible complications with rapid post-op recovery and minimal need for follow-up.

With the passage of time, the Micro-Invasive Glaucoma Surgery (MIGS) has became a vital part of the treatment with a range of different new devices approved by the FDA in 2016. But COMPASS XT study indicated a rising rate of endothelial cell loss. Nevertheless, Ophthalmologists devised innovative techniques like endoscopic cyclo-photocoagulation to target the outflow pathways.

However, the treatment with drugs didn’t end with MIGS in spite of difficulty with frequent administration of drops and side effects of oral medication, which led to sustained delivery as the next wave of treatment with IOP-lowering implant Durysta (Allergan) placed in the anterior chamber via a preloaded, single-use implantation. This applicator delivered 10 μg Bimatoprost – similar to a single drop of 0.03% ophthalmic solution. Durysta reduced IOP by close to 30% and patients to remained drug free for at least one year. The FDA approved the implant for only a single use in each eye.

In order to eliminate the side effects to ocular surface, a number of other sustained-release technologies, which will be a paradigm shift, are in the pipeline, such as punctal plugs (Therapeutix), internally placed reservoirs (Glaukos), and external rings (from Allergan). Both MIGS and enhanced drug delivery treatments are dramatically changing the approach in severe and difficult-to-treat patients such as normal-tension glaucoma. FDA has approved the filtration shunt technology with the Ahmed Valve-Ahmed Clear Path (designed by a Pakistani Scientist) allows for less-intrusive placement as well as a more natural fit in the eye. Because it’s sutured more anteriorly than previous filtration devices, it provides the surgeon with a better view when securing the implant in the eye. The Xen Gel Stent (from Allergan) also allows for a less-invasive approach to trans-scleral surgery via a preloaded ab-interno injection technique.

Two intriguing shunts are also on the FDA approval list. The Preser-Flo Micro-Shunt (Santen) involves the creation of a full-thickness fistula from the anterior chamber across to the subconjunctival space and is designed to prevent hypotony. The Beacon Aqueous Microshunt (Micro-Optx), on the other hand, shunts aqueous humor from
the anterior chamber to the ocular surface. Both products look promising new devices against filtration. In addition, exciting non-invasive, non-pharmaceutical approaches are on the horizon for patients running out of options. For example, the Mercury Multi-Pressure Dial (Equinox) consists of a pair of goggles that draw a vacuum around each eye’s peri-orbital area. Each goggle is connected to a pressure-modulating pump, which, when activated, establishes a targeted negative pressure in the micro-environment surrounding the eye. This release of atmospheric pressure placed on the eye results in the almost-instantaneous lowering of IOP even in low pressures.

Today, Glaucoma surgeons are experiencing a revolution through multiplicity of treatment to provide the non-invasive IOP-lowering therapies to help those patients with the most difficult-to-treat disease.

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Unilateral Amblyopia, its Associated Risk Factors (A Current Study)

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ABSTRACT:
Background: Strabismus can cause unilateral amblyopia causing permanent deterioration of vision. The two most common types are esotropia and exotropia. Risk factors associated with it are low birth weight, prematurity and its complication in prenatal period or during delivery and maternal smoking in pregnancy.
Objective: To determine the frequency of strabismus and its types in pediatric age group attending outpatients department of tertiary care hospital. It was a cross sectional study at the Department of Ophthalmology, Liaquat National Hospital, Karachi, for six months from 9th May 2017 to 8th November 2017.
Material and Methods: Total 142 patients with deviation of eyes and with surface problems were included. Informed consent was taken. Age, sex, onset of strabismus, unilateral or bilateral involvement were recorded. Presence of strabismus was evaluated on the basis of hirschburg reflex and cover test after which findings were noted. Descriptive statistics were calculated. Stratification was done and post-stratification chi square test was applied. P-value ≤0.05 was considered as significant.
Results: The overall mean age was 6.73±3.15 years. Mean onset age was 38.72±28.30 months. Total 7.6% patients were found with strabismus family history. Strabismus was found in 47.2% children, among them 38.2% were found with exotropia and 61.8% with esotropia. There was significant association of strabismus with age.
Conclusion: The results showed 47.2% strabismus, esotropia with 61.8% was commonest followed by exotropia in female gender aging less than 6 years, and age onset more than 36 months were found as a risk factors.
Keywords: Strabismus, Pediatric, Exotropia, Esotropia

INTRODUCTION:
Strabismus is a common presenting problem in children coming to the outpatient patient department, around 3.55% in Asian population. But in Pakistan it was estimated to be around 5.4% in children below 15 years consist of 45% of total population. 2.5% children with this problem are below 5 years and 2.9% above 5 years of age. Additionally one study shows that in children, strabismus is third common ocular problem in Pakistan. It should be screened and diagnosed earlier as it can cause unilateral amblyopia, which affects 5 % of the total population, causing permanent decrease in vision. Children with this problem have difficulty in their studies as well as have psychological and social stress due to cosmetic appearance. So it is very important to detect earlier and correct it to enhance social interactions and promote vision.

The results showed 47.2% strabismus, Esotropia with 61.8% was commonest followed by Exotropia in female gender aging less than 6 years, and age onset more than 36 months were found as a risk factors in Pakistan.

Every patient with strabismus must be investigated for any associated systemic or ocular disease. Risk factors associated with it are low birth weight, prematurity and its complication in prenatal period or during delivery and maternal smoking in pregnancy. Family history is also of value as same types of squint are seen in members of same family. The 2nd most common types of strabismus are esotropia and exotropia. One study shows that esotropia was most common type accounts for prevalence of 2.2% and exotropia 0.4% in school going children, aged from 6 months to 12 years.

The purpose of this study is to determine...
the current burden of disease in children attending outpatient department of tertiary care hospital because it is one of the common problems occurred in children. Strabismus cause lifelong impairment in socialization skills, earning power and quality of life. We can prevent this problem by screening, diagnosing and managing it at correct time. There are no such studies regarding statistics of Pakistan in any journal index. Patients presented with deviation of eyes (15 or > 15 degree considered as positive and < 15 degree considered as negative mentioned below in Hirschburg test) from its normal central position

**Esotropia:** Patients presented with inward deviation of eyes.

**Esotropia:** Patients presented with outward deviation of eye.

Strabismus and its types are assessed clinically by Hirschburg reflex and cover test. The distance of corneal light reflection from center of pupil to see angle of deviation (using torch), figure on the last page.

**MATERIAL & METHODS**

The study was conducted in Department of Ophthalmology, Liaquat National Hospital, Karachi for six months from 9th May 2017 to 8th November 2017. The sample size was calculated using WHO software using test percentage of strabismus (P) = 38.0%, (6) d=8% and 95% confidence level. The calculated sample size is 142 patients, non-probability consecutive sampling was used for the study. It was a descriptive cross-sectional study.

**Inclusion Criteria:** Children aged from 6 months to 12 years, male or female presented with deviation of eyes (assessed by Hirschburg and cover test), patient presented with surface problems like itching, watering, burning, redness for more than 1 week (confirmed on the basis of history).

**Exclusion Criteria:** History of ocular trauma. History of previous strabismus surgery (confirmed on the basis of past ocular surgical history and medical records by researcher) Paralytic strabismus: It occurs due to damage of extraocular muscles or its nerve.

Patient with other ocular pathology like retinoblastoma, retinitis pigmentosa (confirmed by past medical history and slit lamp examination). Patient with hypertropia and hypotropia - assessed by Hirschburg reflex and cover test as discussed in operational definition.

This study was conducted after approval of hospital ethical review committee and CPSP. The children visited to department of ophthalmology Liaquat National Hospital, Karachi and fulfilled the inclusion criteria were counseled and included in the study. Informed consent was taken from their parents. Age, sex, onset of strabismus, unilateral or bilateral involvement were recorded by taking history. After taking a detailed history, presence of strabismus is evaluated on the basis of Hirschburg reflex and cover test after which findings were noted in the given proforma.

Patient’s data were compiled and analyzed through statistical package for social sciences (SPSS) version 21. Frequency and percentage were computed for qualitative variables like gender, unilateral or bilateral involvement, family history of strabismus and outcome (strabismus and its types). Mean±SD were calculated for quantitative variable i.e. age and age at onset of strabismus. The stratification was done on gender, age, involvement of eye, family history of strabismus and age at onset of strabismus to see the effect of these modifiers on outcome using Chi-square test. P≤0.05 was considered as significant.

**RESULTS:**

Total 144 Children aged from 6 months to 12 years of either gender meeting inclusion criteria of study were evaluated to determine the frequency of strabismus and its types in pediatric age group attending outpatient’s department of tertiary care hospital. Descriptive statistics were calculated using SPSS version 25. Stratification was done and post stratification Chi square test was applied to observe the effect of modifiers on outcome. P value ≤0.05 was considered as significant. There was 69 male and 75 female as presented in Table-1. The overall mean age of children was 6.73±3.15 years.

The overall mean onset age of children was 38.72±28.30 months. Among 144 children, 7.6% were found with strabismus family history. Detailed frequency distribution of strabismus family history is presented in Table-4. In our study, strabismus was found in 47.2% children as presented in Table-5. Among strabismus children, 38.2% were found with exotropia and 61.8% with esotropia as presented in Table-6. The detailed descriptive statistics of age and onset age according to strabismus are presented in Table-7 and Table-8. Stratification with respect to gender, age, onset age, eye involvement and family history was done.
to observe effect of these modifiers on strabismus. P-value ≤0.05 was considered as significant.

The results showed that there was significant association of strabismus with age (p=0.000) while no significant association was found with gender (p=0.062), onset age (p=0.863), eye involvement (p=0.915) and family history (p=0.078). The detailed results of associations are presented from Table-1-5.

Table – 1 Frequency distribution of family history (n=144)

<table>
<thead>
<tr>
<th></th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>11 (7.6)</td>
</tr>
<tr>
<td>No</td>
<td>133 (92.4)</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
</tr>
</tbody>
</table>

Table – 2 Frequency distribution of strabismus types (n=68)

<table>
<thead>
<tr>
<th>Strabismus</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exotropia</td>
<td>26 (38.2)</td>
</tr>
<tr>
<td>Esotropia</td>
<td>42 (61.8)</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
</tr>
</tbody>
</table>

Table – 3. Descriptive statistics of age (years) According to strabismus(n=144)

<table>
<thead>
<tr>
<th></th>
<th>Yes (n=68)</th>
<th>No (n=76)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>5.57</td>
<td>7.77</td>
</tr>
<tr>
<td>Sd</td>
<td>2.82</td>
<td>3.08</td>
</tr>
<tr>
<td>Median</td>
<td>5.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Range</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Table – 4 Frequency and association of strabismus According to gender (n=144)

<table>
<thead>
<tr>
<th>Strabismus</th>
<th>Total</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Male</td>
<td>27 (39.1)</td>
<td>42 (60.9)</td>
</tr>
<tr>
<td>Female</td>
<td>41 (54.7)</td>
<td>34 (45.3)</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>76</td>
</tr>
</tbody>
</table>

Chi square test were applied, P-value ≤0.05 considered as significant. **insignificant at 0.05 levels

Table – 5 Frequency and association of strabismus According to family history (n=144)

<table>
<thead>
<tr>
<th></th>
<th>Strabismus</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>Yes</td>
<td>8   (72.7)</td>
<td>3 (27.3)</td>
<td>11</td>
</tr>
<tr>
<td>No</td>
<td>60 (45.1)</td>
<td>73 (54.9)</td>
<td>133</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>76</td>
<td>144</td>
</tr>
</tbody>
</table>

Chi square test were applied P-value ≤0.05 considered as significant. **insignificant at 0.05 levels

**DISCUSSION:**

The study was conducted to determine the frequency of strabismus and its types in pediatric age group attending, outpatient’s department of a tertiary care hospital. The prevalence of strabismus in a study by Kalikivayi V et al conducted in South India is 0.7%. Another study in North India by Gupta M et al gave a prevalence of 2.5%. In other countries, prevalence of strabismus found to be 4.3% in England by Adelstein AM et al while Graham PA gave a prevalence of 7.1%. In Africa, study by Ayanru JO showed a prevalence of 1.9%. In Japanese elementary school children, it was 1.28%. Rantanen A et al in Finland gave a prevalence of 4.6%. One of the factors responsible for this variation are the differences in the age group of children included in the study.

Prevalence of strabismus in one study was found to be 0.3% in boys and 0.299% in girls as compared to Graham PA et al study which shows 7.3% are boys and 6.9% are girls. While other study done by AM et al shows male preponderance and CBO Yu et al, and Cass EE reported a female preponderance. One study shows that strabismus was more common in 3-10 years age group (prevalence of 0.38%) when compared to children in 11-16 (0.22%) year’s age group prevalence. When they compared esotropia and exotropia separately, they found that Esotropia was more common in 3-10 years age group while exotropia was more common in 11-16 years age group.

Mohney BG et al also proposed that esotropia is the most common form in the first six years of life; beyond this age exotropia predominates until the teenage years when the three forms have a similar but decreased incidence. In study by Abrahamsson M et al children were screened at 1 year and also the data of children under 8 years who attended ophthalmic clinics for various com-
plaints were screened. Mohney BG et al included children under 19 years of age. According to writing committee for the multi-ethnic pediatric eye disease study and the baltimore pediatric eye disease study groups, esotropia was associated independently with prematurity, maternal smoking during pregnancy, older preschool age (48-72 months), anisometropia, and hyperopia. Exotropia was associated with prematurity, maternal smoking during pregnancy, family history of strabismus, female sex, astigmatism and anisostigmatism.

According to Remaly NA et al risk of strabismus increased with low birth weight. Maternal cigarette smoking during pregnancy also increased the risk of each type of strabismus. Maternal age was also a significant risk factor for esotropia. The risk of esotropia increased with increasing age until age 34 years. Cass EE stated that a family history of squint was present in only 28% of the cases. In study by Graham PA, 8.1% of children in control group had a family history of squint, while 19% of children with squint had a positive family history. In one study, 3.3% of children had a positive family history. History of prematurity was present in 3.3% of children (all of them were esotropes). The classical teaching about the distribution of esotropia and exotropia is that esotropia is more common than exotropia. This idea is based on studies conducted in western population. But, studies conducted on Asian population revealed that exotropia is more common than esotropia. Studies by Rachael H et al have shown that intensity and duration of exposure to sunlight may play a role in pattern distribution of strabismus along with racial factors. Thus, higher the intensity of light, higher the frequency of exotropia.

Graham PA, suggests that accommodative esotropia was found to be more common than non-accommodative esotropia and also with Mohney BG. Similar results were also seen in study by Chia A et al. In their study, 53% had accommodative esotropia and 23% had congenital esotropia. In yet another study by Greenberg AE et al, on incidence and types of childhood esotropia, fully accommodative 36.4%; acquired non accommodative 16.6%; esotropia associated with an abnormal central nervous system 11.4%; partially accommodative 10.1%; congenital 8.1%; sensory, 6.5%; paralytic 6.5%; undetermined 3.4%; and other 1.0% which correlates with the current study. One study shows that Sensory strabismus was seen in 32% of the children in the current study. Among them majority (78% of children with sensory strabismus) had exotropia. Age of these children varied from 5 - 13 years in those with esotropia and 7 - 16 years in those with exotropia. Etiology in esotropia was found to be predominantly congenital causes while that in exotropia was predominantly due to acquired causes. Havertape SA et al, states that of patients with congenital vision loss, 67% developed sensory esotropia and 33% developed sensory exotropia.

One study shows that the age distribution of children with sensory esotropia ranged from 5-13 years, while that in those with sensory exotropia ranged from 7-16 years. Thus there is a considerable overlap in the age distribution in both the groups. But because the age of onset cannot be accurately known, this discrepancy is not significant. Refractive errors were seen in 52% of children examined. Of these myopia was most common refractive error overall hypermetropia was most common error in children with esotropia, but also seen in 1 child with exotropia. In the study by Holmes JM et al on paediatric third, fourth and sixth nerve palsies, the most commonly affected nerve was the fourth (36%), followed by the sixth (33%), the third (22%), and multiple nerve palsies (9%). One study shows that of those with strabismus, only 21.4% knew that they had strabismus. Neither the prevalence nor the self-known proportion of strabismus changed substantially with school grade, suggesting that the majority of strabismus afflicted children remain unrecognized during their elementary school years.

**Study Limitations:** The main limitation of our study was the small sample size. Other limitations of the present study include a single-center experience and non-randomized study design. It was conducted with urban environment therefore, the results might not be generalizable to larger populations.

