Factors Responsible for Delayed Presentation of Strabismus in Patients aging up to 16 Years
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While there is conflicting data available regarding the rising incidence of Myopia in the world, we need to evolve a national strategy with comprehensive efforts to curb the increasing rate of short-sightedness especially in the South Asian Countries.

According to WHO report of 2017, myopia is highest amongst certain countries especially in China. It is 70% for high school and college students and 40% in primary school students. The number of nearsighted people in the country is 600 millions nearly half of the population. According to a Chinese Ophthalmologist from Zhejiang Hospital in Hangzou children spend long hours doing homework indoor rather than being outside; he considered one of the major reasons for high rate of myopia. In fact, Chinese kids spend far less hours outdoor each week.

A study of 1000 cases in UK was carried out and reported in the British Journal of Ophthalmology. Researchers noticed a reduction of the risk factors in children developing myopia if they spend more time in outdoor activities vis à vis genetic factors and playing video games. Those who played video games in early adolescence were proportionally at a higher risk of developing myopia linked to spending less time in outdoor activities.

Currently, we have observed increasing number of school children addicted to smart phone instead of playing outside. In this context, a public debate has sparkled in China amongst parliamentarians to ban school children from using smart phones below the age of 16 years. Ministry of National Health and Education has already issued a plan to limit the use of phones in class rooms as the excessive use of such devices has become the main cause of shortsightedness. In fact, mobile phone is not a bad innovative technology, their misuse or overuse is harmful. In addition to limiting the time, parents should also warn their kids about the internet facility having numerous sites, related to sex and violence which would certainly harm the children’s physical and psychological health.

It is unrealistic to ban school children from using cell phone and to deprive them from using a modern technology. However to limit their use will be a welcome move. In this context, parents can play a crucial role by strengthening supervision over their children and making them aware of the pros and cons of using a smart phone and telling them to use it only for specific purposes like important and urgent communication; as excessive use of tech products bring more harm than convenience. In fact, we should give them more freedom to decide what they want to do in future when they grow up, making them more aware of the realities of life and help them make choices.

It is quite reasonable to take rest after heavy work and the use smart phone as a source of entertainment. The point, therefore, is the use and not the abuse of such devices. Moreover, this is a wrong notion in the minds of certain parents that eye exercises may cure myopia but the researchers have proved that eye protective exercises or any medication have never proved successful in preventing myopia. On the contrary, nearsightedness produced by elongation of axis is irreversible but such effective measure to spend more hours outdoor to get ample light is beneficial. Modern researchers show that light beans are essential to eye health.

In Summary children need at least 2 hours for outdoor activities every day to lower the risk of developing myopia.

Tayyaba Ayub
Zainab Inam,
Jahanzeb Durrani
ophthalmologyupdate@gmail.com
www.ophthalmologyupdate.com

GLOBAL RISE OF MYOPIA – ANOTHER PERSPECTIVE

Editorial

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E.Mail> OSPfederal@gmail.com

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ABSTRACT.
Aim: To assess the frequency of accommodative insufficiency in patients with convergence insufficiency in age group 5-25 years in Hayatabad Medical Complex Peshawar.
Methodology: A descriptive cross-sectional study was progressed in Orthoptic Clinic, from June 2015 till March 2017 in Eye OPD at HMC, Peshawar. 414 patients who were diagnosed as having Convergence Insufficiency were the part of this study. A detailed history was taken and an ocular examination was conducted. Visual acuity was tested from a standard distance 4 meter with log MAR visual acuity chart. Assessment of patient was done with the help of RAF Rule to determine the Near Point of Convergence and Near Point of Accommodation, a standard questionnaire used by Convergence Insufficiency Treatment Trial was asked from patients. The data was entered and analyzed through statistical package for the social sciences (SPSS) version 20.
Results: This study included 414 patients of convergence insufficiency in which 183(44.18%) were males and 231(55.81%) were female. Out of which 327 (79.06%) were affected with Accommodative insufficiency associated with convergence insufficiency. These patients included females 173(53%) and males 154(47%). Mean age was 18 years with 0.95SD. Mean Near point of convergence was 21cm with 1.15SD. Mean Near Point of Accommodation was 22cm with 1.57 SD and Mean Lag of accommodation was in the range of +1.0 to +1.5D with 0.6SD.
Conclusion: Frequency of accommodative insufficiency in convergence insufficiency patients is high. This interferes with performance of the persons and thus decreases a patient’s quality of life. Females are affected more than males. Mostly affecting patients were in early twenties.
Key words: Accommodative Insufficiency, Convergence Insufficiency, Visual Acuity.

INTRODUCTION:
Accommodative insufficiency occurs when the amplitude of accommodation (AA) is lower than expected for the patient’s age and is not due to sclerosis of the crystalline lens.1 Patients with accommodative insufficiency usually demonstrate poor accommodative sustaining ability. Patients with accommodative insufficiency often complain of blurred vision, difficulty reading, irritability, poor concentration, and/or headaches.2 Accommodative dysfunction has been reported to occur in 60-80% of patients with binocular vision problems.3 An investigation of the prevalence of symptomatic accommodative dysfunction in non-presbyopic patients examined in an optometry clinic found that 9.2% of these patients had accommodative insufficiency.4

Frequency of accommodative insufficiency in convergence insufficiency patients is high. This interferes with performance of the persons and thus decreases a patient’s quality of life. Females are affected more than males. Mostly affecting patients were in early twenties.

Accommodation, which provides the retina with a clear, sharp image, develops by 4 months of age.5 During accommodation, the ciliary muscle contracts; relaxing the tension on the zonular fibers. This relaxation increases the convexity of the anterior surface of the lens. If the system does not respond accurately, a negative feedback loop repeats the process and reduces the error. This process continues until the error is reduced to as near
To Assess the Accommodative Insufficiency in Patients of Convergence Insufficiency in age group 5-25 years

zero as possible. With age, the lens fibers and lens capsule lose their elasticity and the size and shape of the lens increase, resulting in reduction of accommodative amplitude and the onset of presbyopia.  

Convergence insufficiency occurs when the eyes are unable to work together during close tasks like reading, writing, and using a computer. The symptoms of convergence insufficiency may include: diplopia, headaches while reading, trouble concentrating when doing close tasks, blurred vision. “Classic” convergence insufficiency (CI) consists of a receded near point of convergence (NPC), exophoria at near, reduced positive fusional convergence (PFC), and deficiencies in negative relative accommodation (NRA). However, not all patients with CI have all of these clinical findings. CI can be described as a deficiency of PFC relative to the demand and/or a deficiency of total convergence, as measured by the NPC; it has been called “common CI.” In 1855, von Graefe first described the symptoms of convergence insufficiency and thought it to be myogenic in origin. Our current understanding suggests an innervational etiology because of the frequent dramatic response to treatment both in the patient’s subjective improvement as well as the objective measurements of near point of convergence and fusional convergence amplitudes.

The current reports sight a frequency of convergence insufficiency between 2.25 and 8.3% but these numbers originate from clinical studies on schoolage children and university students. Earlier reports find that incidence data varies from 1 to 25%. Objectives:
(i) To assess the accommodative insufficiency in patients of convergence insufficiency age group 5-25 years.
(ii) To assess age and gender wise distribution of accommodative insufficiency in patients of convergence insufficiency.
(iii) To assess the range of accommodative insufficiency/Accommodative Lag.
(iv) To assess the range of accommodative insufficiency in various occupational groups.

**METHODOLOGY:**
It s a descriptive cross-sectional study design, which was undertaken in Orthoptic clinic, in Department of Ophthalmology at Hayatabad Medical Complex, Peshawar from June 2015 to March 2017. The sampling method is non-probability purposive sampling.

**Inclusion Criteria:** Patients of convergence insufficiency in age group 5-25 years.

**Exclusion Criteria:** Patients who have gone through squint surgery or having squint.


Full optometric examination was performed on the patient starting with slit lamp examination to rule out any ocular pathology. After this initial examination, patient met the following criteria: Each patient was started from history taking, followed by assessment of the VA through Log MARlandolt C chart at a distance of 4 meter and was recorded as the smallest line read with one or two error, monocular and binocularly. Patients who already wore glasses, their presenting VA were assessed (while wearing their glasses). Near point of convergence and accommodation were determined with the help of RAF rule. Then alternate cover test was performed both for distance and near for phorias determination. Then dynamic retinoscopy was performed to determine the lag of accommodation of the patient.

**RESULTS**
Graph # 1: shows total no. of patients included in our studies. Total no. of patients are 414. Out of 414, males are 183 with 44.18% and 231 are females with 55.81%.Data shows females are affected more than males.
To Assess the Accommodative Insufficiency in Patients of Convergence Insufficiency in age group 5-25 years

Graph # 2: show the frequency of Accommodative Insufficiency in patients.

It shows normal persons and affected persons with accommodative insufficiency associated with convergence insufficiency. Out of 414 patients, 87 persons (21%) are normal and 327 (79%) are affected with accommodative insufficiency. The result shows that most of the patients were affected by Accommodative insufficiency associated with convergence insufficiency.

Graph # 3: showing Accommodation Insufficiency of 327 patient’s gender wise. The no. of affected males are 154 (47%) and no. of affected females are 173 (53%) out of total affected patients. According to results there is no gross difference in the no. of males and females.

Graph # 4: represent the Accommodation insufficiency age wise, from age group 5-10 years 16 (5%) persons are affected, from age group 11-15 years 68 (21%) persons are affected, from age 16-20 years 49 (15%) are affected and from 21-25 the no. of affected patients are 194 (59%). The result shows that most of them are affected in early twenties.

Graph # 5: Showing Lag of Accommodation Range wise. Total 414 patients were assessed and 87 (21%) are normal with accommodative range of +0.25 - +0.75D and 327 (79%) are affected, having 190 (58%) with lag of +1.0 - +1.50D and (21%) patient with Accommodative lag of +1.75 - +2.25D. The results demonstrate that most of patients (58%) have lag of accommodation between +1.0 to +1.50D.

Graph # 6, few common symptoms are shown of Accommodation insufficiency associated with convergence insufficiency. 93% are suffering from headache, 81% due to diplopia/ double vision and 90% with blur vision. The fig. shows that most of patients have these symptoms and are symptomatic.

Graph # 7 shows the presenting visual acuity of patient. 232 (56%) have presenting V.A of 0.0 log MAR, 95(23%) have 0.1 log MAR, 21 (5%) have -0.1, 0.2 log MAR of 21 (5%) and 0.5 log MAR of
To Assess the Accommodative Insufficiency in Patients of Convergence Insufficiency in age group 5-25 years

21(5%) visual acuity, 21 patient (5%) have 0.3 log MAR, 0.4 log MAR of 12 (3%) and 0.6 log MAR of 12 (.3%) patients. The overall visual acuity of patients is good.

Graph # 8 include the occupation of patients, DATA include 245(75%) students, 23 (7%) house wives and 59 (18%) are on job.