**CONCLUSION:**

The study results showed 47.2% strabismus. The esotropia with 61.8% was commonest followed by exotropia. Further, female gender, age less than 6 years, and age onset more than 36 months were found as a risk factors. Timely diagnosis and treatment can improve prognosis and thus quality of life too. More research is needed in Extensive health education campaign among children as well as their parents are needed.
### PROFORMA

<table>
<thead>
<tr>
<th>S No:</th>
<th>Case No:</th>
</tr>
</thead>
</table>

**Name of Patient:**

**Age:**

months__________ years __________

**Age at onset of strabismus:**

months__________ years __________

**Involvement of eye:**

Unilateral __________ Bilateral __________

**Gender:**

Male __________ Female __________

**Family History:**

Yes __________ No __________

**OUTCOME**

Strabismus

Yes __________ No __________

**Types**

Esotropia __________ Exotropia_________

### REFERENCES:


Frequency of Myalgias in Patients taking Statins Treatment of Dyslipidemia

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ABSTRACT

Objectives:
To study the frequency of statin induced myopathy in patients presenting with hyperlipidemia on statin therapy.
To study the comparison between Rosuvastatin and Atorvastatin induced myopathy.

Material and Method: 150 cases of hyperlipidaemia were selected. Patients of 25-75 years of age and both sexes, with BMI of up to 25, having hyperlipidemia and on statin therapy for more than one week regardless of type or dose of statins, were included in the study. Patients having BMI>25, presenting with cardiac disease, diabetes mellitus, Hypertension, Hyper/Hypothyroidism, Nephrotic Syndrome, addict of alcohol or smoker were excluded from the study.

Result: In our study 110 patients were found to have hypercholesterolemia, 116 were having hyper-triglyceridemia and 40 patients were having low HDL-C levels. Out of the population with hypercholesterolemia 37 were male and 73 were female, with triglycerideemia 34 were male and 82 were females. 15 out of 150 patients (10%) developed statin induced myopathy.02(3.2%) developed statin induced myopathy in Rosuvastatin group, 5(11.3%) developed statin induced myopathy in Atorvastatin group and 8(27.3%) developed statin induced myopathy in Simvastatin group.

Conclusion: We concluded that significant proportion of our population having dyslipidemias when treated with statins, developed myopathy. Furthermore, least cases of myopathy were induced by rosuvastatin and most by simvastatin.

Key Words: Hyperlipidemia; Statins; Myopathy; Triglyceridemia; Myalgias;

INTRODUCTION
Cardiovascular diseases is a largely preventable, major cause of morbidity and mortality, food, obesity, and atherosclerosis promote cardiovascular risk. Adapting to healthy eating, exercise, quitting smoking, avoiding alcohol, treating diabetes, hypertension, and hyperlipidemia demote the risk. Hyperlipidemia is defined as “high levels of total cholesterol, low density lipoprotein cholesterol/and/or low levels of high density lipoprotein (HDL) cholesterol”. Hyperlipidemia is a serious well proven, modifiable risk factor for atherosclerotic coronary artery disease in all ethnic groups, ages and both gender. Adults with no risk factors for cardiovascular disease should have their fasting lipid profile test once every five years.1,2 Risk increases with a higher level of LDL cholesterol (promotes atherosclerosis) and a lower level of HDL cholesterol.3 Reducing cholesterol prevents atherosclerotic coronary artery disease and in patients with prior myocardial infarction or stroke, reduces recurrence and the need for revascularization.4 Reducing LDL cholesterol by 1 mmol/l lowers cardiovascular risk by 22%.

Significant proportion of our population having dyslipidemias, when treated with statins, develops myopathy. Furthermore, female gender was more likely to have statin induced myopathy than male gender and rosuvastatin has the least common side effect of myopathy.

HMG-CoA reductase inhibitors (Statins) are widely used to decrease lipid levels and reduce morbidity and mortality related to cardiovascular disease. Statins are recommended by most international guidelines for both primary and secondary prevention of cardiovascular diseases. Statins benefited all patients regardless of age, race, pre-existing hypertension, and even patients with normal cholesterol reducing morbidity...
ty and mortality. Statins reduce the production of LDL cholesterol by 20-50% and statins pleiotropic effect stabilizes the atherosclerotic plaque. Statins use, despite being effective, have some unfavorable side effects that lead to poor compliance. The most common (72%) of these side effects are muscle related. Myotoxicity presents in four ways in the form of myalgia, myopathy with asymptomatic elevation of creatinine phosphokinase, myositis, and rhabdomyolysis. Statin induced myalgia depend upon type and potency of statins, and interactions with other drugs like antibiotics and other lipid-lowering drugs. Statin associated myalgia are also seen more frequently in elderly females may be because of low BMI, and with co-morbidities like diabetes, hypertension, and hypothyroidism.

We need to study what role statins play in the development of these symptoms and how important it is to rule out this treatable cause in our society before labelling and treating these as non-specific aches and pains. Moreover, patients who discontinue the drugs because of side effects are identified and offered alternative lipid-lowering drugs. We are currently experiencing a higher prevalence of cardiovascular diseases further research is warranted on this topic. So mass efforts are needed in Pakistan to counter this growing epidemic of cardiovascular diseases.

**MATERIAL AND METHODS**

This descriptive study was conducted in General Medicine Outpatient Department of Pakistan Institute of Medical Sciences (PIMS), Islamabad, from 6/6/16 to 6/12/16. The study was approved by ethical committee of the institute. Informed consent from all participants was taken. A total of 150 patients of each gender between 25-75 years of age were included. 52% of patients were below 50 years of age. Female to male ratio was (1.7:1). Patients with hyperlipidemia, on statin therapy for more than one week, regardless of type and dose of statins, who presented with muscular pains, were included in the study, using non probability consecutive sampling. Patients with diabetes mellitus, hypertension, cardiac disease, BMI>25, alcohol addicts, nephrotic syndrome or smokers were excluded from the study. A complete fasting lipid profile was obtained after an overnight fast (8-12 hours). History including presence and duration of myalgia, dose and duration of statin therapy, were taken from each study subject. Examination was also done, with special emphasis on signs of myopathy like muscle tenderness and lipid abnormalities like exanthemas and xanthelasmas. Hyperlipidaemia was diagnosed according to ESC (European Society of Cardiology) guidelines. ECS consensus panel suggests that muscle symptoms which start with initiation of statin and disappear with discontinuation and reappear on re-initiation are defined as statin associated muscle symptoms. Myalgia are defined as pain in muscle or a group of muscles with normal levels of serum creatinine.

The data was analyzed with the help of statistical package for social sciences version (SPSS 16) Information from pro forma was converted to variables. Quantitative variables including age, CPK, LDL-C, HDL-C, Cholesterol and Triglycerides were presented by mean +/- SD. Percentages and frequencies were calculated for qualitative variables for example, gender and categories of LDL-C, HDL-C, Total Cholesterol and Triglycerides. Effect modifiers like age and gender were controlled by stratification. Post stratification chi-square test was applied. P value < 0.05 was considered as significant.

**RESULTS**

Data regarding weight, height and BMI was calculated as mean and standard deviation. Patients had an average weight of 52 to 75 kgs , average height of 15.3 to 179.6 cms and average BMI 19 and 24.7.

<table>
<thead>
<tr>
<th>Table-I Anthropometric measurements of study patients (n=150)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive statistics</strong></td>
</tr>
<tr>
<td><strong>Weight (kgs)</strong></td>
</tr>
<tr>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Range (min-max)</td>
</tr>
<tr>
<td><strong>Height (cm)</strong></td>
</tr>
<tr>
<td>Mean ± SD</td>
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<tr>
<td>Range (min-max)</td>
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<tr>
<td><strong>BMI</strong></td>
</tr>
<tr>
<td>Mean ± SD</td>
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<tr>
<td>Range (min-max)</td>
</tr>
</tbody>
</table>

The lipid profile of the patients was analyzed using descriptive statistics. The mean +/- SD cholesterol
level was 176.7 +/- 56.7 gm/dl. Similarly, average triglyceride level was 181.7 +/- 117.1 gm/dl. The average high density lipoprotein was 34.2 +/- 10.9 gm/dl in our study while low density lipoprotein was 105.9 +/- 50.2 gm/dl. The distribution of hypercholesterolemia and hyper-triglyceridemia were measured using the standard cutoff value of >200 mg/dl. In our study 110 (73.3%) were found to have hypercholesterolemia and 116 (77.3%) were having hyper-triglyceridemia. The frequency of HDL-C and isolated HDL-C were calculated as per study objective. We found out that majority of the patients 102 (93.3%) were having low HDL-C levels. Similarly, 95 patients (86.7%) of the study population had isolated low HDL-C. 82 patients (74.6%) had high levels of LDL.

Though not our primary aim, we also calculated the distribution of the lipid profile according to the gender of the study patients. Out of the population with hypercholesterolemia, 37 (68.5%) were male and 73 (76%) were female, with hyper-triglyceridemia, 34 (63%) were male and 82 (85.5%) were females. However, gender distribution was quite different among low HDL-C and isolated low HDL-C groups. It was found the out of 54 patients, 48 (88.8%) male population was having low HDL-C level compared to 90 (93%) females. On the other hand, isolated low HDL-C was more common in male population 42 (77.7%) in comparison to females 84 (87.5%).

In our setting we used three statins that were freely available in our setting. 64 (42%) patients were taking rosuvastatin, 49 (32%) patients were taking atorvastatin, 37 (26.6%) were taking simvastatin. Among the study patients, 02 (3.2%) developed statin induced myopathy in Rosuvastatin group, 5 (11.3%) developed statin induced myopathy in Atorvastatin group and 8 (27.3%) developed statin induced myopathy in simvastatin group. So statin induced myopathy was most common in simvastatin group and least common in rosuvastatin group.

Table-II: Various statin used and causing myopathy in study population (n=150)

<table>
<thead>
<tr>
<th>Statin Used</th>
<th>Myopathy</th>
<th>%Age of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Rosuvastatin</td>
<td>02</td>
<td>62</td>
</tr>
<tr>
<td>Atorvastatin</td>
<td>05</td>
<td>44</td>
</tr>
<tr>
<td>Simvastatin</td>
<td>08</td>
<td>29</td>
</tr>
</tbody>
</table>

In our study we also concluded that statin induced myopathy was more common in females 11 (11.7%) and less common in males 4 (7.1%).

**DISCUSSION**

We found out that patients with hyperlipidaemia and on statin therapy, 15 out of 150 patients (10%) developed statin induced myalgia with a higher frequency in females. Highest incidence was with simvastatin and least with rosuvastatin. Similar studies are done in different parts of the world. Hilmer and Smith et al concluded that the most severe adverse effect of statins is myotoxicity, in the form of myopathy, myalgia, myositis and rhabdomyolysis. These side effects depend upon type and potency of statins, gender of patients, and interactions with other drugs and even exercise as studied by scholars around the world. Statin therapy greatly reduces the risk of cardiovascular disease but because of its side effect in the form of myopathy, we are unable to fully benefit from its use. Beth et al defined, statin induced side effects as SAMS (statin associated muscle symptoms) and also proposed that this should be treated by decreasing dose or using alternative statins or using alternative treatment for lipid lowering. Statin induced myalgia is a common side effect in Pakistani population maybe because of their genetic makeup for which further studies and evaluation needs to be done. A study conducted in Lahore showed prevalence of myalgia with statin more in females as compared to males just like our conclusion. However, in their study they could show that regardless of myalgia being more common in females, the CPK levels were raised more in males. We couldn’t follow CPK levels because of financial constrains and that limited our study only to statin induced myalgia.

Not everyone came to the same conclusion. A study done in Lahore showed that prevalence of statin induced myalgia in Pakistani population is much less as compared to our results. A few studies around the world contradict our study because they claim that statins don’t cause any muscle symptoms on their own but only in the presence of vitamin D deficiency. There were a few limitations in our study. Majority of the OPD patients had multiple co-morbid conditions, which put them at increased risk of myalgia and therefore had to be excluded from the study. Vitamin D deficiency has also been proven in dif-
Different studies as a factor worsening statin induced myalgia\textsuperscript{16}, but it was not possible for us to check Vit D levels because of its high price. Another limitation was that a lot of patients did not follow up so had to be excluded.

Increased incidence of statin induced myopathy, has negatively affected its tolerability by high risk patients. Our study can increase awareness regarding statin induced myopathy, among patients who are at high risk of cardiovascular disease and need lipid lowering therapy. To realize that statins can be the cause of myalgia in patients coming to OPDs, can have a positive impact on patients’ compliance, as alternative drug can be started, drug interactions be avoided, alternative day treatment can be tried to minimize risk of cardiovascular disease.\textsuperscript{10,19,20,21} More awareness needs to be created in our part of the world regarding this issue and also efforts need to be made to manage this debilitating side effect of statins.\textsuperscript{22}

CONCLUSION

We conclude that significant proportion of our population having dyslipidemias, when treated with statins, developed myopathy. Furthermore, we found out that female gender was more likely to have statin induced myopathy than male gender and Rosuvastatin has the least common side effect of myopathy.

REFERENCES


To compare the efficacy of Nepafenac 0.1% vs Prednisolone 1% Eye Drops in patients undergone Phaco-emulsification with intra-ocular lens

ABSTRACT

Purpose: The purpose of this study is to compare the efficacy of Nepafenac 0.1% vs prednisolone 1% in pain and inflammation control in patients undergone phacoemulsification with intraocular lens implant.

Method: 100 patients with cataract were enrolled through OPD. They were placed in 2 groups with 50 patients each. Group A received topical Nepafenac 0.1% while group B received topical Prednisolone 1% from pre-operative day.

Results: Both groups were comparable in age and gender. There was no statistically significance difference in pain perceived in between two groups (p-value=>0.05), anterior chamber inflammation difference was also statistically not significant (p-value= >0.05).

Conclusion: Topical Nepafenac 0.1% is as effective as topical Prednisolone acetate 1% in terms of pain and anterior chamber inflammation control in patients undergone Phacoemulsification with intraocular lens implant.

Key word: Nepafenac0.1%, Prednisolone 1%, Pain, Inflammation, Phacoemulsification.

INTRODUCTION.

Cataract is the most common cause of preventable blindness after refractive errors 1. Various standardized techniques have been evolved to enhance patients and surgeons comfort. Phacoemulsification is currently the most favored and practiced treatment for cataract surgery all over the world 2. Despite of all these modernization still there is discomfort, pain, swelling and redness due to inflammation 3. For this inflammation control in our set up it is still widely practiced to use topical steroids. Though topical steroids effectively control and treat inflammation 3, but can also increase intraocular pressure, inhibit wound healing, increase the likelihood of infection or worsen an existing-one 4. On the other hand if inflammation is not controlled it may lead to complications like raised intraocular pressure, posterior capsular opacification, cystoids macular edema and decreased visual acuity5. Cataract surgeons have therefore been interested in decreasing dependence on steroids use alone, seeking alternatives or complementary treatment for post-operative inflammation, those are equally effective but have fewer complications then steroids therapy. Combination therapy of steroids with non-steroidal anti-inflammatory drugs have shown to have synergistic effect on post-operative inflammation7.

Topical Nepafenac 0.1% is as effective as topical Prednisolone acetate 1% in terms of pain and anterior chamber inflammation control in patients undergone Phacoemulsification with intraocular lens implant.

Topical NSAIDs reduce inflammation by inhibiting prostaglandins synthesis and have been shown to be clinically effective in controlling post cataract surgery inflammation. Pre-operative use of topical Nepafenac 0.1% therapy may help in maintaining pupillary dilatation during surgery thereby easing the procedure and may reduce post-operative
To compare the efficacy of Nepafenac 0.1% vs Prednisolone 1% Eye Drops in patients undergone Phaco-emulsification..........

inflammation. Pre-operatively it may be started anywhere from 3 days to immediately prior to surgery. Nepafenac 0.1% is the only NSAID with a pro-drug structure, making it a natural molecule. This property unlike the acidic nature of the other topical NSAIDs, allows Nepafenac 0.1% to rapidly penetrate the cornea, after which it is converted by intraocular hydrolases into its more active moiety Amfenac. Nepafenac 0.1% is unique, in that its bioconversion to Amfenac is targeted to the iris/ciliary body and, to even greater extent, the retina/choroid, suggesting Nepafenac 0.1% may have prolonged activity in the vascularized tissues of the eye.

Possible complications of topical steroids and useful/friendly nature of Nepafenac 0.1% compelled us to study its effectiveness as alternative to topical steroids in patients undergone Phacoemulsification with intraocular lens.

MATERIALS AND METHODS.

This comparative experimental study was conducted at District Head Quarter Hospital Timergara from 1st Mar: 2018 to 30th June 2018. Approval from the hospital ethical committee was obtained and informed consent was taken from the participants. A total of 100 patients were included in this study. Two groups were made Group A and Group B. Each group comprising of 50 patients each. Patients included were aged 40-80 years who have been admitted for Phaco-emulsification with Intraocular lens implants and were willing. Patients who were not willing or having pathologies like corneal chronic conditions or glaucoma or having posterior segment pathologies were excluded.

Patients were having Visual acuity checked and slit-lamp examination done in OPD. They were admitted and started on pre-operative Nepafenac 0.1%. Post operatively all patients received Tab. Moxifloxacin 500mg OD and Tab, Panadol 500mg BID for 5 days. Topically group A patients were put on topical Moxifloxacin 0.5% and Nepanac 0.1% eye drops with no steroids and Group B patients received topical Moxifloxacine 0.3% and prednislone acetate 1% (Pred forte 1%) Their post operative examinations done on day 1, 5, 12, 20 and 28th post operative day. Examination included Visual acuity checked up and slit-lamp examination.