DISCUSSION

The whole study was conducted in the Orthoptic Clinic in the ophthalmology department Hayatabad Medical Complex. 414 patients were examined for evaluation of accommodative insufficiency associated with convergence insufficiency during our study duration from June 2015 to March 2017. Graph-1 shows total no. of patients included in my studies. Total no. of patients are 414. Out of 414, males are 183 with 44.2% and 231 are females with 55.8%. Data shows females are affected more than males.

Graph-2 shows normal persons and affected persons with accommodative insufficiency associated with convergence insufficiency. Out of 414 patients, 87 persons (21%) are normal and 327 (79%) are affected with accommodative insufficiency. The result shows that most of the patients were affected by Accommodative insufficiency associated with convergence insufficiency. Graph-3 shows Accommodation insufficiency of 327 patient’s gender wise. The no. of affected males are 154 (47%) and no. of affected females are 173 (53%) out of total affected patients. According to results there is no gross difference in the no. of males and females.

Graph-4 represent the Accommodation insufficiency age wise, from age group 5-10 years 16 (5%) persons are affected, from age group 11-15 years 68 (21%) persons are affected, from age 16-20 years 49(15%) are affected and from 21-25 the no. of affected patients are 194 (59%). The result shows that most of them are affected in early twenties. While a study done by Abdi et al. in 200812, 216 Swedish schoolchildren aged between 6 and 16 years, and found that 11.1% of the participants had AI and that the frequency of accommodative anomalies for children in higher grades was greater than those in lower grades. This finding supports the fact that accommodative anomalies increase with age. An increased prevalence of AI with age may also be related to increasing near task demands with higher levels of school grade.

In Graph Total 414 patients were assessed and 87 (21%) are normal with accommodative range of +0.25 - +0.75D and 327 (79%) are affected, having 190 (58%) with lag of +1.0 - +1.50D and (21%) patient with Accommodative lag of +1.75 - +2.25D. The results demonstrate that most of patients (58%) have lag of accommodation between +1.0 to +1.50D.

In Graph-6 few common symptoms are shown of Accommodation insufficiency associated with convergence insufficiency. 93% are suffering from headache, 81% due to diplopia/double vision and 90% with blur vision. The fig. shows that most of patients have these symptoms and are symptomatic. The study of Alec M. Ansons and Helen Davis13 also show these symptoms which results in fatigue due to effort to clear the image. The results are shown in graphic presentation in fig-6.

Graph. 7 shows the presenting visual acuity of patient. 232 (56%) have presenting V.A of 0.0 log MAR, 95(23%) have 0.1 log MAR, 21 (5%) have -0.1, 0.2 log MAR of 21 (5%) and 0.5 log MAR of 21(5%) visual acuity, 21 patient (5%) have 0.3 log MAR, 0.4 log MAR of 12 (3%) and 0.6 log MAR of 12 (.3%) patients. The overall visual acuity of patients is good. Graph 8 include the occupation of patients, DATA include 245(75%) students, 23 (7%) house wives and 59 (18%) are on job with associated near work. So from data it is very clear that most of the patients affected are students.
and perform excessive near work. They should be treated so that they perform best of their potentials. The data is shown in fig-8 above.

Sheedy JE, Parsons SD in his clinical report in 1990\textsuperscript{14} showed that Ocular discomfort increases with excessive computer or near work. So there is strong possibility that Ocular discomfort will increase in students and in persons associated with near work. While according to study done by Abdi and Rydberg,\textsuperscript{15} children with asthenopic symptoms who had problems with their near work at school were referred for eye examination.

Bergqvist UO, Knave BG in 1994\textsuperscript{16}, Neugebauer A, Fricke J, Russmann W. in 1992\textsuperscript{17} and Gur S, Ron S. in 1992\textsuperscript{18} stated that ocular discomfort increases with the extent of computer users like students, accountants, and lawyers. Asthenopia associated with sustained near work can usually be eliminated with proper lens correction or vision therapy to improve accommodative-convergence function.\textsuperscript{19,20}

Near point of accommodation was remote of nearly all patients; almost 50\% in the range of 16-25cm. 11\% in 26-30cm and 16\% in the range of 31-35cm. Near point of convergence was remote too. 33\% patients have convergence in the range of 10-20cm. (37 \%) in the range of 21-25cm and with 23\% patients in the range of 26-30cm.

In our study most of the patients are having difficulty while performing near work or during reading. Among them, 90\% patients have their eyes hurt while they read. Word moving, jumping or floating is experienced by 72\% patients, while majority 95.3\% patients lose concentration while reading and 88\% feel uncomfortable, 86\% lose their fixation while reading. Reading is affected in 81\% patients as they read slowly. 79\% have trouble in remembering about the read material. So from this data it can be deduced that reading or near work performance is effected badly. While taking history almost all patients seems to be frustrated due to their vision problem at near which interfere with their performance.

In this study it is found that large number of convergence insufficiency patient’s suffer from Accommodative insufficiency and the symptoms get worse when performing near work.

CONCLUSION

Frequency of accommodative insufficiency in convergence insufficiency patients is high. This interferes with performance and quality of life. Females are affected more than males. Mostly affecting patients were in early twenties.

Recommendations

This study showed high frequency of accommodative insufficiency. So, there should be proper Orthoptic clinic with optometrist in every eye OPD in all hospitals. Screening of students, teachers and workers who are professionally engaged in near activities for extended hours on daily basis should be done properly. Symptoms should be resolved for the better performance of the patients in their respective field.