They were also asked about presence of pain and its severity and was recorded according to numerical rating score NRS as shown in Table 1. Visual acuity was checked using Snellen's chart. Anterior chamber activity was noted using Uveitis nomenclature working group grading classification. Table 2.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Anterior chamber cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No anterior chamber cells</td>
</tr>
<tr>
<td>1</td>
<td>5-15 cells/mm² illuminating beam</td>
</tr>
<tr>
<td>2</td>
<td>16-25 cells/mm² illuminating beam</td>
</tr>
<tr>
<td>3</td>
<td>26-50 cells/mm² illuminating beam</td>
</tr>
<tr>
<td>4</td>
<td>&gt;50 cells/mm² illuminating beam</td>
</tr>
</tbody>
</table>

RESULTS:

Group A and Group B gender distributions are shown in pie charts as shown bellow.

![Gender wise distribution of population presented through pie graph](image)

In Figure 1.1 gender wise distribution of the study population has been shown through pie graph. In group-A male participants were more 61.20% as compared to female 38.80% participants while female in group-B were 52.00% and male were 48.00%.

![Age of the study population shown through histogram](image)

Fig. 1.2. Age of the study population shown through histogram

Note: A = Group-A and B = Group-B.
To compare the efficacy of Nepafenac 0.1% vs Prednisolone 1% Eye Drops in patients undergone Phaco-emulsification..........

Means were calculated separately for the pain experienced by patients post-surgery i.e. day 1<sup>st</sup>, 5<sup>th</sup>, 12<sup>th</sup>, 20<sup>th</sup>, & 28<sup>th</sup>. Means calculated for each group A and B were compared using Chi-square test. The data was found statistically non-significant as P > 0.05.

![Graph comparing pain scores](image)

The line-graph compare the means calculated for decrease in anterior chamber cells after surgery i.e. day 1<sup>st</sup>, 5<sup>th</sup>, 12<sup>th</sup>, 20<sup>th</sup>, and day 28<sup>th</sup> which shows that decline in anterior chamber cells were fast and early in group B patient (00.00 anterior chamber cells at day 20<sup>th</sup>) as compared to group A patients Figure 1.5 and 1.6. means were also compared using Chi-Square test. The data was statistically non-significant as P > 0.05.

**DISCUSSION:**

Cataract is the second most common cause of preventable blindness after refractive errors all over the world. Cataract surgery has evolved a lot and now phacoemulsification is the most practiced surgery for cataract treatment all over the world<sup>1</sup>. Despite of this surgical modernization there is still inflammation which results in discomfort, pain and other complication like raised intraocular pressure, posterior capsular opacification, cystoids macular edema and decreased visual acuity<sup>2</sup>.

For inflammation control in our set up it is still widely practiced to use topical steroids. Though topical steroids effectively control and treat inflammation<sup>3</sup>, but can also increase intraocular pressure, inhibit wound healing, increase the likelihood of infection or worsen an existing-one<sup>4</sup>. Inhibition of corneal healing and possible progression to sterile corneal ulceration and corneal melting especially in patients with chronic auto-immune conditions like rheumatoid arthritis and Sjögren’s syndrome have been documented<sup>11</sup>. Steroids induced glaucoma is the major concern especially in patients with primary open angle glaucoma and their sibling and off springs who are moderate steroid responders. Sehota and his colleagues have studied the occurrence of steroid induced glaucoma in patients who are steroid responders<sup>12</sup>. Cataract surgeons have therefore been interested in decreasing dependence on steroids use alone, seeking alternatives or complementary treatment for post-operative inflammation, those are equally effective but have fewer complications then steroids therapy.

In continuation of these efforts we did our this comparative study between Nepafenac 0.1% and prednisolone acetate 1% topical eye drops for control of post operative pain and anterior chamber inflammation and we found that there was no statistically significance difference in between the two. Nagpal M and Lambert have done their comparative study in patients undergone cataract surgeries have also found that there was no statistically significant difference in between those received topical Nepafenac 0.1% eye drops and those who were put on topical Prednisolone acetate 1% eye drops. There were both inflammatory and pain control in both groups<sup>13</sup>.

Nardi and Lobo have used topical nepafenac in comparison with topical Ketorolac 0.5% in patients undergone cataract surgery have found that Nepafenac was equal in terms of pain and inflammation control and was superior in relation to discomfort and conjunctival congestion associated with ketorolac 0.5%, due to prodrug nature of Nepafenac, its conversions into its active amfenac form and deep penetration with in the eye and resulting reduced inflammation and chances of cystoids macular edema<sup>14</sup>.

In an other study by Jones and Neville have found that the miosis that occurs during cataract surgery is partly mediated by prostaglandins. By inhibiting the production of prostaglandins in
To compare the efficacy of Nepafenac 0.1% vs Prednisolone 1% Eye Drops in patients undergone Phaco-emulsification............

To compare the efficacy of Nepafenac 0.1% vs Prednisolone 1% Eye Drops in patients undergone Phaco-emulsification surgery. In our study though it was not included but we do found sustained mydriasis with pre-operative Nepafenac 0.1% use.

CONCLUSION:

Topical Nepafenac 0.1% eye drops are as effective as topical Prednisolone 1% eye drops in terms of pain and anterior chamber inflammation control in patients undergone Phacoemulsification with intra-ocular lens implant.

REFERENCES.


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1. Autoimmune keratitis

A young woman receiving atezolizumab for bladder cancer presented to the clinic with a 7-day history of pain, photophobia, and blurring of vision in both eyes. Slit-lamp examination showed conjunctival redness, pseudomembrane formation and corneal epithelial damage.

Differential diagnosis:
Autoimmune keratitis, Herpes simplex virus, Pseudomonas keratitis, Acanthamoeba keratitis
Curtesy: Nejm UK

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Diagnostic & Prognostic Features of Complicated Tuberculous Meningitis on CT Scanning.
(A two years study in Neurosurgery Unit of Tertiary Care Hospital.)

Riaz ur Rehman FCPS¹, Muhammad Nawaz Khan FCPS², Sohail Amir MS³, Mushtaq M.S.⁴, Prof Shahid Ayub FCPS⁵, Majid Nawaz Khan MBBS⁶

ABSTRACT
Background: Tubercular meningitis is dreadful sequel of extra-pulmonary tuberculosis which often complicate to involve neurosurgeon in management. Neurosurgeon rely on CT brain for management of tubercular meningitis and its complications. There are many changes visible on CT brain in TBM patient which need to be explained in terms of its clinical significance and prognosis.

Objectives: To asses tubercular meningitis CT scan findings and discuss their significance in diagnosis and prognosis of tubercular meningitis.

Material & Methods: This observational descriptive study was conducted at department of neurosurgery Hayatabad Medical Complex Hospital Peshawar from sept, 2017 to august, 2019. Tuberculous meningitis patients of age range 16 to 60 years of either gender were included in this study. All those patients having space occupying lesion other than tuberculosis in brain and other causes of meningitis were excluded from this study. All the diagnosed tubercular meningitis admitted patients were subjected to CT brain with contrast and CT brain findings were noted along with clinical assessment and clinical improvement of patient to standardised in-patient care, till patient gets discharged and upto 9 month follow up period (9months ATT completion). The cases of TBM were divided according to standard Lincolin et al grading scale into three stages. The data was analyzed with the help of SPSS version 22. Effect modifiers were stratified and and post stratification Chi-Square test was applied with P-value < 0.05 as significant.

Results: In this study there were total (50) patients of TBM with mean age of (36.21±7.53) years. There were 24 (48%) males and 26 (52%) females. Maximum cases were seen in stage II of TBM which affected 32 (64%) cases. Hydrocephalus was seen in 31 (62%) of the cases as shown in table 01. Hydrocephalus was significantly high in female gender 20 (76.92%) as compared to males 12 (24%) with p-value of 0.03 as in table I. Radiological features visible on CT scan as shown in table 2 are ventricular enlargement 32 (64%), patients, periventricular lucencies 28 (56%), basal enhancement 15 (30%), basal lusency 17 (34%), peripheral infarction 19 (38%), and in 14 (28%) no abnormality. Ventriculomegaly is the most common abnormality in the CT brain but periventricular luscency is the poor prognostic finding visible on CT Brain.

Conclusion: Hydrocephalus is a common complication of TBM and it is frequently seen in females. 2nd and 3rd decades of life and stage 2/ stage 3 of TBM. Timely management leads to a better outcome. Ventriculomegaly along with sub-ependymal hypodensity is poor prognostic indicator.

Key words: TBM, Hydrocephalus, Meningitis.

INTRODUCTION:
Tuberculosis (TB) is a disease of the ancient times and still it exists, About 2000 million people in the world today are infected with tuberculosis. The number are highest in the developing countries and its incidence rate is 275 per 100,000 population in Pakistan according to World Health Organization¹. Tuberculosis usually involves lungs but it can involve any part of the body. It can involve brain in the form of meningitis, encephalitis and tuberculoma². TB was elaborated as distinct clinical problem in 1936² caused by mycobacterium tuberculosis.

Hydrocephalus is a common complication of TBM and it is frequently seen in females at 2nd and 3rd decades of life and stage 2 and 3 of TBM. Timely management leads to a better outcome. Ventriculomegaly along with sub-ependymal hypodensity is poor prognostic indicator.

The uncertainty of variable clinical presentations dilemmas of diagnosis and wide variety of complications pose a big problem in management of TBM. Delayed diagnosis and missed treatment can result in fatal outcomes³. The pathophysiology
of neurological complications of TBM is via three mechanisms Adhesion formation, basal vasculitis and encephalitis. Inflammatory exudates accumulate and settle in subarachnoid Basal cisterns to block csf pathways which in turn causes hydrocephalus to develop, since brain vessels are end arteries the inflammatory vasculitis causes ischaemia macro and micro infarcts.

The clinical presentation of TBM is variable. Diagnosis on clinical grounds is not possible. The prodrome is usually non specific, 28% report headache, 25% vomiting, 13% had fever. Only 2% reported meningitis symptoms are quoted in literature. The neurological complications that can occur are cranial nerves palsies(3rd, 4th, 6th, 7th, 8th) and hydrocephalus. Hydrocephalus presents with signs and symptoms of raised ICP like Headache, Nausea/Vomiting, Decreased conscious level and sometimes seizures. Infarcts occur in about 30% of cases commonly in the internal capsule and basal ganglia causing a range of disorders from hemi-paresis to movements disorders.

Table 1: Lincolin et Al staging of tuberculous meningitis

<table>
<thead>
<tr>
<th>Stage</th>
<th>Status of patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>only meningeal signs, no neurodeficit, normal conscious status</td>
</tr>
<tr>
<td>2</td>
<td>positive meningeal signs and neurodeficit, normal conscious status</td>
</tr>
<tr>
<td>3</td>
<td>unconscious patient</td>
</tr>
</tbody>
</table>

Advances in CT MRI has clarified ambiguities in diagnosis of TBM and helped in early diagnosis of various complications of TBM. Tuberculomas appear as ring enhancing lesion with surrounding edema, may be single or multiple. Basal meningeal enhancement is more pronounced in MRI brain. The major role of neuroradiology has been in management and in particular in the diagnosis and follow up of those complications requiring neurosurgery consultation.

Treatment of uncomplicated TBM is chemotherapy with ATT. The role of neurosurgeon starts with neurological complication in a patient which is being treated conservatively. There are several causes of this and require radiological assessment. The prevalence of hydrocephalus ranges from 20-65%. The data from Pakistan has shown its range from 58% in a study from Rawalpindi to 72.3% in Karachi. However one study from India on 45 cases revealed this hydrocephalus in 33.3% of cases only. Prompt assessment by CT brain is mandatory both for early diagnosis prognosis and management. Studies suggest that prompt ventriculo-peritoneal shunting improve outcome. Rationale of conducting this study is to define important radiologic changes seen on CT brain in advanced stage tuberculous meningitis patients and its possible link to prognosis after standard management.

MATERIALS AND METHODS:
This was an observational descriptive study with non probability consecutive sampling technique. This study was conducted at department of Neurosurgery Hayatabad Medical Complex Hospital Peshawar from 1st Sept ,2017 to 31st August, 2019. The cases of tuberculous meningitis of age range of (16 to 60) years of either gender were included in this study. The cases with bacterial meningitis, having any SOL in brain and those with any previous history of brain surgery were excluded from this study. The diagnosis of TBM and hydrocephalus was made on the basis of combination of clinical features, laboratory investigations and CT/MRI brain. Patient with clinical suspicion of hydrocephalus were screened through CT brain and then MRI brain for more detailed description. All the patients diagnosed as hydrocephalus were treated by Ventriculo-peritoneal shunt and post operative ATT for one year. Follow up neuro-imaging was done after 6 months.

The cases of TBM were divided according to standard Lincolin et al grading scale into three stages only patients in stage 2 and 3 were subjected to CT brain due to advanced disease. The data was analyzed with the help of SPSS version 22. Effect modifiers were stratified and post stratification Chi-Square test was applied with P-value < 0.05 as significant.

RESULTS:
In this study there were total (50) patients of TBM with mean age of (36.21±07.53) years. There were 24 (48%) males and 26 (52%) females. Maximum cases were seen in stage II of TBM which affected 32 (64%) cases. Hydrocephalus was seen in 31 (62%) of the cases as shown in table 01. Hydrocephalus was significantly high in female gender 20 (76.92%) as compared to males 12 (24%) with p value of 0.03 as in table 1. Radiological features visible on CT scan as shown in table 2 are ventricular enlargement 32(64%) patients, periventricular luscencies 28(56%), basal enhancement 15(30%).
basal lucency 17 (34%), peripheral infarction 19 (38%), and in 14 (28%) no abnormality. As shown in figure 1 ventriculomegaly is the most common abnormality in the CT brain but periventricular lucency accounts for the highest mortality 4 deaths and no change/no improvement in clinical status of 7 patients despite maximum standard treatment and ventriculoperitoneal shunting. Hence ventriculomegaly along with periventricular lucency is the bad prognostic finding visible on CT Brain.

Table 1: CT scan features in 50 patients of TBM

<table>
<thead>
<tr>
<th>SCAN FEATURES</th>
<th>NUMBER OF PATIENTS</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventricular enlargement</td>
<td>32</td>
<td>64%</td>
</tr>
<tr>
<td>Periventricular lucencies</td>
<td>28</td>
<td>56%</td>
</tr>
<tr>
<td>Basal enhancements</td>
<td>15</td>
<td>30%</td>
</tr>
<tr>
<td>Basal lucencies</td>
<td>17</td>
<td>34%</td>
</tr>
<tr>
<td>Peripheral infarction</td>
<td>19</td>
<td>38%</td>
</tr>
<tr>
<td>No abnormality</td>
<td>14</td>
<td>28%</td>
</tr>
</tbody>
</table>

Table 2: Clinical presentation of TBM and hydrocephalus

<table>
<thead>
<tr>
<th>Symptoms and signs</th>
<th>Number of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrexia</td>
<td>16</td>
<td>32%</td>
</tr>
<tr>
<td>Headache</td>
<td>15</td>
<td>30%</td>
</tr>
<tr>
<td>Meningism</td>
<td>15</td>
<td>30%</td>
</tr>
<tr>
<td>Altered sensations</td>
<td>7</td>
<td>14%</td>
</tr>
<tr>
<td>Cranial nerve deficit</td>
<td>20</td>
<td>40%</td>
</tr>
<tr>
<td>Papilledema</td>
<td>32</td>
<td>64%</td>
</tr>
<tr>
<td>Neurodeficits</td>
<td>34</td>
<td>68%</td>
</tr>
<tr>
<td>Fits</td>
<td>28</td>
<td>56%</td>
</tr>
<tr>
<td>Anemia</td>
<td>10</td>
<td>20%</td>
</tr>
</tbody>
</table>

DISCUSSION:

Tuberculosis continues to be a major health problem for developing and poor countries. One third of world population are infected with mycobacterium tuberculosis. Hydrocephalus is the most common complication of TBM. It is almost always present in patients who have had the disease for four to six weeks. Shoeman al at al found the hydrocephalus was 65% in his study. In our study we found 64% patients that are diagnosed with TBM developed hydrocephalus. It is more frequent and severe in children and early adulthood. This has been seen in our study too, where the majority of patients in early adulthood (16-29) years showed post TBM hydrocephalus. Hydrocephalus was significantly high in female gender (76.92%) as compared to males where it affected 12 (24%) of cases with p value of 0.03. On the other hand male gender was proved as a risk factor for the development of hydrocephalus in cases of TBM by previous studies. Kumar and Christensen AS et al found that males were seen in more than 2/3rd cases of TBM; though this difference was not statistically significant with p values of 0.54 and 0.34 respectively. Hydrocephalus was also significantly high in cases with stage II and III of TB affecting 43.75% and 56.25% of cases respectively with p = 0.01. The studies have shown that there is linear association of the severity of the disease and the development of the hydrocephalus. Chan et al in their study found 89% of the cases to develop hydrocephalus in cases of TBM. The reason can be explained by the fact that the severe the disease and higher is the turbidity of the CSF and led to difficult drainage and ultimately
Hydrocephalus in patients could be either of non obstructive type or obstructive type, the former being more common. This has been demonstrated in our study too showing (63.9%) patients communicating type hydrocephalus. The clinical features that pointing towards the presence of HCP are nonspecific. In any patient with Tuberculous meningitis with signs of raised ICP, hydrocephalus should be suspected even if papilloedema could not be visualized and these patients should be subjected to neuro-radiologic examination. Hydrocephalus can also be suspected in patients who have very minimal symptoms of raised ICP. Although a widely used classifying system exists for patients with TBM, namely lincoln et al grading system, a distinct grading system did not exist for patients with TBM and hydrocephalus. Another proposed grading system for TBM and hydrocephalus is (Vellore grading system) based on the presence or absence of neurological deficits and level of sensorium.