REFERENCES:

Risk Factors for Night Blindness in Women of Child Bearing Age

Tayyaba Ayub, MSPH ¹, Mehran Hassan Aizaz BSC. Vision Sciences² Riffat Samreen MBBS³

ABSTRACT
Aim: To know the risk factors responsible for blindness among women of childbearing age.
Material and method: A case control study was conducted among 5 rural areas in district Kasur through cluster sampling in 1st June to 1 December 2018. SPSS version 20.00 was used for analysis.
Results: The result shows that night blindness in last pregnancy (OR 42 95% CI 29.2-67.8), parity >3 (OR 1.7, 95% CI 1.0-2.1), diarrhea within the last 2 weeks (OR 1.5, 95% CI 1.3-2.8), maternal body mass index <18.5 (OR 1.6, 95% CI 1.2-2.7), and lack of consumption of vitamin A-rich animal foods in the last 24 h (1-60 retinol equivalents (RE) OR 1.0, 95% CI 0.7-1.6; > or =60 RE, OR 0.7, 95% CI 0.4-1.0) were associated with night blindness among number of pregnant women.
Conclusion: Women of childbearing age with low socioeconomic status, low consumption of vitamin A-rich animal foods, a history of night blindness during the previous pregnancy, parity >3, malnutrition, and diarrhea have a higher risk of night blindness.

Key words: night blindness, cluster, odd ratio, childbearing age, vitamin A, maternal age.

INTRODUCTION:
Vitamin A deficiency is common in many developing countries worldwide, and is a major cause of impaired immunity and increased morbidity and mortality from measles, diarrheal disease, tuberculosis, and human immunodeficiency virus infection. Night blindness is an early clinical manifestation of vitamin A deficiency among preschool children and pregnant women in developing countries, and has long been known to be associated with infectious diseases. Among preschool children, night blindness has been associated with increased diarrheal disease and chronic infective conditions. Night blindness was associated with gastrointestinal and genitourinary infections among pregnant women. Recently, night blindness was found to be relatively common among non-pregnant women in Bangladesh, suggesting that in some parts of the world, women of childbearing age also comprise a high-risk group for vitamin A deficiency. In Pakistan 30% women of childbearing age have vitamin A deficiency and use supplements during pregnancies.

Women of child-bearing age with low socioeconomic status, low consumption of vitamin A-rich foods, history of night blindness during the previous pregnancy, parity >3, malnutrition, and diarrhea have a higher risk of night blindness.

The adverse consequences of maternal night blindness make it important to know the risk factors that predispose women to this condition. One explanatory model that uses the Mosley-Chen framework would suggest that the most distal risk factors are socioeconomic, such as poverty and illiteracy. These lead to a diet deficient in vitamin A, obtained from bio-available animal sources that are most the most expensive, also a consequence of socioeconomic conditions and poor diet, which predisposes children to morbidity.

Xerophthalmia and keratomalacia are only one aspect of a more complex deficiency disease, which includes anemia, growth retardation, immune suppression, inflammation, and increased morbidity and mortality from infectious diseases. Nutritional blindness is best understood in the context of the larger syndrome of the vitamin A deficiency disorders, as the factors that may precipitate nutritional blindness are intricately tied to
the problems of infectious diseases, hygiene, poor nutrition, and poverty. Young children and women of reproductive age are at the highest risk of vitamin A deficiency, and programs are currently focused on reaching these two high risk groups. The elimination of vitamin A deficiency in developing countries is one of the major challenges in public health as blindness, such deficiency disorders are largely preventable.[15]

MATERIAL AND METHODS:
A case control study was conducted from 1st June to 1 December 2018. A total of 328 non pregnant women with night blindness were matched with 1009 non pregnant women without night blindness.

Data was collected from Union council and 5 rural areas were selected by multistage cluster sampling, which were divided into 3 groups, based upon ecological, geographical, socioeconomic, and health characteristics. From each selected rural area, 30 households were selected. A standardized questionnaire was used to collect information on different nutritional outcomes such as anemia, vitamin A deficiency, food consumption and vitamin A intake, demographics and socioeconomic status. The height and weight of women were measured pregnancy status was determined by asking a woman whether she was pregnant or not. SPSS version 20.00 was used for analysis of data. Controls were selected by calculating the number of cases for each rural area and then taking a random sample of controls to a 3:1 ratio for each rural area was chosen in order to balance the number of cases and controls and have a large number of subjects for the analysis.

RESULTS:
The result shows that in univariate and multivariate analysis of risk factors for night blindness. In univariate analyses, night blindness during the last pregnancy, parity >3, a history of diarrhea in the last 2 weeks, low consumption of vitamin A-rich animal foods, low education level, wall of the house built normally or with rough wood work and land ownership of ≤0.5ha were significantly associated with night blindness (P<0.05). Body mass index <18.5 kg/m2 (P=0.09). In the final multivariate analysis, poorer quality of built in houses and land ownership of ≤0.5ha, night blindness in last pregnancy, parity >3, diarrhea within the last 2 weeks, maternal body mass index <18.5 kg/m2, and lack of consumption of vitamin A from animal foods in the last 24h were associated with night blindness among non-pregnant women compared with controls.

Table 1: Risk factors for night blindness among women of child bearing age

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Categories (n)</th>
<th>Mothers with night blindness</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>15–25 (318)</td>
<td>23.1</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>26–30 (335)</td>
<td>26.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31–35 (309)</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>Yes (919)</td>
<td>20</td>
<td>0.108</td>
</tr>
<tr>
<td></td>
<td>No (415)</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Night blind during last pregnancy</td>
<td>No (1014)</td>
<td>11.0</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Yes (233)</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td>1–3 (679)</td>
<td>20.8</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>4–6 (658)</td>
<td>28.4</td>
<td></td>
</tr>
<tr>
<td>Diarrhea during last 2 weeks</td>
<td>No (1076)</td>
<td>20.3</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Yes (257)</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>≥18.5 (1082)</td>
<td>23</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>&lt;18.5 (247)</td>
<td>28.7</td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION:

The results show that night blindness in last pregnancy (OR 42, 95% CI 29.2–67.8), parity >3 (OR 1.7, 95% CI 1.0–2.1), diarrhea within the last 2 weeks (OR 1.5, 95% CI 1.3–2.8), maternal body mass index <18.5 (OR 1.6, 95% CI 1.2–2.7), and lack of consumption of vitamin A-rich animal foods in the last 24 h (1–60 retinol equivalents (RE) OR 1.0, 95% CI 0.7–1.6; ≥60 RE, OR 0.7, 95% CI 0.4–1.0) were associated with night blindness among non-pregnant.

Similarly a study was concluded in India by Joanne.K in 2009 accordingly women reported night blindness in 687 (5.2%) of 13,171 pregnancies. In a multivariate model, having a concrete roof (Odds Ratio (OR): 0.60, 95% Confidence Interval (CI): 0.47, 0.78), religion other than Hindu (OR: 0.46, 95% CI: 0.27, 0.76), maternal literacy (OR: 0.58, 95% CI: 0.49, 0.69), and maternal age from 25 to 29 years (OR: 0.68, 95% CI: 0.50, 0.93) were associated with a lower risk of night blindness in pregnancy. The odds of night blindness were higher for those leasing rather than owning land (OR: 1.78, 95% CI: 1.08, 2.93), parity 6 or more compared to 0 (OR: 2.11, 95% CI: 1.09, 4.08), and with twin pregnancies (OR: 3.23, 95% CI: 1.93, 5.41). Factors not associated with night blindness in the multivariate model were other markers of socioeconomic status such as electricity in the house, radio and television ownership, type of cooking fuel and household transportation, and number of children under 5 years of age in the household. [17]

Another study was conducted by RD. Simba in Columbia in 2003 according to that study In a final model, materials in the wall of the house (OR 1.4, 95% confidence interval (CI) 0.9–2.0), land ownership ≤0.5 hectares (OR 1.4, 95% CI 1.0–1.9), night blindness in last pregnancy (OR 44.5, 95% CI 29.2–67.8), parity >3 (OR 1.5, 95% CI 1.0–2.1), diarrhea within the last 2 weeks (OR 1.9, 95% CI 1.3–2.8), maternal body mass index <18.5 (OR 1.8, 95% CI 1.2–2.7), and lack of consumption of vitamin A rich animal foods in the last 24 h (1–60 retinol equivalents (RE) OR 1.1 , 95% CI 0.7–1.6; ≥60 RE, OR 0.7, 95% CI 0.4–1.0) were associated with night blindness among non-pregnant women.[18]

Another study was conducted by Niharika in Maharashtra in 2015 according to that dietary intakes of 898 women from Ahmednagar district were studied and serum retinol was analyzed from a sample of 200 nonpregnant women. Mean vitamin A intake was 328.0±394.7μg/day, with intakes being significantly and positively influenced by age, income and possession of cattle. Serum retinol levels of 77 percent of women were <0.7 μmol/L, indicative of deficient vitamin A status. Women whose diets provided less than 30 percent of the recommended dietary intakes had the

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<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Categories (n)</th>
<th>Mothers with night blindness</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A-rich</td>
<td>0 (424)</td>
<td>28.5</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Table 2: Multivariate model of risk factors for night blindness among women of childbearing age
lowest serum retinol levels. The study indicated that rural women had highly inadequate diets that place them at risk of vitamin A deficiency. This situation needs serious and concerted efforts to improve the vitamin A status of the women. 

CONCLUSION:
The result shows that women of childbearing age with low socioeconomic status, low consumption of vitamin A-rich animal foods, a history of night blindness during the previous pregnancy, parity >3, malnutrition, and diarrhea have a higher risk of night blindness.

REFERENCES:
ABSTRACT

Objective: To get to know about the tear film and intraocular pressure changes in pregnancy.

Methods: In a cross-sectional, descriptive case control study, we evaluated tear film functions and intraocular pressure during pregnancy and compared the results with non-pregnant women. A total of 300 participants including 200 healthy pregnant women and 100 non-pregnant who were free from any systemic and pre-pregnancy related eye diseases were investigated. Snellen’s chart, fluorescein dye, Whatman filter papers, Perkin’s tonometer were employed to assess visual acuity, tear break up time (TBUT), Schirmer’s test (ST), intraocular pressure (IOP) on all subjects.

Results: The mean values for IOP (mmHg), TBUT (seconds) and Schirmer’s reading (mm) were: 13.22±2.19, 27.05±9.40, 27.03±17.06 and 15.24±2.66, 24.10±10.71, 48.13±19.10 for cases and controls respectively. Schirmer’s reading (SR) was significantly lower among pregnant women. Our study revealed reduced SR during pregnancy.

Conclusion: Certain ocular changes, whether physiological or pathological, may be increased during pregnancy. Many ocular changes like dry eye are mild, temporary, and require little to no treatment, all ocular symptoms in pregnancy requires ophthalmologic examination is necessary and monitoring the disease.