Although some researchers studied Conservative management of some communicating hydrocephalus to reduce the rate of vp shunt surgeries in TBM cases but early VP shunting of TBM meningitis give good patient outcome in terms of patient hospital stay and ultimate neurological outcome. However medical management implies continuous monitoring of patients. Patients with obstructive hydrocephalus and acute deterioration need urgent shunt surgery as delayed treatment lead to poor outcome. Radiological features visible on CT scan as shown in table 2 are ventricular enlargement 32(64%) patients, periventricular lucencies 28(56%), basal enhancement 15(30%), basal lacunae 17 (34%), peripheral infarct19(38 %), and in 14 (28 %) no abnormality. As shown in table 3 ventriculomegaly is the most common abnormality in the CT brain but periventricular lucency accounts for the highest mortality 4deaths and no change/no improvement in clinical status of 7 patients despite maximum standard treatment and ventriculo-peritoneal shunting. Hence ventriculomegaly along with periventricular lucency is the bad prognostic finding visible on CT Brain.

Outcome of surgery depends on clinical factors like age, duration of illness, sensorium of patients. Biochemical factors predicting outcome are CSF protein count, CSF cell count, Basal lucencies, subependymal leaks are also predictors of poor outcome.

CONCLUSION:

Hydrocephalus is a common complication of TBM and it is frequently seen in females, 2nd and 3rd decades of life and stage 2/stage 3 of TBM. Timely management leads to a better outcome. ventriculomegaly along with sub-ependymal hypodensity is poor prognostic indicator.

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Diagnostic & Prognostic Features of Complicated Tuberculous Meningitis on CT Scanning.


2. Necrotizing anterior scleritis
A woman suffering from rheumatoid arthritis complained with a 1-month history of pain in the eye. She had already stopped immunosuppressive treatment a few years earlier. There was no history of trauma. Slit-lamp examination showed hyperemia, inflammation, and marked scleral thinning with exposure of underlying choroid.

Differential diagnosis
Necrotizing anterior scleritis, Posterior scleritis, Hyphema, Conjunctival hemorrhage, Acute angle closure glaucoma
How much are we Protected from COVID-19 Pandemic?
The Health Care Worker’s (HCW) Perspective

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Aayanoor Zahid MBBS⁴, Zunera Jahanzeb FCPS⁵, Hafiz Awais Ali FCPS, MRCP⁶

ABSTRACT
Objective: To determine the perception of the HCWs in Pakistan about the provision of Personal Protective Equipment (PPE), their preparedness and their perceived stress level. It was a cross-sectional observational study, at Hazrat Barri Sarkar (HBS) Medical College, Islamabad, 3 months (March 2020 till May 2020).

Methods: A Questionnaire was distributed among HCWs through Social Media applications and collected responses were recorded and analysed.

Results: 470 responses were obtained. Mean age was 30.84±5.855 years. Majority of the respondents were doctors (89.1%). According to 64.7% of the respondents, they were not provided with adequate PPE. Most of the HCWs were not meeting normally with their families (54.7%). A significant number of the HCWs felt they were not supported by the authorities (69.1%) while a wide number felt that they were supported by colleagues (61.5%). The Mean VAS perceived stress score was 71.17±22.97. Analysis revealed that male HCWs and HCWs living Onsite had a tendency to work in higher risk areas of the hospital.

Conclusion: Most of the HCWs do not feel that they have been adequately protected to deal with the pandemic.

Keywords: SARS-CoV2, Healthcare Workers, Pakistan, Pandemic, Personal Protective Equipment, COVID-1 VAS – Visual Analogue score stress

INTRODUCTION

These are indeed strange times and the pursuits of life all over the world have been revolving around a single focus of attention. The SARS-CoV2 Pandemic started as an outbreak of atypical pneumonia localized to the Wuhan area of Mainland China in early December of 2019¹. According to various reports the initial cases of pneumonia had been through a particular animal meat market in Wuhan². The contagion is thought to have crossed over from animals, specifically bats, to humans³. The human to human transmission of SARS-CoV2 was initially underestimated, which is believed to have caused the initial outbreak to transform into an epidemic and then into a pandemic⁴,⁵. Most of the world is still reeling from the aftereffects of this disease, many countries under lockdown, a major proportion of the world’s population in their homes with their movements restricted, this virus is leaving a mark on every aspect of life throughout the world⁶.

Most of the HCWs do not feel that they have been adequately protected to deal with the pandemic.

Most of the countries in the world are using lockdowns and social distancing to slow the spread of the virus and flatten the curve⁷,⁸. This strategy has helped some countries but several factors have impeded its success in others, ranging from governments not heeding expert advice to general public relating COVID-19 to Influenza. The backbone of this strategy is to protect the healthcare system, particularly the workers who make up the healthcare system. Healthcare workers (HCWs) are the most valuable asset against this disease⁹. A single healthcare worker takes...
How much are we Protected from COVID-19 Pandemic?

years to train and educate, so it makes sense that the stratagem against this pandemic has the safety of Healthcare Workers at the forefront. The best way to protect healthcare workers from this pandemic is the provision of personal protective equipment (PPE). Different work areas mandate different types of PPE as per WHO guidelines. HCWs working in areas where aerosol generating procedures are performed are recommended to wear full body coveralls, face and eye protection, filtering face piece (FFP) masks and gloves. Lower risk areas mandate wearing surgical masks and gloves at least ranging to FFP masks and aprons or gowns if needed.

A Recent study attempted to ascertain whether Pakistan is ready to deal with the pandemic, and they found that our population and HCWs were not prepared to deal with this pandemic. The objective of this study is to determine the perception of the HCWs in Pakistan about, the provision of PPE, their preparedness and their perceived stress level. This study may help in understanding what HCWs are most concerned about and may also help us in improving the work environment for HCWs leading to a much better healthcare experience for patients as well as HCWs.

MATERIAL AND METHODS

A Cross-sectional, Observational study was carried out during the first wave of the SARS-CoV2 Pandemic in Pakistan, from March 2020 till May 2020. An Anonymous questionnaire was used which included 34 questions including age, gender, type of HCW, duty area, duty timings, hospital type, PPE provision, details of PPE provision, exposure to cases and their perception of hospital preparedness. A Visual Analogue Scale perceived stress score ranging from 0-100 was also a part of the questionnaire. This questionnaire was distributed to HCWs using social media applications including whatsapp and facebook. The questionnaire can be accessed at: https://forms.gle/NS06esVv5LhVCWxs9. Consent was obtained before filling in the questionnair. As this was an Observational study about perspective of HCWs across the country with no identifying information, ethical approval was not needed. 470 responses were included in the study. The data was analysed using SPSS 22. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were calculated for Continuous variables. Means were compared using t-test and ANOVA tests, while categorical variables were compared using x² test.

RESULTS

A total of 470 responses were obtained all of whom were included in the study. Most of the respondents were doctors (89.1%), Nurses were second in number (9.6%), and paramedical staff made a small minority of the respondents. Mean Age was 30.84±5.855 years. The respondents showed a female predominance (female: 61.3% vs male 38.7%). Most of the Doctors, who responded belonged to post-graduate trainee category, followed by medical officers, consultants, interns and faculty members.

Figure I Grades of different doctors responding to the questionnaire (n=419)

Most of the respondents were working in a public sector teaching hospital, followed by public sector Primary and Secondary healthcare institutions and Private Hospitals. The majority of responses were given from the largest province of Punjab, followed by Islamabad, Azad Kashmir, Khyber Pakhtunkhuwa and Sindh. A quarter of the respondents were living on-site at the hospital at the time of the study (25.1% Onsite vs 74.9% Off-site). More than a quarter of the respondents were working in the emergency departments of their respective hospitals (30.4%). A significant percentage of the respondents were dealing with SARS-CoV2 directly (18.9%), which included working in the COVID-19 screening area, isolation area/ward and intensive care department. Most the respondents were associated with medical specialties (general medicine 36.6%). More than half of the respondents were working 8 hours or less during a day (58.1%). Number of suspected cases seen ranged from 0 to 400, with a mean of 10.47.
When asked about whether they thought they had been provided with adequate PPE, 64.7% of the respondents answered “No”, with only 22.1% of the HCWs answering “Yes”, while 13.2% were “Not sure” whether they had received an adequate PPE. Upon questioning the detailed provision of the 4 main constituents of PPE, it was found that gloves and surgical masks were the most abundantly provided parts of the PPE (availability of gloves was 74.7% and surgical mask was 62.6%). Goggles or face shields were found to be the least available items to HCWs, with 74.7% claiming that they had not received them. Coveralls or gowns were not available to 61.1% of HCWs, while FFP mask (N95) was available to only 20.4%. Most of the respondents said that they were changing their PPE only once per day (50%) and a greater number of them had to purchase a part of the PPE themselves (64.7%). The Mean VAS stress score was 71.17±22.97.

Table I shows answers to various items on the questionnaire.

<table>
<thead>
<tr>
<th>Question</th>
<th>Percentage (Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Weeks Off after Working for 1 week or more?</td>
<td>Yes 25.9% (121) No 54.3% (254) Maybe/Not sure 19.8% (93)</td>
</tr>
<tr>
<td>Contact with a Suspected Case?</td>
<td>Yes 20.4% (96) No 31.1% (146) Maybe/Not sure 48.5% (228)</td>
</tr>
<tr>
<td>Adequate PPE provided?</td>
<td>Yes 22.1% (104) No 64.7% (304) Maybe/Not sure 13.2% (62)</td>
</tr>
<tr>
<td>Goggles or Face-shield Provided?</td>
<td>Yes 25.3% (119) No 74.7% (351)</td>
</tr>
<tr>
<td>Coverall or Gown provided?</td>
<td>Yes 38.9% (183) No 61.1% (287)</td>
</tr>
<tr>
<td>Gloves provided?</td>
<td>Yes 74.7% (351) No 25.3% (119)</td>
</tr>
<tr>
<td>Part of PPE purchased?</td>
<td>Yes 64.7% (304) No 35.3% (166)</td>
</tr>
<tr>
<td>Training received on COVID-19?</td>
<td>Yes 30.2% (142) No 69.8% (328)</td>
</tr>
<tr>
<td>Feel Supported by Authorities?</td>
<td>Yes 30.9% (145) No 69.1% (325)</td>
</tr>
<tr>
<td>Feel Supported by Colleagues?</td>
<td>Yes 61.5% (289) No 38.5% (181)</td>
</tr>
<tr>
<td>Hospital Adequately equipped?</td>
<td>Yes 10.4% (49) No 66.6% (313) Family Contact is Normal?</td>
</tr>
<tr>
<td>Family Contact is Normal?</td>
<td>Yes 38.7% (182) No 54.7% (257)</td>
</tr>
<tr>
<td>Training or Career effected?</td>
<td>Yes 80.4% (378) No 10.6% (50)</td>
</tr>
</tbody>
</table>

Financial incentive should be given? 80.2% (377) 8.3% (39) 11.5% (54)
Provision of PPE boosts Morale? 94.3% (443) 1.1% (5) 4.7% (22)

Teaching and training sessions on COVID-19 were attended by 30.2% of the respondents. On the question of whether they thought their hospital was adequately equipped to deal with COVID-19, a majority answered “No” (66%), followed by “maybe” (23%) and “Yes” (10.4%). According to most of the respondents (86.4%) there were Isolation areas for COVID-19 in their hospitals. Most of the respondents felt that they were not given support by the authorities (69.1%) but a slightly less number felt that they were offered support by their Colleagues (61.5%). The number of quarantined HCWs ranged from 0 to 120 with a mean of 3.19. The number of HCWs who tested positive for COVID-19 ranged from 0 to 25, according to the respondents, with a mean of 1.02.

A majority of the respondents said that they were not meeting their families normally due to the COVID-19 threat (54.7%), while a smaller but significant number (38.7%) was still in normal contact with their families. Most of the hcws thought that their career and training was effected by this anemic (80.4%) while a similar thought that HCWs should be given extra financial incentives to deal with this pandemic (80.2%). An overwhelming majority of the respondents thought that if provided with adequate PPE their morale would be boosted (94.3%).

Stratification of Duty areas based on risk of exposure to COVID-19 was done into 3 types, namely direct contact (corona screening area, corona isolation/ward and intensive care units), high risk (emergency departments, general wards and procedure areas) and moderate risk (outpatient departments and other areas of hospital). It was found that higher risk Areas had a statistically significant predominance of male HCWs (p=0.01), it was also observed that HCWs who lived onsite in the hospitals had a tendency to work in higher risk areas (p<0.01).

According to HCWs working in direct contact areas, 46.1% were provided with ade-
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Adequate PPE while 43.8% were not provided with adequate PPE and 10.1% were not sure whether the PPE provided was adequate or not. There was a statistically significant difference between the number of people who received specific training on COVID-19 working in direct contact areas as compared to other areas (p=0.037). A similar difference was observed in HCWs perception of support by authorities according to their areas of work, with HCWs working in direct contact areas feeling better supported by authorities as compared to other areas (p=0.026). These analyses are detailed in Table II.

<table>
<thead>
<tr>
<th>Areas of Work According to Risk of Contact with COVID-19</th>
<th>Percentage (number)</th>
<th>Gender</th>
<th>p-Value (χ²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Contact</td>
<td>52.8% (47)</td>
<td>Male</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>47.2% (42)</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>High Risk</td>
<td>35.2% (106)</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>64.8% (195)</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>36.3% (29)</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63.7% (51)</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Onsite Residence?</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Direct Contact</td>
<td>70.8% (63)</td>
<td>Male</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>29.2% (26)</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>High Risk</td>
<td>72.4% (218)</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27.6% (83)</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>88.8% (71)</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.3% (9)</td>
<td>Female</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adequate PPE Provided?</th>
<th>No</th>
<th>Yes</th>
<th>Not Sure</th>
<th>p &lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Contact</td>
<td>43.8% (39)</td>
<td>46.1% (41)</td>
<td>10.1% (9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>High Risk</td>
<td>72.8% (219)</td>
<td>15.9% (48)</td>
<td>11.3% (34)</td>
<td></td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>57.5% (46)</td>
<td>18.8% (15)</td>
<td>23.8% (19)</td>
<td></td>
</tr>
</tbody>
</table>

Table II Table showing comparisons between areas of work of HCWS and gender, onsite residence, adequacy of PPE, training on covid-19 and support by authorities

DISCUSSION

Majority of the respondents in this study were young HCWs with a female predominance (61.3%), with a mean age of 30.84±5.855 years, which is in line with the general trend seen over the past decade in Pakistan. Female doctors are being produced in greater numbers by the country as compared to male doctors which corresponds with more female workforce. Most of the respondents belonged to junior or middle grade doctor roles, which corresponds with the mean age. This group of doctors form the bulk of the workforce all over the world and Pakistan is no exception to this trend.

The major concerns of HCWs during this pandemic have been the provision of PPE. Although Governments all over the world are trying their best to procure supply PPE to their HCWs, there are still ways to go. Less than a quarter of all the respondents thought that they were provided with adequate PPEs (22.1%) while a majority thought that the PPE provided was not adequate (64.1%). Sub-group analysis based on area of work revealed that a greater, statistically significant, percentage of HCWs working in areas of direct contact (46.1%) had received adequate PPE as compared to HCWs working in High Risk (15.9%) or moderate risk (18.8%) areas. This is a cause for concern as less than half of the HCWs working in direct contact areas claim that they have been provided with adequate PPE. The majority of the re-
symptomatic carriers have been reported all over the world. The spectrum of presentation of patients with COVID-19 mandates that HCWs working in high and moderate risk areas be provided with PPE that ensures their protection. If this remains unchecked and uncorrected it may lead to a disastrous situation where a significant majority of highly trained HCWs, who are needed to manage COVID-19 patients, fall ill and are taken out of the workforce or worse. A frail healthcare system like that of many developing third world countries, including Pakistan, can scarcely afford this.