Key words: Tear film, schirmer test, intraocular pressure, pregnancy, fluorescein dye, watman filter

INTRODUCTION:

Pregnancy causes major changes in all systems of the body. Physiological changes protect the fetus, support development, and also prepare the mother for birth. These changes affect the cardiovascular, renal, pulmonary, endocrine, metabolic, hematologic and visual systems. For example, in early pregnancy cardiac output and blood volume increase by 30-50%. Decreased fibrinolytic activity and increases in plasminogen, fibrinogen and factors I, V, VII, IX and X result in a predisposition toward coagulation. Toward the end of pregnancy, extracellular fluid increases by up to two liters. Cellular immunity decreases, but there are no changes in immunoglobins. Ocular changes during pregnancy are categorized as physiological or pathological. Pregnancy-related pathological changes may present as new ocular developments, changes in existing ocular pathology, and ocular complications of systemic diseases.

Certain ocular changes like dry eye may increase during pregnancy and do not necessarily require treatment. Such symptoms require ophthalmologic examination which are mandatory. Appropriate policy should be devised as a routing ocular examination during pregnancy.

This article examines pregnancy-related physiological and pathological changes in the eye and visual system; the diagnosis, monitoring and treatment of these changes. The most frequent pregnancy-related physiological change is an increase in pigmentation around the eyes. Darkening of the face during pregnancy is referred to as pregnancy mask, cloasma or melasma and de-
develops through increased estrogen, progesterone and melanocyte-stimulating hormone.\textsuperscript{5} Unilateral ptosis has been reported during pregnancy and following normal delivery. Ptosis is believed to develop as a result of fluid and hormonal effects on the levator aponeurosis, and it resolves in postpartum.\textsuperscript{6}

A decrease in conjunctival capillaries and an increase in granularity in conjunctival venules may occur, and they also resolve in the postpartum period.\textsuperscript{3} Pregnancy can also affect tear film physiology and lead to dry eye. This may be attributable to increased immune reaction in the lacrimal duct cells and the direct destruction of acinar cells by prolactin, transforming growth factor beta-1 and epidermal growth factor. Dryness can be further increased by dehydration resulting from nausea and vomiting and the use of anti-nausea medications.\textsuperscript{7}

During pregnancy there may be a decrease in the sensitivity of the cornea which becomes more evident toward the end of pregnancy.\textsuperscript{8} The cornea thickens in response to corneal edema. Alterations in corneal curvature may occur, increasing in late pregnancy and resolving after the conclusion of the birth and breastfeeding period.\textsuperscript{9} Edema-related changes in corneal thickness and refractive index may occur, which therefore affects refraction.\textsuperscript{10} Changes in the cornea and lacrimal system during pregnancy may lead to contact lens intolerance.\textsuperscript{11} Increase in lens curvature may cause myopic shift. Temporary accommodation loss and insufficiency during pregnancy and the postnatal breastfeeding period have been reported. Therefore, new eyeglass and contact lens prescriptions should be avoided during pregnancy, and are best postponed until several months after delivery. Refractive surgery is contraindicated during pregnancy.\textsuperscript{3}

**MATERIAL AND METHOD:**

A case control study was from July 2017-March-2018 in which 300 participants were included. 200 healthy pregnant women were included as case and 100 non pregnant women were included as control. The procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation in university of Lahore. All pregnant women irrespective of the age who were free from all form of systemic or ocular disease that can affect tear film function such as blephritis, conjunctivitis, pre-existing glaucoma, use of topical eye medication within three months before presentation were included. Following test were used for detecting changes in eye.

**Schirmer’s Test:** The eye was mobbed dry and the folded end of a 35mm long and 5mm wide pre-calibrated (mm) Whitman no 41 paper was gently inserted into the junction between the lateral 1/3rd and medial 2/3rd of the lower fornix without touching the cornea. The extent of the wetting (mm) after 5 minute using stop watch was recorded as the tear film function.

**Tear break up time:** Two percent (2\%) sodium fluorescein solution was gently instilled into the inferior fornix of the subject. Respondent was asked to blink several times in order to distribute the fluorescein evenly. Under broad beam and blue cobalt light, the time interval (seconds) between the last blink and the appearance of first randomly distributed black spot on the cornea was noted using a stop watch. This was done thrice in succession for each eye and the mean was taken as the final reading.

**Intraocular Pressure:** Done in sitting position and the right eye measured first in accordance with convention. A drop of local anesthetic agent (tetraacain) was gently instilled into the lower fornix of the subject. After 3 minute, a drop of sodium fluorescein dye was instilled into the inferior fornix and the subject was asked to blink gently to ensure even spread of the dye across the cornea surface. Thereafter, the intraocular pressure was measured with the use of a standardized hand held Perkins (Perkins Tonometer Mk2, HS Clement Clarke International, Haag Streit UK Ltd. CE0120). The measurement was done twice by the investigator and the mean was taken as the final value.

**RESULTS:**

A total of 200 women consisting 200 pregnant women (cases) and 100 non-pregnant women (control) who were free from systemic and ocular diseases were recruited. The mean ages (year) for cases and control groups were 29.3±4.80 and 36.63±7.57 respectively. The mean values of TBUT, SR and IOP were shown in Table 1. There was statistically significant difference in the obtained values between the two groups.
Tear Film and Intraocular Pressure Changes in Pregnancy in University of Lahore Teaching Hospital, Lahore

**DISCUSSION:**

The result shows that the mean values for IOP (mmHg), TBUT (seconds) and Schirmer’s reading (mm) were: 13.22±2.19, 27.05±9.40, 27.03±17.06 and 15.24±2.66, 24.10±10.71, 48.13±19.10 for cases and controls respectively. Schirmer’s reading (SR) was significantly lower among pregnant women. Our study revealed reduced SR during pregnancy.