Another worrying finding in this study was that only 39.3% of HCWs working in Direct Contact areas had received training on COVID-19, although this number is greater than those HCWs working in high and moderate risk areas (29.9% and 21.3% respectively), it is still alarming that majority of HCWs who are treating COVID-19 patients claim not to have any training on its management. Health authorities should organize basic training sessions on management of COVID-19 for HCWs particularly those working in direct contact areas, while for HCWs working in other areas training on recognition of COVID-19 and precautions against it may suffice.

HCWs might not have received enough support to help boost their morale and instil in them the will to fight against COVID-19 fearlessly. This can be supported by the findings that a although an overwhelming majority of the respondents claimed that having an adequate PPE would boost their morale (94.3%), most of these HCWs also felt that they were not offered enough support by health authorities (69.1%). An interesting find on further analysis was that significantly greater number of HCWs working in direct contact areas felt supported by authorities as compared to HCWs working in High and Moderate Risk areas (41.6%, 26.9% and 33.8% respectively, p=0.037). This might be because a similar number of HCWs in the direct contact area group reported provision of adequate PPE (46.1%) and as per the response the respondents, adequate PPE boosts morale.

One of the important parts of the questionnaire was a VAS perceived stress Scale, although not the ideal tool for measuring levels of stress, it has been validated to be similar in efficacy to other more traditional tools for stress assessment. It was included because it was much easier and quicker for the respondents to fill in, keeping in mind the length of the questionnaire and the time take to fill it. The VAS Stress scale gave us an idea of the level of perceived stress the respondents thought they were experiencing during the pandemic. There was a statistically significant difference between the mean VAS stress scores of HCWs working in direct contact, high risk and moderate risk areas (p=0.039), but the highest mean VAS stress score belonged to HCWs working in high risk areas, not HCWs working in direct contact areas. This might be due to HCWs in direct contact group having had more training or provision of PPE as compared to those working in high risk areas. It may also be attributable to the fact that HCWs working in high risk areas do not know which patient might be an asymptomatic carrier of COVID-19 while all the patients being managed by HCWs working in direct contact areas have to be dealt as confirmed cases. This uncertainty might also play a role in increasing the VAS perceived stress score of HCWs working in high risk areas. Table 3 gives detailed results of these analysis.

Comparison between respondents who answered “Yes” to “Provision of Adequate PPE?” and those who answered “no” or “not sure” showed that Mean VAS perceived stress score was significantly lower in the group answering “yes” as compared to the other groups (p<0.001). Figure II demonstrates this difference as a line graph. This finding might be explained as per the obvious reason of provision of Adequate PPE which makes the respondents feel safe, but other explanations maybe that most of those answering “yes” to this question belong to the group working in direct contact areas who had lower than expected mean VAS perceived stress score and had more access to training on COVID-19 as compared to HCWs working in other areas. Figure II Line graph demonstrating difference of mean vas stress score between various groups of
Further Sub-group Comparisons showed that doctors in more senior roles, like consultants and faculty members, had significantly lower Mean VAS perceived stress scores as compared to doctors in junior roles, like interns, post-graduate residents and medical officers (p=0.029). Figure III demonstrates this finding as a line graph. This may be explained by various reasons, the first one being that doctors in senior roles usually do not come in direct contact with patients with 8.1% of faculty members and 16% of consultants responding as working in direct contact areas. Other reasons for this difference might be that doctors in senior roles have easier access to PPE because of their seniority and that they have duty hours which are much less as compared to junior doctors putting them at a lesser risk of exposure thus leading to lower Mean VAS perceived stress scores. Another reason might be that senior doctors have much more experience and knowledge behind them as compared to junior doctors which may contribute to a sense of safety as well.

Figure III Line graph demonstrating difference of mean vas stress score between doctors of various grades

CONCLUSION

Majority of HCWs included in this study reported that they did not have adequate PPE to perform their duties safely. HCW’s are the only line of defence against this disease and the priority should be to ensure their safety during these trying times.

REFERENCES

Postoperative Nausea & Vomiting (PONV) in Emergency Craniotomy and its Treatment with Ondansetron

Aurang Zeb FCPS 1, Ahmed Zeb FCPS 2, Zahid Ullah Khan FCPS 3, Rahman Ullah Jan FCPS 4, Prof. Parhaizgar Khan FCPS 5

ABSTRACT

Objective: The objective of this study was to evaluate the effectiveness of ondansetron in the treatment of postoperative nausea and vomiting (PONV) in emergency craniotomies.

Methods: It was a prospective cross-sectional study of nine months duration that was conducted in the Anesthesia and Neurosurgery departments in two tertiary care hospitals, Peshawar from June 2019 to March 2020. This study was conducted on one hundred and thirty one (131) patients of head trauma in whom emergency craniotomy was required. Data of patients were collected and analyzed through SPSS version 22 software.

Results: One hundred and thirty one (131) patients of head trauma were included who underwent craniotomy under GA. Only forty four (33.58%) patients were observed to develop nausea and vomiting. Among these patients, twelve (27.3%) were males and 32(72.7%) were females. All these patients were given ondansetron intravenously. In 39 (88.6%) patients, PONV was completely controlled, and only five (11.4%) patients required other antiemetic drugs in combination with ondansetron for complete remedy.

Conclusion: Mortality and morbidity from PONV have markedly decreased in recent years because of improved general anesthesia drugs, early recognition of risk factors, and availability of better antiemetic drugs. Ondansetron is a potent antiemetic drug in the prevention and treatment of PONV in emergency craniotomy under general anesthesia in head trauma patients.

Keywords: PONV = postoperative nausea and vomiting, GA = general anesthesia

INTRODUCTION

Pain and vomiting are the most common and poignant symptoms which follow surgery under general anesthesia. Sometimes nausea and vomiting may be more distressing affecting patient recovery, increasing postoperative complications, and delaying the hospital discharge. PONV can result in serious complications like raised intracranial pressure in craniotomy patients. The incidence of postoperative emesis in some large studies has been reported to be 20–30%. The incidence is even higher (60%) in neurosurgical patients.

The pathophysiology of postoperative nausea and vomiting is very complex. Separate processes for the development of nausea and vomiting are involved. Nausea occurs due to a forebrain pathway, whereas vomiting arises from central pattern generator in the hindbrain. An emetic center placed in the medulla is activated by different stimuli.

Mortality and morbidity from PONV have markedly decreased in recent years because of improved general anesthesia drugs, early recognition of risk factors, and availability of better antiemetic drugs. Ondansetron is a potent antiemetic drug in the prevention and treatment of PONV in emergency craniotomy under general anesthesia in head trauma patients.

The gastrointestinal tract, chemoreceptor trigger zone, higher cerebral cortex, cerebellum, and vestibular apparatus receive signals from this area. In particular, the postrema area in the fourth ventricle lies outside the blood-brain barrier and is thus exposed to effects of different medication. In the development of nausea and vomiting, variety of

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receptors are engaged. These are serotonergic, cholinergic, dopaminergic, histaminic, opioid, acetylcholine, 5-hydroxytryptamine-3 receptors, and neurokinin-1 receptors. The above receptors are linked to the emetic center. So these differing stimuli imply that combination therapy would be more useful to reduce PONV.6,9

Four strong risk factors associated with PONV are suggested by Apfel. Female gender, previous history of motion sickness and/or nausea and vomiting, non-smoker, and treatment with postoperative opioids are these variables. He indicated that each factor increases 20 percent risk of PONV.10 A fifth risk factor, duration of surgery > 1 hour is identified by Koivuranta et al.11 Other risk factors include use of inhalational anesthetics, nitrous oxide and duration of anesthesia.12 Variants of 5-Hydroxytryptamine receptor genes are also associated with increased incidence of PONV.13,14

Various medications are used in the management of PONV but for the ultimate control or treatment of PONV, there is no specific drug or tool. Pharmacological agents and non-pharmacological measures are used in the treatment of PONV.15,16 Antiemetics are the mainstay of treatment for PONV.17,18 Anti-cholinergic, anti-dopaminergic, anti-histamine, and anti-serotonergic are the major pharmacological classes of antiemetics.19 In addition to this, dexamethasone is often found to be a successful antiemetic.20 Serotonin (5-HT3) antagonists are the most common and effective anti-emetics.21 These drugs peripherally block gut vagal afferents and act centrally in the area postrema.22 The most commonly used 5-HT3 antagonist is ondansetron. Other 5-HT3 antagonists include granisetron, tropisetron, ramosetron, and palonosetron. Non-pharmacological maneuvers include acupuncture, acupoint stimulation, and transcutaneous electrical nerve stimulation (TENS). It results in a decrease in the incidence of PONV.23

MATERIALS AND METHODS
It was a prospectively conducted cross-sectional study, hospital-based and carried in the departments of anesthesia and Neurosurgery, Naseer Teaching Hospital and Lady Reading Hospital, Peshawar. It was a study of nine months duration from June 2019 to March 2020, and was conducted on 131 patients of head trauma, who underwent emergency craniotomy under GA. Only forty-four (44) patients were selected. Only 4 developed postoperative nausea and vomiting. A simple non-probability consecutive sampling technique was applied in this study.

Inclusion criteria All head trauma patients, aged 18 to 60 years of both genders and only those patients who develop PONV were included in the study.

Exclusion criteria The poly-trauma patients, patients not requiring craniotomy in an emergency, patients with a previous history of chronic nausea and vomiting, and patients who needed ICU admission were excluded from the study. Complete control of nausea and vomiting with a single drug was undertaken. While a second drug was required in combination with the first drug.

Patients admitted in the Neurosurgery Department of Naseer Teaching Hospital and Hayatabad Medical Complex, Peshawar were selected who fulfilled inclusion criteria after getting permission from ethical committees of concerned hospitals. Informed consents were taken from patients or attendants of patients and all information was put in pre-designed proforma. Diagnosis of head injury was made based on clinical history, physical examination, and CT brain. All the patients were operated under GA in the supine position. Isoflurane was used for induction and maintenance anesthesia. As a muscle relaxant, atracurium at 0.5 mg/kg body weight was given. For pain control during GA, opioids were avoided and ketorolac @ 0.5mg/kg was used. The patients were kept in the ward after surgery. All patients were given ondansetron 8 mg as they develop nausea and vomiting.

The data were analyzed using the statistical program SPSS version 22. For quantitative variables like age, mean/standard deviation was used. Frequency/percentage were calculated for categorical variables like gender, type of head injury, and effectiveness/ineffectiveness of antiemetic drugs. All the results were presented in the form of tables and charts or graphs.

RESULTS
One hundred and thirty one (131) patients of head trauma were included who underwent craniotomy under GA. Only forty-four (33.6%) patients were observed to develop nausea and vom-
itig. Among these patients, twelve (27.3%) were males and thirty-two (72.7%) were females with male to female ratio of 1:2.6. All these patients were given ondansetron intravenously. In thirty-nine (88.6%) patients, PONV was completely controlled and treated with ondansetron, and only five (11.4%) patients required other antiemetic drugs in combination with ondansetron for complete remedy.

**DISCUSSION**

This study showed a relatively higher incidence of PONV (33%) which may be attributed to head injuries. This is supported by other studies on PONV in head injuries. Even some other studies showed that incidence of PONV is much higher in head injuries cases. Meng L. and Quinlan JJ described that PONV occurs in six out of ten patients who underwent retromastoid craniotomy with microvascular decompression of cranial nerves.24 Our study has low incidence of PONV compared to that of Meng L. and Quinlan JJ. This may be due to the exclusion of high risk cases like those with prior history of PONV or motion sickness from our study.25 It also showed the higher incidence of PONV in females which endorses other studies as our study showed a male to female ratio of 1:2.7. Ondansetron has shown promising results in these cases as eight out of ten patients were recovered after single use of ondansetron. Many large-scale studies have indicated that preventive administration of ondansetron decreases PONV by 25%. Although, this study has shown a very promising result to treat PONV but it cannot be compared with the randomized control trials.

In one such study, NK1 antagonist, aprepitant was found superior to ondansetron in control of vomiting.26 Another study showed that combination of dexamethasone-dimenhydrinate are better than dexamethasone-ondansetron to control PONV.27

Often, a single antiemetic agent is not effective in prevention and treatment of PONV, so multimodal approach is found to be useful in treating and managing high risk patients. In our study we gave injection dexamethasone 0.1 mg/kg in resistant cases (n=5) as rescue drug and their PONV was completely controlled. Further studies are suggested regarding combination of antiemetics for control of PONV. Also, a simplified algorithmic approach for such cases makes PONV incidence significantly low.28

**CONCLUSION**

PONV can cause serious and deleterious complications in post-operative and neurosurgical patients. Sometimes the use of a single antiemetic drug may not prevent or treat nausea and vomiting and a combination of drugs should be used. In neurosurgical patients, the antiemetic agents
causing sedation should be avoided. This study suggests that due to better results and minimal complications in post-operative craniotomies, ondansetron should be used as first line drug in the treatment of PONV.

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ABSTRACT:
Purpose To determine the efficacy of scleral graft (autograft) in corneal perforation, it was a nonrandomized prospective study, in Department of Ophthalmology, Chandka Medical College Hospital Shaheed Mohtarma Benazir Bhutto Medical University, Larkana from 01-03-2020 to 31-08-2020.
Material and Methods: The patients selected from Out Patient Department and admitted in Ophthalmology department patients with complication of corneal perforation, secondary to non-traumatic or traumatic eyes. Ages of the patients range from 15 to 50 years and in both gender included in this study and some patient excluded with the history of collagen vascular disorder, ocular surgery and scleral disease.
Results: We studied efficacy of scleral autograft in 52 eyes of 52 patients. Out of which 27 (51.92%) were males and 25(48.07%) were females.27(51.92%) patients had central corneal perforation,12(23.07%) had para-central while 13(25%) patients had peripheral corneal perforations. On second postoperative day 4 (7.69%) patients developed shallow anterior chamber with leakage which were resutured. After two weeks 01 (1.92%) patient developed graft suture abscess, which were managed with antimicrobial therapy. After 3 weeks of surgery 39 (59%) patients developed corneal vascularization. Anti VEGF therapy was given to the patients sub-conjunctivally and intra-stromal,that may result regression of corneal vascularization in 32 (61.53%) patients.
Conclusion. We concluded that scleral autograft is cost effective, easily available method in the management of corneal perforation. Moreover this method is superior to other available methods, as corneal perforation is an emergency and this method is easily available and free from screening and rejection problems.
Key words: corneal perforation, scleral autograft.

INTRODUCTION
The corneal perforations\(^1\) are complications cases of various ocular pathologies\(^2\). They are classified into traumatic\(^3,4\) and non-traumatic causes, which include sharp and blunt objects resulting in lacerated and punctured wounds with perforation. Trauma may be associated with infections, including most commonly bacterial and fungal infections, which may also occur without prior trauma and if not treated within time, leading to perforation\(^5,6,7,8\). Infection is most common cause of corneal perforation\(^9\). Sequence of events in corneal infections include direct infiltration of micro-organisms, proteolytic enzymes secreted by organisms, inflammatory cells, repeated damage of epithelial cells and decreased corneal sensitivity, all facilitate progression of corneal perforation.

Scleral autograft is cost effective, easily available method in the management of corneal perforation. Moreover, this method is superior to other available methods, as corneal perforation is an emergency and this method is easily approachable, free from screening and rejection problems.

Bacterial micro-organisms which infect cornea includes Pseudomonas aeruginosa, streptococcus species, staphylococcus species and salmonella species. Fungal infections commonly infecting organisms include Fusarium solani, aspergillus fumigates, Pencillium citrinum, Candida albicans, cephalosporium cuvularia\(^\text{\textsuperscript{10}}\). Protozoa like acantha amoeba can cause ulceration and perforation in
contact lens wearers with history of swimming in dirty water. Inadequate tear film and ocular surface disorders may also cause ulceration and perforation.

Other causes include neurotrophic ulcer, exposure keratitis and rarely hydrops with keratoconus. Inflammatory pathologies cause corneal thinning and subsequent ulceration and perforation. Collagen vascular disorders include Rheumatoid arthritis, Systemic lupus erythematosus, Wegner granulomatosis and other inflammatory causes include Polyarteritis nodosa, sarcoidosis, inflammatory bowel disease which may cause thinning and perforation. Degeneration and ectasia: like Terrien’s marginal degeneration, Pellucid marginal degeneration may end up in corneal ulceration and perforation. Management of corneal perforation relies upon etiology, site, size and previously taken treatment. Corneal perforation usually present with shallow anterior chamber with visible perforation site. In some cases, site of corneal perforation is obscured by necrotic, infiltrated or oedematous tissue with minimally shallow anterior chamber. In these cases of siedel test is diagnostic. Cause of corneal perforation is mostly evident but in certain cases it must be investigated thoroughly.

The Aim of treatment is not only to save integrity of globe but also to treat underlying cause. Treatment options presently available are tarsorraphy, tissue adhesives ie fibrin glue or cyano acrylate glue, conjunctival flapping, bandage contact lens, tectonic scleral autograft, amniotic membrane transplantation and lamellar penetrating keratoplasty.

MATERIAL AND METHODS:

The prospective study for assessment of efficacy of scleral autograft in corneal perforation is performed at the department of Ophthalmology Chandka medical college hospital Larkana on after approvalfromEthicalReviewCommitteeSMBBMU Larkana. Patients with corneal perforation, were selected from Out Patients Department (OPD) are admitted in Ophthalmology department With the complication of corneal perforation secondary to non-traumatic (corneal ulcer) or traumatic corneal perforation. Total number of cases were 52, ages range from 15 to 50 years and both gender were included in this study and some patients were excluded with history of collagen vascular disorders, ocular surgery and scleral disease. All patients underwent visual status with assessment on visual acuity chart both distance and near with best corrected visual acuity (BCVA) and slit lamp examination, fundus examination and tonometry for intraocular pressure, laboratory investigations and ultra-sonography was done.

The procedure of scleral graft (autograft) was explained to the patient and written consent taken from all patients. Patients were also informed regarding course of recovery, importance of follow up visits and necessity of other additional surgery including keratoplasty.

Technique. First of all, the area of corneal perforation was measured with keratometer, to obtain a little bigger sized scleral lamellar button. Limbal based conjunctival flap was formed at the area adjacent to corneal perforation in a way similar as in trabeculectomy. In peripheral corneal perforation a partial thickness scleral flap (rotational) was made with its intact base, is rotated back to cover the corneal perforation and a separate flap of partial thickness of sclera was obtained to cover perforated area in central or para-central corneal perforations. Care was taken to make larger scleral flap in order to cover the whole area of corneal perforation, to avoid leakage. 10/0 nylon sutures were applied with burying knots toward corneal area. Conjunctiva was closed with 8/0 silk suture and therapeutic bandage contact lens was applied to avoid foreign body sensation.

After doing scleral grafts in corneal perforations, all patients were examined on its 1st postoperative day. Visual acuity checked for improvement. All patients were examined on slit lamp for stability of graft including any leakage and status of anterior chamber. Patients were checked for any inflammation and infection. Intra ocular pressure was checked on noncontact tonometer (Pneumo-tonometer). All patients were prescribed oral as well as topical antimicrobial (Moxifloxacin eye drops) therapy along with topical steroid eye drops (Dexamethasone eye drops) to prevent infection and inflammation. Patients were discharged from hospital on 1st postoperative day and checked after 01 week on follow up visit. Whole exercise was repeated again including visual acuity testing, slit lamp examination and
Use of Scleral Graft (Auto Graft) in Corneal Perforation (A Current Study)

intraocular pressure checking. All patients were assessed on 3rd, 4th weeks and after 2 months with visual acuity testing, slit lamp examination and intraocular pressure was checked by noncontact tonometer. All the collected information was entered into the predesigned performa.

Statistical analysis was done through SPSS 22.0 Version. Mean ± standard deviation were calculated for age, duration for corneal perforation, frequency and percentage were calculated for gender, efficacy of scleral auto-graft - yes/no, post stratification applies chi-square taken p-value less than 0.05 as significant.

RESULT

This study was conducted on 52 patients out of which 27 (51.92%) were male and 25 (48.07%) were female. (Figure 1) Mean age is 35 years. 52 patients were operated for corneal perforation (Figure 2-A), 27 (51.92%) out of 52 patients had central corneal perforation (Figure 2-B), 12 (23.07%) had para-central corneal perforation while 13 (25%) (Table 2) had peripheral corneal perforations. According to etiology of 29 (55.76%) patients had previous fungal corneal ulcers, 15 (28.84%) were suffering from bacterial corneal ulcers while remaining 08 (15.38%) had corneal perforations due to trauma. On 1st postoperative day 4 (7.69%) patients developed anterior chamber leakage with shallow anterior chamber, confirmed on siedel test, and were managed successfully. (Table 3)

After one week of surgery, all patients had adequate anterior chamber. 16 (30.76%) patients were complaining of foreign body sensation and watering was improved in 28 patients (53.84%) to 6/60, in 14 (26.92%) patients to 6/24 and in 10 (19.23%) (Table 4) patient’s vision improved 6/18, specially in peripheral corneal perforations. After two weeks of surgery 01 (1.92%) patient developed suture abscess with hypopyon formation. (Figure 3-A and 3-B) All other patients had stable visual acuity, adequate anterior chamber depth and intraocular pressure within normal range, with well placement of scleral autograft. After 3 weeks of surgery 31 (59.61%) patients developed corneal vascularization and after 4 weeks of surgery 08 (15.38%) more patients developed corneal vascularization. 05 (9.61%) patients had central or para-central corneal perforation. (Figure 4) While 03 (5.76%) had peripheral corneal perforation. (Figure 5-A and 5-B) All other patients had stable visual acuity, adequate anterior chamber and intraocular pressure below 16mm Hg. After 6 weeks of surgery, 32 (61.53%) patients were managed for corneal vascularization, improved regarding symptoms of foreign body sensation and photophobia. After 8 weeks of surgery, 15 (28%) patients developed spontaneous extension of graft due to loosening of sutures. Healing under the graft were observed with scar formation. (Figure 6) After 12 weeks of surgery, 24 (46.15%) patients were referred to the center where keratoplasty facility was available.

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Fig. 1 Male female ratio

Tab: 1 Age range

<table>
<thead>
<tr>
<th>Age Groups of Patients</th>
<th>No. of Patients</th>
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<tbody>
<tr>
<td>15-30 years</td>
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<td>31-40 years</td>
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<td>41-50 years</td>
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Tab: 2 Site of corneal perforation

<table>
<thead>
<tr>
<th>Site of Corneal Perforation</th>
<th>No. of Patients</th>
<th>Percentage %</th>
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<tbody>
<tr>
<td>Central</td>
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<tr>
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<td>23.1 %</td>
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<td>Peripheral</td>
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Tab: 3 Pre-surgery visual acuity

<table>
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<th>Pre Surgery Visual Acuity</th>
<th>No. of Patients</th>
<th>Percentage %</th>
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<tbody>
<tr>
<td>≤6/60</td>
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<td>75.0 %</td>
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<tr>
<td>6/24-6/36</td>
<td>8</td>
<td>15.4 %</td>
</tr>
<tr>
<td>6/9-6/18</td>
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</table>
Use of Scleral Graft (Auto Graft) in Corneal Perforation (A Current Study)

Tab: 4 Post surgery visual acuity

<table>
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<th>Post Surgery Visual Acuity</th>
<th>No. of Patients</th>
<th>Percentage %</th>
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<tbody>
<tr>
<td>≤6/60</td>
<td>28</td>
<td>53.8 %</td>
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<tr>
<td>6/24-6/36</td>
<td>14</td>
<td>26.9 %</td>
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<td>6/9-6/18</td>
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<td>19.2 %</td>
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Fig: 2-A Corneal perforation

Fig: 2-B After scleral autograft

Fig: 3-A Scleral autograft with suture abscess and hypopyon

Figure no-03-B After resolving infection and removal of graft

Figure 4 –A Para central corneal perforation

Figure 04-B After scleral autograft

Figure 05-A Central corneal perforation
DISCUSSION

Corneal perforation is an emergency which should be dealt promptly. Methods of management includes bandage contact lens, adhesive glues. Amniotic membrane transplantation, keratoplasty and conjunctival flapping. Bandage contact lens and adhesive glues are more effective in small corneal perforation, which are 1-2 mm in size. Conjunctival flapping is mostly considered when visual prognosis is poor.

Amniotic membrane transplantation is an effective method but also carries storage problems because corneal perforation is an emergency and there is no prior warning to obtain donor tissue. Moreover, it also has screening, rejection problems and conjunctival flapping mostly used if no hope of vision. In this context, a method was needed which fulfill all requirements, so tectonic scleral autograft is cost effective, easily available method which can save the integrity of globe in emergencies.

In our study, 52 eyes of 52 patients with corneal perforations were operated with scleral autograft. 39 (75%) cases developed corneal vascularization, 04 (7.69%) cases developed anterior chamber leakage and 01 (1.92%) case developed infection (suture abscess). According to our knowledge this is the new study in Pakistan of scleral autograft in the management of corneal perforation, however this study already have been done in other countries. Pawan Prasher et al described the case report of a patient with paracentral corneal perforation which after 3 months of scleral autograft improved vision less than 6/60 with stable anterior chamber and focal posterior synchia.

In our study after 3 months, in 28 patients (53.84%) vision improved to less than 6/60, in 14 patients (26.92%) patients vision improved to less than 6/24 and in 10 (19.23%) patients vision improved to 6/18. J. I. Praydal et al reported 3 cases of peripheral corneal perforation in which vision was less than 6/60 at the time of perforation and after scleral autograft surgery, vision recovered to 6/9. In our study 13 (25%) patients were operated who had peripheral corneal perforation. Their vision was improved to less than 6/18. In another study of Zhong Quo, Xio Chang et al they described the report of 18 cases of corneal perforation. 05 (27.77%) cases had avulsive laceration, severe corneal fistula in 08 (44.44%) cases and localized Staphyloma of cornea in 02 cases. In our study 39 (75%) patients developed corneal vascularization, 04 (7.69%) cases developed anterior chamber leakage while one (1.92%) case developed infection (suture abscess). No case of corneal fistula or Staphyloma was seen. Maurice D. Met al described the report of 14 cases of scleral autograft with 02 (14.28%) cases of anterior chamber leakage on second postoperative day, with no sign of infection or inflammation seen.

In our study of 52 cases, we observed 04 (7.69%) cases with anterior chamber leakage on second postoperative day. Cheng C.I., Tan DT et al described the report of 06 cases of scleral autograft, in which 04 (66.66%) cases developed corneal vascularization after 3 weeks. In our study 39 (75%) cases developed corneal vascularization after one month of surgery. Maria T, Iradier MD et al described the report of 12 cases of scleral autograft with 01 (8.33%) case of infection (endophthalmitis) on second postoperative day. In our study of 52 cases, 01 (1.92%) case of infection (suture abscess) was seen after 3 weeks of surgery.
CONCLUSION

This study concludes that scleral graft is an effective and easily available method for management of corneal perforation. This method has advantage of being easily available in emergency situations, is cost effective, safe as there is no need of screening and there is no expected graft rejection problems.

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INTRODUCTION

Chloramphenicol eye drops are low cost and little irritative effect on the cornea, have good conjunctival and aqueous humor penetration as a broad spectrum antibiotic. Nowadays, it is rarely being used in the United States for the past 30 years, giving an advantage of efficacy in this era of increasing antibiotic resistance. Why are we not using them? The main reason behind the initial stoppage of topical chloramphenicol use was case reports that implied there was an association between chloramphenicol eye drops and the development of aplastic anemia. In 1982, Fraunfelder published a case report of fatal aplastic anemia, with the citation of 3 other cases. Fraunfelder strongly suggested the risk of aplastic anemia was not worth continued use of topical chloramphenicol. Following this article, use of chloramphenicol eye drops in the United States decreased by 80%. By 1995, after use of topical chloramphenicol eye drops, 23 cases of aplastic anemia were documented in the National Registry of Drug-induced Ocular Side Effects. The patients in these cases had an age range of 33 to 82 years and had a median duration exposure of 120 days, and 12 of these patients died. cited these cases to argue that chloramphenicol eye drops should not be used as first-line treatment of bacterial conjunctivitis in Great Britain. Finally, in 2007 the Fraunfelders used the World Health Organization’s classification system for drug-related adverse events to categorize the relationship between aplastic anemia and chloramphenicol eye drops as “probable.”

However, multiple reviews and debates from the 1980s to the early 2000s, including a 2013 review by the Fraunfelder father-son team, came to the same conclusion: An association between topical chloramphenicol and aplastic anemia is, at best, “possible.” These reviews found that many of the cited cases were poorly documented, and some patients were also taking other drugs associated with blood dyscrasias. The cases without these issues could be attributed to idopathic anemia. Further refutation of a connection between ocular chloramphenicol and aplastic anemia comes from analysis of populations in whom topical chloramphenicol is commonly used. Hong Kong uses chloramphenicol 100 to 400 times more frequently than most western countries; however, its death rate from aplastic anemia is 0.4 per 1000 deaths, less than half of the 1 in 1000 deaths in England and Wales.

An article using data from 2 international case-control studies found no association between topical chloramphenicol and aplastic anemia. Among 426 cases of aplastic anemia and 3118 controls, 7 subjects used chloramphenicol eye drops...
within 6 months before admission. These subjects were all in the control group.

A prospective case-control study of aplastic anemia from Spain found those who used topical chloramphenicol within the prior 6 months had a nonstatistically significant 3.77 (95% confidence interval, 0.80–15.47) higher odds of developing aplastic anemia compared with controls. The same study, which found cases by contacting every hospital within a population of 4.2 million people, estimated the rate of aplastic anemia after use of topical chloramphenicol to be 0.36 cases/1 million weeks of treatment used high-performance liquid chromatography to investigate serum accumulation of chloramphenicol after topical therapy. Patients in this study received chloramphenicol drops 4 times daily for 1 to 2 weeks. Samples drawn 4 hours after patients’ last doses did not have a detectable level of chloramphenicol in the subjects’ serum.

The lack of a detectable level of chloramphenicol in patients’ serum makes it difficult to support that its metabolites could reach a level that would cause a blood dyscrasias. Between the years 2004 and 2007, oculocutaneous chloramphenicol was purchased approximately 11.8 million times solely in England, including both prescription and over-the-counter sales.

During that time, the Yellow Card Scheme, the United Kingdom’s system for collecting information on suspected safety concerns involving medicines, only received 6 reports of blood disorders, immune disorders, or infections that might be connected to ocular, ophthalmic, or intraocular chloramphenicol use. This method of estimating the cases of aplastic anemia associated with topical chloramphenicol is limited because of its reliance on self-reporting; however, in the face of increasing antibiotic resistance, chloramphenicol continues to be both a low-cost and effective option.

Antibiotic resistance is a growing problem within ophthalmology. Fourth-generation fluoroquinolones, moxifloxacin, and gatifloxacin were developed to combat Pseudomonas aeruginosa infections resistant to second-generation fluoroquinolones, but there are increasingly frequent reports of fourth-generation fluoroquinolone-resistant keratitis.

Recommendations for preventing the development of this resistance rely on reserving fourth-generation fluoroquinolones for serious infections, such as postoperative endophthalmitis. However, recent studies of antibiotic susceptibility in normal ocular flora have demonstrated as much as 10% to 20% resistance to second- and third-generation fluoroquinolones, leaving stronger, costlier antibiotics as alternatives for bacterial conjunctivitis.

Antibiotic resistance is even greater in those who have previously received fluoroquinolones as endophthalmitis prophylaxis after intraocular anti-vascular endothelial growth factor injections. Recent studies of antimicrobial resistance in Australia, the United Kingdom and China demonstrated that microbes isolated from hundreds of cases of bacterial keratitis are just as if not more, susceptible to chloramphenicol when compared with fluoroquinolones, especially in cases of methicillin-resistant Staphylococcus aureus. To combat the evolution of antibiotic resistance, why not use a topical antibiotic that is effective and costs more than $100 less than ofloxacin eye drops? Although Great Britain decided to allow over-the-counter purchase of topical chloramphenicol in 2005, a more conservative approach could be an effective solution in the United States.

SUMMARY:

We propose a trial period during which chloramphenicol is prescribed under the following restrictions:

(1) for vision-threatening keratitis or conjunctivitis cases that have failed a trial of first-line antibiotic drops;
(2) only in patients who have no personal or family history of blood dyscrasias;
(3) only in adults;
(4) only after obtaining written informed consent. This adjustment would allow third- and fourth-generation fluoroquinolones to remain reserved for postoperative endophthalmitis or keratitis, as is currently recommended. They also suggested 1 drop should be used at a time with pressure on the lacrimal sac, for 14 days of use.

If there is no increase of aplastic anemia cases, topical chloramphenicol use could be expanded to simple bacterial conjunctivitis and other indications. With this approach, we may just find the old dog of topical chloramphenicol settling comfortably into its new house.

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11. Possible association between ocular chloramphenicol and aplastic anaemia—the absolute risk is very low.
12. Relative impact of clinical evidence and over-the-counter prescribing on topical antibiotic use for acute infective conjunctivitis.
13. Endophthalmitis after uncomplicated cataract surgery with the use of fourth-generation fluoroquinolones.

3. Sjögren’s Syndrome

An old woman presented with a 5-month history of photophobia and pain with foreign-body sensation in both eyes. The visual acuity was 20/25 in each eye, and slit-lamp examination showed conjunctival hyperemia, corneal epithelial erosions, and corneal endothelial folds.

**Differential diagnosis:**
Cat scratch disease, Sjögren’s syndrome, Trachoma, Behçet’s disease, Multiple sclerosis
ABSTRACT

**Purpose:** To evaluate the efficacy of topical anesthesia Proparacaine 0.5% eye drops and Lidocaine Gel for corneo-scleral repair in selected cases of ocular open-globe injuries.