Similarly a study was conducted in Ladoke Akintol and Waleed. A in which a total of 270 participants including 165 healthy pregnant women and 105 non-pregnant who were free from systemic and pre-pregnancy eye diseases were investigated. Snellen’s chart, fluorescein dye, No 41 Whatman filter paper, Perkin’s tonometer were

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**TABLE 1:** Mean value of Tear break up, Schirmer test, Intraocular pressure

<table>
<thead>
<tr>
<th>Ocular parameter</th>
<th>Cases (200)</th>
<th>Control t-test(100)</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Intraocular pressure ±SD (mm Hg)</td>
<td>13.22±2.19</td>
<td>15.24±2.66</td>
<td>-3.36</td>
<td>0.000</td>
</tr>
<tr>
<td>Mean Schirmer’s reading ±SD (mm)</td>
<td>27.05±9.40</td>
<td>24.10±10.71</td>
<td>2.39</td>
<td>0.005</td>
</tr>
<tr>
<td>Mean Tear break up time ±SD (second)</td>
<td>27.03±7.06</td>
<td>48.13±19.10</td>
<td>-5.85</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2 shows the mean values for the right and left eyes for the enrolled populations. here was a statistically significant difference between each eye across the two groups.

**Table 2:** Comparison of ocular parameters among cases and controls

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cases (200)</th>
<th>Control (100)</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Intraocular pressure</td>
<td>12.19±2.31</td>
<td>15.11±2.81</td>
<td>3.22</td>
<td>0.004</td>
</tr>
<tr>
<td>Left Intraocular pressure</td>
<td>13.44±17</td>
<td>14.23±2.60</td>
<td>3.06</td>
<td>0.00</td>
</tr>
<tr>
<td>Right Schirmer’s reading</td>
<td>22.44±10.22</td>
<td>21.26±11.69</td>
<td>2.24</td>
<td>0.022</td>
</tr>
<tr>
<td>Left Schirmer’s reading</td>
<td>22.56±8.84</td>
<td>21.89±11.15</td>
<td>2.09</td>
<td>0.04</td>
</tr>
<tr>
<td>Right Tear break up time</td>
<td>32.58±1.28</td>
<td>45.63±19.88</td>
<td>4.68</td>
<td>0.000</td>
</tr>
<tr>
<td>Left <strong>TBUT</strong></td>
<td>37.76±1.70</td>
<td>52.64±2.00</td>
<td>6.11</td>
<td>0.000</td>
</tr>
</tbody>
</table>
employed to assess visual acuity, tear break up time (TBUT), Schirmer’s test (ST), intraocular pressure (IOP) on all subjects. The mean values for IOP (mmHg), TBUT (seconds) and Schirmer’s reading (mm) were: 13.24±2.18, 25.05±9.30, 37.03±17.06 and 14.24±2.66, 22.10±10.81, 50.13±19.10 for cases and controls respectively. Schirmer’s reading (SR) was significantly lower among pregnant women. Only age had a statistically significant association with the measured parameters. Our study revealed reduced SR during pregnancy.18

Another study was conducted in Turkey by Nursal.L which shows that the resulting pathological changes may occur for the first time or existing diseases affected by pregnancy can become more serious or change the course. Diseases specific only to pregnancy may arise. Like all systems of the body, the visual system is also affected by pregnancy, developing a wide range of physiological and pathological changes. Knowing the ocular physiological changes and diagnosing eye diseases that may develop during pregnancy, and preventing and treating these diseases is crucial to ensure the baby’s healthy development. Therefore, we have reviewed the conditions that an ophthalmologist should recognize, follow-up, and pay attention to during treatment and summarized them under the topic “pregnancy and the eye”.19

A study was conducted in India by Jhitendra.K which shows that most of the ocular changes in pregnancy are harmless. Some changes, however, are serious, such as retinal effects of hypertension, which can be a sign of pre-eclampsia and eclampsia or pre-existing ocular diseases. Ocular changes may give rise to uncertainty about the administration of ophthalmological drugs or the optimal method of childbirth. Certain ocular changes, whether physiological or pathological, may be increased during pregnancy. Many ocular changes are mild, temporary, and require little to no treatment, all ocular symptoms in pregnancy requires ophthalmologic examination is necessary and monitoring the disease. Our finding further established the presence of ocular changes in pregnancy. Gynecologists should be aware of these ocular changes and should refer such patients to an ophthalmologist as a routine case.

REFERENCES:
ABSTRACT

Purpose: Effect of intra-vitreal clindamycin and dexamethasone compared with oral therapy in the treatment of toxoplasmosis

Patients and method: This was prospective case control study conducted in Shalamar hospital Lahore. 20 patients were randomized in 2 groups. Group A was treated with classical systemic anti toxoplasmosis and group B were given intravitral clindamycin and dexamethasone. Patient were checked for improvement in best corrected visual acuity and central macular thickness on OCT for the following 6 months.

Results: Patients with ocular toxoplasmosis, in Group A BCVA was improved from 0.95 to 0.8 and CMT improved from 392 to 324 microne after the treatment with systemic anti toxoplasmosis and Group B BCVA was improved from 0.94 to 0.79 and CMT improved from 397 to 324 microne after the treatment intravitral clindamycin.