**Method:** 156 patients with corneo-scleral perforations limited to anterior segments of eyes were enrolled through casualty department of the hospital, ages ranging from 14-70 years. After explaining the process of anesthesia they were operated under topical anesthesia with topical Proparacaine 0.5% eye drops and Topical Lidocaine Gel for longer duration of anesthesia. They were asked about pain experienced during surgery and pain was graded using numerical rating score (NRS). Next post-op day patients were examined measuring visual acuity and wound status.

**Results:** Gender difference is significant as 68% were male and 32% were female. Total 156 patients were selected, of which 148 (94.87%) patients underwent successful corneo-scleral repair with only 8 (5.12%) anxious patients who were operated under general anesthesia. Out of 148 patients who underwent successful surgery 52 (33%) had no pain, 65 (41%) had mild discomfort, 26 (16%) had moderate pain and were comfortable with additional topical proparacaine 0.5%, and only 3 (1.92%) patients had severe pain they were comfortable with additional sub-conjunctival anesthesia. There were 2 unfortunate patients who developed post-surgery endophthalmitis.

**Conclusion:** Topical anesthesia with topical Proparacaine 0.5% eye drops and topical Lidocaine Gel is effective and safe method for simple corneo-scleral perforations limited to anterior segment of the eye.

Key word: Topical anesthesia, Proparacaine 0.5%, Lidocaine Gel, Corneo-scleral perforation.

INTRODUCTION:

Ocular trauma is an important and potentially preventable cause of ocular morbidity. It has been estimated that worldwide ocular injuries are responsible for blindness in approximately 1.6 million people with bilateral visual impairment in 2.3 million and unilateral visual loss in about 39 million people annually. Approximately half of all patients who present to an eye casualty are suffering from ocular trauma. Ocular injuries may be associated with injuries to other body parts or may be only eye and lids may be involved. Ocular injuries are further classified into open-globe injuries and blunt ocular injuries. Open-globe injuries may be limited to an anterior segment of the eye or may involve posterior segment i.e. vitreous and retina, choroid and posterior sclera wall.

Topical anesthesia with Proparacaine 0.5% eye drops and topical Lidocaine gel is effective and safe method for simple corneo-scleral repair of perforations limited to anterior segment of the eye.

The injuries under consideration here are those limited to anterior segment of the eye in which they are limited to but not extending or involving posterior lens capsule. It is usual practice to repair ocular perforations under general anesthesia which is usually not always possible due to limited sources in periphery hospitals in developing countries like Pakistan. Second option is peri-bulbar anesthesia but due to fear of raising intra-ocular pressure and expulsion of intra-ocular contents, peribulbar anesthesia cannot be used. Topical anesthesia is another option for perfo-
rations limited to anterior segment of the eye in patients who are old enough to understand and cooperate. Proparacaine 0.5% eye drops are commonly used for measuring intraocular pressure, corneal scraping and Phacoemulsification. To work with limited sources and efficiently without compromise on patients quality management here we consider and work under topical anesthesia in patients aged 14 and above and perforation limited to anterior segment of the eye.

MATERIAL AND METHOD:
This quasi experimental study was carried out in District Headquarter Hospital Timergara, Dir lower KPK from April 2017 to 31st December 2018. Approval from hospital management was taken and written consent of patients or their guardians were obtained. Total of 156 patients were operated whose age ranging from 14-70 years. They were admitted from Hospital casualty Department with Corneo-scleral perforations limited to anterior segment of the eye. After taking history, visual acuity and slit-lamp examination were done in all cases and where necessary with base-line investigations, X-ray skull and/or CT skull were done to rule-out intra-ocular foreign body.

Patients who were anxious or already frightened and children under 14 years, who they were presented with complex injuries were excluded at the start. Patients who surgeries were abandoned due to lack of cooperation were then operated under general anesthesia. Corneal and/or corneo-scleral repair was done using topical Proparacaine 0.5% eye drops followed by Lidocaine Gel (Xylocaine jelly) for deep anesthesia. Lidociane Gel was washed before starting surgery. Patients were asked about pain during surgery and was graded according to numerical verbal rating score (NRS) as in Table 1.

| 0 | No pain |
| 1 | Mild discomfort |
| 2 | Moderate pain requiring additional Topical Proparacaine eye drops. |
| 3 | Severe pain which requires subconjunctival injection lidocaine 2%. |
| 4 | Unbearable : where conversion on to GA became necessary. |

RESULTS:
Gender difference is significant as ocular injuries are more common in males. 68% were male and 32% were female as shown in pie chart below.

Total 156 patients were selected, of which 148 (94.87%) patients underwent successful corneo-scleral repair with only 8 (5.12%) patients who were already anxious and were operated under general anesthesia. Out of 148 patients underwent successful surgery 52 (33%) and had no pain, 65 (41%) had mild discomfort, while 26 (16%) had moderate pain and were comfortable with additional topical proparacaine 0.5%, and only 3 (1.92%) patients had severe pain they were comfortable with additional subconjunctival anesthesia.

There were 2 unfortunate patients who developed post-surgery endophthalmitis.

DISCUSSION:
Ocular injuries are common and about half of patients presenting to eye casualty department are with ocular trauma. Ocular trauma may be blunt trauma in which the globe corneo-scleral wall is intact but there is damage to intra-ocular structures or open-globe injuries in which corneo-scleral wall is breached with or without damage to intra-ocular structures. Various anesthesia
To evaluate the Efficacy of topical Anesthesia with Proparacaine 0.5% eye drops & Lidocaine gel for Corneo-Scleral repair............

Topical anesthesia with Proparacaine 0.5% eye drops & Lidocaine gel is effective and safe method for simple corneo-scleral perforations limited to anterior segment of the eye.

CONCLUSION:

Topical anesthesia with Proparacaine 0.5% eye drops & Lidocaine gel is effective and safe method for simple corneo-scleral perforations limited to anterior segment of the eye.

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To evaluate the Efficacy of topical Anesthesia with Proparacaine 0.5% eye drops & Lidocaine gel for Corneo-Scleral repair............

Topical anesthesia with Proparacaine 0.5% eye drops & Lidocaine gel is effective and safe method for simple corneo-scleral perforations limited to anterior segment of the eye.

CONCLUSION:

Topical anesthesia with Proparacaine 0.5% eye drops & Lidocaine gel is effective and safe method for simple corneo-scleral perforations limited to anterior segment of the eye.

REFERENCES:

11. Waldman N. An observational study to determine whether routinely sending patients home with 24 hours use of topical proparacaine 0.5%. Ann Emer Med 2017; 644 (17); 3019-25.
ABSTRACT

Background: Cataract is the chief cause of avoidable blindness in Pakistan and throughout the world. Cataract surgery can be performed more easily and safely if mydriasis can be maintained until intraocular lens implantation and for better visualization of the posterior chamber. Which facilitate proper incision of the anterior capsule, safe removal of the cataract, and implantation of intraocular lens. The main options for eye drops are ketorolac tromethamine, diclofenac, flurbiprofen, indomethacin and nepafenac. Nepafenac, a latest NSAID, also showed good results. It is dissolved in the tissues to Amfenac, a potent inhibitor of cyclooxygenase-1 (COX-1) and COX-2 enzymes.

Objective: To determine the efficacy of preoperative use of nepafenac in maintenance of intra-operative mydriasis during cataract surgery. It was a descriptive case series study, was carried out at Department of Ophthalmology Unit I, Dow University of Health Sciences and Civil Hospital Karachi, from 10th January, 2019 to 9th July, 2019.

Material & Methods. All patients who fulfilled the inclusion criteria and visited Department of Ophthalmology were included in the study. Nepafenac eye drops installed three times at half hour interval preoperatively. Pupil size was measured with a sterilized caliper at the start of surgery, after removal of lens and after implantation of intraocular lens during surgery. All the collected data were entered into the performa attached at the end. It was recorded on performa and used electronically for research purpose.

Results: Mean ± SD of age was 62.45±8.42 with C.I (61.24-63.65) years. Mean ± SD of pupil size was 8.33±1.94 with C.I (8.05---8.60) mm. Out of 190 patients 112 (58.94%) were male while 78(41.06%) were female. Efficacy of nepafenac was found in 162(85.26%) patients while 28 (14.74%) patients was found to be non-effective.

Conclusion. It is to be concluded that the efficacy of preoperative use of Nepafenac in maintenance of intra-operative mydriasis during cataract surgery was found to be effective in preventing miosis during cataract surgery.

Keywords: Cataract Surgery, Intra-operative Mydriasis, Nepafenac

INTRODUCTION

Cataract surgery is one of the most common medical procedures among people’s Aged from 65 and older. In recent times, surgical techniques in cataract surgery has improved a lot and has become less traumatic to the eye[1]. Phacoemulsification with intraocular lens implantation is the current surgical treatment of choice for cataract extraction[2]. Cataract surgery can be performed more easily and safely if mydriasis can be maintained until intraocular lens implantation[3].

Cataract surgery complications increase when miosis occurs. It was reported that, when dilatation of pupil is greater than 6mm, the incidence of posterior capsule rupture is decreased by half[3]. During cataract surgery, maintenance of mydriasis is necessary for better visualization of the posterior chamber which facilitate proper incision of the anterior capsule, safe removal of the cataract, and implantation of intraocular lens. The most common NSAIDS used before cataract surgery are ketorolac tromethamine, diclofenac, flurbiprofen, indomethacin and nepafenac[4]. Less affect on intraocular pressure is one of the main benefit of these medications when used for a longer period.

It is to be concluded that the efficacy of preoperative use of Nepafenac in maintenance of intra-operative mydriasis during cataract surgery was found to be effective in preventing miosis during cataract surgery.

Nepafenac, a new salt, which is hydrolyzed by ocular tissues has proved superior intracocular penetration when compared with other anti-inflammatory drugs in both anterior segment and retinal tissue following topical ocular administration[5,6]. In 2012, a study conducted in India reported the efficacy of preoperative use of
Nepafenac (85.71%) in maintenance of intraoperative mydriasis during cataract surgery [7]. To facilitate phacoemulsification and maintain intraoperative mydriasis topical mydriatics and NSAIDS are routinely applied preoperatively [8].

There are very scanty studies are done during last five years regarding efficacy of preoperative use of Nepafenac in maintenance of intra-operative mydriasis during cataract surgery on local as well as international level. Currently, no national data is available on the same; therefore, it is need of hour to investigate the current and local statistics of it, so that treatment of such patients should be anticipated in appropriate clinical line to prevent complications. Furthermore, result of this study will help ophthalmologist to make strategies for further research in this respect and to improve the quality of care we provide to these patients. To determine the efficacy of preoperative use of nepafenac in maintenance of intraoperative mydriasis during cataract surgery.

Cataract is partial or total opacity of crystalline lens or its capsule seen on slit lamp examination and resulting in blurred vision with best corrected visual acuity (BCVA) <6/12 on Snellen chart was consider as a case of cataract surgery. Effectiveness was assessed in terms of mydriasis size. If pupillary size is maintained preoperative, intra-operative and postoperatively between 6 to 8 mm (measured through sterilized caliper) then it was label as efficacy positive.

MATERIALS & METHODS

It was a descriptive case study conducted at Department of Ophthalmology Unit I Dow University of Health Sciences and Civil Hospital Karachi. From January 10, 2019 to July 9, 2019. By using WHO sample size calculator using efficacy of preoperative use of Nepafenac in maintenance of intra-operative mydriasis during cataract surgery (85.71%) 12, Margin of error (d)=5% and Confidence level (C.I) = 95% then the estimated sample size was n= 190 patients.
Non-probability consecutive sampling was selected.

Inclusion criteria. Patients between age group 40-80 years of age

Exclusion Criteria. Complicated cataracts including cataracts with uveitis, pigment- dispersion / syndrome pseudo-oexfoliation, lens related glaucoma i.e. phacolytic and phacomorphic glaucoma. All diagnosed on slit lamp examination. Traumatic cataract in patient having history of trauma to eye. Diabetic patients detected on fasting blood sugar (>120md/dl) and random blood sugar(>180md/dl) Hypertensive by checking blood pressure (>120 systolic arid>80 diastolic), and history of cardiac disease.

Data collection was started after approval of synopsis from College of Physician & Surgeons Pakistan. Patients who fulfill the inclusion criteria was included in the study. A written informed consent was taken before enrolling them into study. Nepafenac eye drops installed three times at half hour interval preoperatively and patients was operated by single consultant ophthalmologist. Pupil size was measured with a sterilized caliper at the start of surgery, after removal of lens and after implantation of intraocular lens during surgery. Post-surgery patients was followed half an hour to assess efficacy (as mention in operational definition). All the demographic data like name, age, sex, address and study variable i.e. efficacy was noted into the predesigned performa attach.

The data was entered and analyzed into statistical packages for social science (SPSS Version 20). Mean ± SD was calculated for age and pupil size. Frequency and percentage was calculated for gender, and outcome variable i.e. efficacy (Yes/No). Effect modifier was controlled through stratification of age, gender and pupil size to see the effect of these on outcome followed by Chi-square test using P≤ 0.05 as significant.

RESULTS

In this study 190 patients were included to assess the efficacy of preoperative use of Nepafenac in maintenance of intra-operative mydriasis during cataract surgery and the results were analyzed as Mean ± SD of age was 62.45±8.42 with C.I (61.24...63.65) years as shown in Table 1. Mean ± SD of pupil size was 8.33±1.94 with C.I (8.05......8.60) mm as shown in Table 2. Out of 190 patients 112 (58.94%) were male while 78(41.06%) were female as shown in Fig 1. Efficacy of Nepafenac was found in 162(85.26%) patients while 28 (14.74%) patients was found to be non-effective as shown in Fig 2.

In stratification of age group (40—60) and (> 60) efficacy was noted in 108 (93.1%) and 54(73.0%) respectively and P value found to be highly significant i.e. (P=0.0001) as shown in Tab
3. In gender wise stratification nepafenac was found to effective in 101 (90.2%) male and 61 (78.2%) female and p value found to be significant i.e. (P=0.022) as shown in Tab 4. In stratification of pupil size (4.5--6) and (> 6) efficacy was noted in 50 (64.1%) and 112(100%) respectively and P value found to be highly significant i.e. (P=0.0001) as shown in Tab 5.

**Table # 1** Descriptive statistics of ages=n190

<p>| | |</p>
<table>
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<tr>
<td>Mean</td>
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<td>±sd</td>
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<tr>
<td>95% confidence interval</td>
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<td>Minimum</td>
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<tr>
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**Table # 2** Descriptive statistics of pupil size n=190

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<td>Mean</td>
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</tr>
<tr>
<td>±sd</td>
<td>1.94</td>
</tr>
<tr>
<td>95% confidence interval</td>
<td>8.05…….8.60</td>
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<tr>
<td>Minimum</td>
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<tr>
<td>Maximum</td>
<td>7.5</td>
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<td>Range</td>
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**Table # 3** Stratification of age group with respect to efficacy n=190

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<th>P-value</th>
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<tr>
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<tr>
<td>40----60</td>
<td>108 (93.1%)</td>
<td>8 (6.9%)</td>
</tr>
<tr>
<td>&gt;6</td>
<td>54 (73.0%)</td>
<td>20 (27.0%)</td>
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**Table # 4** Stratification of gender with respect to efficacy n=190

<table>
<thead>
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<th>Efficacy</th>
<th>P-value</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Male</td>
<td>101 (90.2%)</td>
<td>11 (9.8%)</td>
</tr>
<tr>
<td>Female</td>
<td>61 (78.2%)</td>
<td>17 (21.8%)</td>
</tr>
</tbody>
</table>

**Table # 5** Stratification of pupil size with respect to efficacy n=190

<table>
<thead>
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<th>Pupil size [in mm]</th>
<th>Efficacy</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>No</td>
</tr>
<tr>
<td>4.5----6</td>
<td>50 (64.1%)</td>
<td>28 (35.9%)</td>
</tr>
<tr>
<td>&gt;6</td>
<td>112 (100.0%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

Applied fisher’s exact test

**Figure # 4** distribution of gender N=190

**DISCUSSION**

Miosis preoperative or intra-operative is one of the most important factor that can lead to complications during cataract surgery. Small pupil make rhexis and nucleus management difficult and leads to serious complications[9]. Topical non-steroidal Anti-Inflammatory Drugs (NSAIDs) are important group of drugs which help cataract surgeons to reduce intra-operative miosis, and are beneficial in controlling postoperative pain and inflammation [8]. Many comparative studies showed similar therapeutic efficacy of various ophthalmic NSAIDs with only minor differences in preventing intra-operative miosis[10].
In the present study, the preoperative use of nepafenac demonstrated maintenance of intra-operative mydriasis during surgery and efficacy of Nepafenac was documented in 85.26% patients. One study done by Sarkar et al concluded that nepafenac is more effective in controlling miosis [11]. Another study done by Bansal G et al concluded that there was a 6% and 5% loss of mydriasis in the nepafenac and bromfenac group which is very low, it can be due to using the drugs one day prior to the surgery whereas in this study we used the drugs on the day of surgery [12]. A study comparing diclofenac (0.1%) and flurbiprofen (0.03%) done by Roberts concluded that both the drugs were found equally effective at maintaining mydriasis during cataract surgery [13].

Gimbel et al concluded that flurbiprofen and indomethacin are equally effective at maintaining mydriasis during cataract surgery [14]. In one local study Surhio et al concluded that nepafenac 0.1% preoperative is effective in maintenance of mydriasis during phacoemulsification [16]. Cervantes-Coste et al, showed that nepafenac 0.1% compared to placebo is effective in maintaining pupillary mydriasis during cataract surgery. The total loss of mydriasis in this study was 0.78±0.56 [15].

The conclusion of this study matches with other studies that nepafenac is efficacy in maintaining mydriasis during cataract surgery. The use of topical prednisolone 1% to maintain intra-operative mydriasis was more effective than placebo. Shaikh et al., concluded the anti-miotic use of topical prednisolone and flurbiprofen. [17] Epinephrine is a substitute for intra-operative mydriasis maintenance. But due to sympatho-mimetic side effects (such as excessive sweating, pallor, faintness, occipital headaches, hypertension, palpitations, tachycardia, and cardiac arrhythmias, particularly in patients with pre-existing cardiac disease), it is selectively used for inhibiting intra-operative miosis. [18-21] However, concentrated solutions with bisulfite preservative included in most epinephrine preparations has caused corneal endothelial damage and corneal haze [22,23].

In one study Stewart et al., concluded that ketorolac 0.5% applied before surgery provided effective and maintained mydriasis during cataract surgery when compared with placebo [24]. In present study Mean age of the patients was 62.45±8.42 years. Among them 112 (58.94%) were male while 78(41.06%) were female. Mean size of the pupil size was 8.33±1.94 mm. In comparison of age group (40---60) and (> 60) efficacy was noted in 108 (93.1%) and 54(73.0%) respectively and P value found to be highly significant i.e. (P=0.0001). In gender wise comparison nepafenac was found to effective in 90.2% male and 61 78.2% female and p value found to be significant i.e. (P=0.022). In stratification of pupil size (4.5---6) and (> 6) efficacy was noted 64.1% and 100% respectively and P value found to be highly significant i.e. (P=0.0001).

Our results are comparable most of the national and international studies. Strength of our study was use of consecutive sampling best suited for our study design and sample selection, as our inclusion and exclusion criteria was stringent. The use of objective definitions for predictor and outcome variable also minimizes the source of bias in our study. The main limitations of our study were use of a weak study design cross-sectional the analysis and strength of evidence of which is limited and therefore the study design does not require any prior sample size calculation. Also limited outcomes selected in our study affects the worth of our study. There were many variables and factors that have association with our predictor and outcome variables that could have been included in our study. The use of non-probability sampling also limits generalized ability; however we had a small number of patients and besides the follow up duration are short. This study was hospital-based study; hence the figure does not reflect true frequency and severity of the disease. Moreover, the study was conducted in one unit in a single hospital.

CONCLUSION.

It is to be concluded that the efficacy of preoperative use of Nepafenac in maintenance of intra-operative mydriasis during cataract surgery was found to be effective in preventing meiosis during cataract surgery.

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11. Sarkar S, Mondal KK, Roy SS, Gayen S, Ghosh A, D RR. Comparison of preoperative nepafenac (0.1%) and flurbiprofen (0.03%) eye drops in maintaining mydriasis during small incision cataract surgery in patients with senile cataract: A randomized, double-blind study. Indian J Pharmacol. 2015;47:491-5.

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4. **EGFR inhibition in Conjunctival Squamous-cell Carcinoma**

A 53-year-old woman with metastatic signet-ring appendiceal cancer receiving treatment with panitumumab, presents with a 2-month history of trichomegaly.

**EGFR** is a substance that blocks the activity of a protein, a tumor suppressor gene. **EGFR** is found on the surface of some normal cells and is involved in cell growth. It may also be found at high levels on some types of cancer cells, which causes these cells to grow and divide in Conjunctival squamous-cell carcinoma

**Differential diagnosis:**
1. Cornelia de Lange syndrome
2. Dermatomyositis
3. Cytokine immunotherapy
4. Familial trichomegaly
INTRODUCTION:

Paediatric cataract is the major cause of blindness in children, about 200,000 children globally, with an approximated prevalence from 3 to 6/10,000 live births. Most of the pediatric cataracts especially with positive family history occur bilaterally. Cataract is one of the commonest cause of development of amblyopia in children. Prompt diagnosis and treatment are of crucial significance to prevent the development of irreversible amblyopia. Simultaneous bilateral cataract surgery (SBCS), in which the Ophthalmologist operates on both the eyes in same day in same session, versus the delayed sequential bilateral cataract surgery (DSBCS), in which both the eyes are operated as a separate procedure on different days, is a controversial subject in researches.

Simultaneous bilateral congenital cataract surgery was found to be safe for the children with negligible chance of developing endophthalmitis by maintaining proper aseptic measures.

Multiple studies have proven SBCS to be more efficient, negligible chances of amblyopia, fast rehabilitation, reduced patient visits and cost-effective than DSBCS for patients and the healthcare system. On the other hand, some studies were published which suggested DSBCS...
to avoid the dreadful complication that is endophthalmitis in both the eyes or bilateral visual compromise due to occurrence of toxic anterior segment syndrome. 11-13 With the use of proper preoperative measures, microsurgical technique, preoperative and postoperative prophylactic antibiotic, the occurrence of endophthalmitis has been decreased up to negligible level. 12

Furthermore, patient in amblyopic age with cataract in both eyes who have two back to back surgeries within a short duration of interval cannot alleviate the possibility of postoperative endophthalmitis that can be developed within 3 weeks after the surgery, so chances of developing endophthalmitis are also present in DSBCS. 14 The occurrence of endophthalmitis after cataract surgery especially in children who have greater chances of developing postoperative inflammation, delay in second eye surgery may lead to amblyopia and to prevent general anesthesia related issues in children, SBCS is suggested by taking proper aseptic measures. The objective of this study was to observe the safety of SBCS in pediatric patients under general anesthesia in a single session in terms of developing postoperative endophthalmitis.

MATERIAL AND METHODS:

After the acceptance by Institutional Review Board (IRB) of Dow University of Health Sciences Approval, this observational case series was conducted from 1st February, 2019 to 31st January, 2020 at the Department of Ophthalmology Unit 1, Dow medical college, Dow University of Health Sciences and Dr. Ruth KM Pfau Civil Hospital Karachi. A total of 60 eyes of 30 patients were included in the study, who had been operated for bilateral congenital cataract in a single session by one surgeon dealing in the pediatric cases. The children included in this study were below the age of 12 months, of either gender and were diagnosed with bilateral congenital cataracts. An informed written consent was explained and signed by the parents/guardians. Patients were excluded who had corneal abnormalities or haziness, high intraocular pressure, congenital anomalies like coloboma of iris, lens, or retina, Peter’s anomaly, aniridia etc. or history of any ocular/birth injury. All patients had an ocular examination before cataract surgery including visual acuity testing, retinoscopy, hand held slit lamp examination, indirect ophthalmoscopy and investigations including B-scan ultrasonography as well as TORCH profile, other investigations for systemic association and metabolic disorders causing congenital cataract and blood tests regarding fitness for general anesthesia. Preoperative topical antibiotic (Tobramycin 0.3%) four times a day was started two days before the surgery. The eyes were dilated with phenylephrine 1% tropicamide 0.5% eye drops. Patients were operated under general anesthesia. General anesthesia was given by laryngeal mask airways in all cases. Each eye was operated as a separate procedure i.e. after the first eye was operated, the surgical drapes were removed, and the other eye was prepped and draped. Surgeon and operation theater technician observed proper sterilization. Surgery on the second eye was carried out with a new set of disposable fluids, instruments and medicines. Each eye was operated independently, anterior capsulotomy was followed by lens aspiration, posterior capsulotomy and anterior vitrectomy with cutter. All patients were left aphakic. Subconjunctival antibotic (gentamicin 5mg), steroid (dexamethasone 1mg) and intraorbital steroid (kenacort 10 mg) were given at the end of surgery. All the patients were given postoperative topical atropine sulphate 1% 3 times a day for one week, topical antibiotic (tobramycin 0.3%) and topical steroids (prednisolone acetate 1%) two hourly for one week, 4 times a day for four weeks and three times a day for 1 week. They were assessed and examined by the surgeon postoperatively the next day and all follow-ups for any signs of inflammation and surgical complications using hand held slit lamp biomicroscope. Retinoscopy was done on second follow-up visit and glasses number was prescribed. Patients were followed up after first week, second week, fourth week and eighth week postoperatively. Data was analyzed through SPSS version 22, mean and standard deviation was calculated for all continuous variables. Frequency and percentage was calculated for all categorical variables like gender and complications.

RESULTS:

In our study, a total of 60 eyes of 30 patients were included. The mean age of patients was 7.5 ± 3.74 months at the time of surgery (Fig. 1). There is predominance of male gender, i.e. male=16 (53.3%), female=14 (46.7%) (Table 1). All the patients had a minimum post-operative follow up of 2 months. 10 eyes (16.66%) showed moderate to severe inflammation in first week follow-up. The
cause of inflammation was found to be using post-operative medication improperly, it was managed by educating the parents to instill in both eyes alternatively means in right eye first then in left eye, in subsequent instillation, instill in left eye first, then in right so that both eyes has proper avail-
dolphthalmitis, as also shown in a multicenter case series of 344 bilateral intraocular surgeries. Also Malvankar et al. in their meta-analysis reported SBCS had no case of endophthalmitis. Another study conducted in Pennsylvania, United States of America, reported their experience regarding simultaneous intraocular surgeries in pediatric age group and found no case of endophthalmitis. In contrast, a review of 96 patients with bilateral cataracts was done by Gradin and Mundia of Kenya, reported the incidence of endophthalmitis in the postoperative period which was about 0.16%. In Pakistan, no study was done except a case report by Jahangir et al demonstrated the benefits of simultaneous bilateral cataract surgery in pediatric population especially when the health condition does not allow for repeated general anesthesia.

In our study, a 6 month old male patient had developed inflammatory pupillary membrane within 1 week postoperatively in his right eye, which was managed by intensive use of topical steroids, another patient had decentered pupil. Similar complications of inflammatory membrane formation in five out of forty patients, was observed by Magli A et al during their retrospective study. Another study was done by Jackson et al in 2019, reported postoperative complications in pediatric cases including inflammatory pupillary membrane causing re-operations. To avoid such complications, we emphasize the use of sub-conjunctival injection of dexamethasone at the end of surgery. In the literature also, studies shown severe anterior chamber reaction in the immediate postoperative period specially in children, along with improper medications which may result in formation of inflammatory pupillary membrane causing defective vision. Hence the use of steroids at the end of surgery in the form of subconjunctival dexamethasone, posterior sub-tenon or infraorbital triamcinolone acetonide and topical steroids in postoperative period is highly recommended.

The utilization of this simultaneous cataract surgery of both eyes in a single session is reasonably valid in infants as to overcome the risk of developing amblyopia, and complications and side effects of general anesthesia. In our study, no complication or death was observed in any of the cases related to anesthesia intra-operative and postoperatively. It is reported that the SBCS alleviate the need of second surgery under general

Table.1: Descriptive statistics

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<th>GENDER:</th>
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<tbody>
<tr>
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**DISCUSSION:**

To the best of our knowledge, no such study was conducted so far in pediatric population in Pakistan. Congenital cataract is a leading cause of preventable blindness in children. The implementation of early surgical intervention in congenital cataract cases can lead to prevention of amblyopia. Due to the cost effectiveness of simultaneous bilateral cataract surgery, it is gaining familiarity in the Western world and now in the Asian continent too. But it is a controversial topic, it is not usually performed due to the dreadful complication of developing bilateral endophthalmitis. In our study, there was not a single case of endophthalmitis, as also shown in a multicenter case series of 344 bilateral intraocular surgeries. Also Malvankar et al. in their meta-analysis reported SBCS had no case of endophthalmitis. Another study conducted in Pennsylvania, United States of America, reported their experience regarding simultaneous intraocular surgeries in pediatric age group and found no case of endophthalmitis. In contrast, a review of 96 patients with bilateral cataracts was done by Gradin and Mundia of Kenya, reported the incidence of endophthalmitis in the postoperative period which was about 0.16%. In Pakistan, no study was done except a case report by Jahangir et al demonstrated the benefits of simultaneous bilateral cataract surgery in pediatric population especially when the health condition does not allow for repeated general anesthesia.

In our study, a 6 month old male patient had developed inflammatory pupillary membrane within 1 week postoperatively in his right eye, which was managed by intensive use of topical steroids, another patient had decentered pupil. Similar complications of inflammatory membrane formation in five out of forty patients, was observed by Magli A et al during their retrospective study. Another study was done by Jackson et al in 2019, reported postoperative complications in pediatric cases including inflammatory pupillary membrane causing re-operations. To avoid such complications, we emphasize the use of sub-conjunctival injection of dexamethasone at the end of surgery. In the literature also, studies shown severe anterior chamber reaction in the immediate postoperative period specially in children, along with improper medications which may result in formation of inflammatory pupillary membrane causing defective vision. Hence the use of steroids at the end of surgery in the form of subconjunctival dexamethasone, posterior sub-tenon or infraorbital triamcinolone acetonide and topical steroids in postoperative period is highly recommended.

The utilization of this simultaneous cataract surgery of both eyes in a single session is reasonably valid in infants as to overcome the risk of developing amblyopia, and complications and side effects of general anesthesia. In our study, no complication or death was observed in any of the cases related to anesthesia intra-operative and postoperatively. It is reported that the SBCS alleviate the need of second surgery under general
anesthesia, causing least chances of developing general anesthesia risks and complications.\textsuperscript{25}

There are reports showing incidence of bilateral endophthalmitis after SBCS\textsuperscript{19}, however some has reported no case of bilateral endophthalmitis in their studies.\textsuperscript{26,27} Lansingh V et al supported the use of simultaneous bilateral cataract surgeries in their literature review, provided that better surgical skills and strict sterile techniques are required along with more research on simultaneous bilateral cataract surgery especially in the developing world.\textsuperscript{28} The potential limitations of our study are small sample size and short follow-up duration. Although no case of endophthalmitis has occurred in our series, further studies are needed to assess the safety of simultaneous bilateral cataract surgery in children.

**CONCLUSION:**

Simultaneous bilateral congenital cataract surgery is a better way to deal with bilateral cataracts in pediatric population and has less chances of developing endophthalmitis by maintaining strict discipline in terms of intra-operative aseptic measures.

**Acknowledgement.** The authors thank all the staff of the Department of Ophthalmology, Dr. Ruth KM Pfau Civil Hospital, Karachi for assistance and support provided during the research work.

**REFERENCES:**


An inspiring Celebrity

Dr. Sania Nishtar  
S.I., FRCP, Ph.D.

Pakistan’s Global Health Leader and an inspirational personality around the world

Dr. Sania Nishtar has earned enormous acclaim amongst 100 celebrities around the world, which is an absolute honor for Pakistan as a Global Health Leader. It all resonates from her distinctive hardwork and contribution towards poverty alleviation, global health development through multiple projects of Ehsaas program, oozing hope to end illiteracy, inequality and climatic crisis during these turbulent years.

Dr. Sania is a highly gifted Pakistani physician/cardiologist, author and activist, currently serving as Special Assistant (with the status of Federal Minister) on Poverty Alleviation, Social Safety as well as Chairperson of BISP. Previously she also served as Federal Minister for overseeing public health, education and science.

Born in Peshawar and graduated MBBS from Khyber Medical College in 1986, she was adjudged the Best Graduate of the Year. She qualified FCPS from the College of Physicians & Surgeons Pakistan and joined Pakistan Institute of Medical Sciences, Islamabad as cardiologist. She served at Guy’s Hospital, pursued her Ph. D at King’s College London and was conferred FRCP with Doctorate in Science, Honoris Causa. She is the grand-daughter of Quaid’s confidante Honorable: Sardar Abdur Rab Nishtar, a noted Pakistan movement leader and a political activist.
An inspiring Celebrity

Sania founded Heart-file, a health policy think tank, and is known for rendering cutting edge contributions in the sphere of health policy apart from promoting development in the education and IT sector. She is also the author of many books on medicine and allied subjects of general interest.

She has chaired many WHO’s High-Level Commissions for Global Health and spearheaded the transformative EHSAAS program, which has improved the livelihoods of millions of Pakistanis after providing them financial help and basic resources. Today, the nation is impressed by her EHSAAS Program and her deep interest in the alleviation of poverty. It is not possible to encompass her peace building initiatives, credentials in health system at national and international level in a nutshell. We have tried to highlight them in a book titled “Nishtars & Pakistan”. In fact, it is the first step towards the development of Pakistan - a welfare state. May Allah bless her enough strength to continue serving the nation to her best.

................................................................. Chief Editor
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