Conclusions: Intravitreal clindamycin and dexamethasone showed almost similar effect compared to the traditional triple regime (pyrimethamine, sulfadiazine, and prednisolone), and established that the intravitreal clindamycin and dexamethasone is an effective alternative for the traditional triple regime therapy.

Key Words: Toxoplasmosis, triple regime, pyrimethamine, sulfadiazine, and prednisolone, intravitreal, clindamycin, dexamethasone

INTRODUCTION

Toxoplasmosis is the major cause of uveitis in the general population[1-4]. Toxoplasma is a zoonosis protozoa, humans are intermediate host infested by oocytes then they are converted in bradyzoite cysts, which remain dormant in different tissues of human body. Bradyzoite releases tachyzoites, which is proliferative active form causing symptomatic infestation of retina, choroid and ocular tissue. Toxoplasmosis can be life threatening in newborn and immunosuppressive individuals. In healthy individuals it is most of the time asymptomatic but it can cause uveitis and retinitis causing significant visual loss.

The uveitis caused by toxoplasmosis can involve anterior as well as the posterior segment of the eye. In the anterior segment it causes chronic granulomatous uveitis with the features of AC cells, flair, mutton fat KPs and posterior synechiae. Posterior segment involvement of the eye has characteristic findings for the diagnosis of toxoplasmosis. In posterior segment there is characteristic lesion which is pigmented with ill-defined margins with overlying vitritis activity[4]. Mostly the lesion is solitary with satellite lesion in immune-competent but in immune-compromised patients, one can find multiple lesion. These finding can be confirn with PCR of vitreous TAB and IgM and IgG antibodies.

Intravitreal clindamycin and dexamethasone showed the equivocal effect compared to the traditional triple regime (pyrimethamine, sulfadiazine, and prednisolone). The intravitreal clindamycin and dexamethasone is an effective alternative for the traditional triple regime therapy.

Toxoplasmosis can be transmitted from mother to her child as vertical transmission and in healthy individual it is transmitted through ingesting oocysts of toxoplasmosis as a contaminant...
tion with cats litter. Vertical transmission carrier poor morbidity and mortality and it causes of neurological manifestations, hydrocephalus, still born and early abortion.

Traditionally, oral therapy with Pyrimethamine, sulphadiazine and prednisolone is givenfor the treatment of ocular manifestations of toxoplasmosis[10]. Systemic medications carry a higher risk of toxic effects for the patients of these medications. Intravitreal injection of clindamycin and dexamethasone have a significant therapeutic effect in the treatment of toxoplasmosis with no significant systemic side effects[2,4].

Infestation with toxoplasmosis causes the scar in the retina and permanent visual loss on the area involved. The scar also carries a risk of development of CNV and its complications. Although it is a self limiting disease[3],Toxoplasmosis treatment criteria has been established for minimizing the damage of ocular structures. Treatment criteria include sudden decrease of vision, involving optic disc, involving macula, involving maculopapular bundle, over or near major vessels and severe vitritis.

Ashraf Bor’i conducted the study on Intravitreal Clindamycin and Dexamethasone Combined with Systemic Oral Antitoxoplasma Therapy versus Intravitreal Therapy alone in the management of toxoplasma Retinochoroiditis in Department of Ophthalmology, Zagazig University, Zagazig, Egypt showed comparable results systemic plus intravitreallsvintavitreal alone[11]. Our study on the other hand comparing the effect of intravitreal clindamycin and dexamethasone alone is an alternative to systemic antitoxoplasma therapy.

MATERIAL AND METHOD
This was prospective case control study. Total of 20 cases of both male and female patient were selected in this study between the age group of 14 to 50 years which fall in the inclusion criteria. Patient were randomized in to two groups, Group A and Group B, in each group there were 10 patients. Informed consent was taken from each patient in both the groups. Purpose and procedure of the study was explained, and confidentiality of personal information was ensured to the patients. Patients were also explained treatment related information such as their benefits and risk related to the treatment.Informed consent and personal pro-

file including name, age, sex, postal address and involved eye was documented in part 1 of Performa and BCVA in logMAR and OCT for macular thickness of retina was documented in part 2 of Performa.

Group A was given traditional classical triple regimen. Patien were given pyrimethamine loading dose of 100mg for 2 days then followed by 25mg daily dose for 4 weeks. And sulphadiazine was given 1 gram qid for 4 week with oral prednisolone according to body weight. In this group folic acid supplement were also added to the regime.

Group B was given intravitral antibiotic clindamycin 1mg in 0.1ml and dexamethasone 0.4mg in 0.1ml, that was repeated after 2 weeks if there was no clinical improvement. Patients were followed for 2 weeks, 4 weeks, 8 weeks and at completion of 6 months. In the follow ups, patients were recorded for BCVA and OCT for macular thickness.

All procedures, examination and documentations were done by the same ophthalmologist to prevent bias documentation of symptoms.

Follow up with Best Corrected Visual Acuity (BCVA) and OCT for macular thickness was documented at presentation and on all the follow up examinations . All data was collected on pre-designed Performa which contained two parts i.e. part 1 contained patient’s bio-data while part 2 contained study variables. SPSS 20.0 software was used. Comparisons between continuous variable [with normal distribution] and categorical variables were performed using student’s t-test. Comparisons between categorical variables were assessed using chi square test on fisher’s test, when necessary. A value of P < 0.05 was considered as statistically significant.

RESULTS
Total of 20 patients were enrolled in the study. In group A 4 men, 6 women, with 6 right eyes and 4 were left eyes. Likewise in group B 4 male patient and 6 female patients with 4 right eyes and 6 left eyes were studied. All patients were phakic with no past history of major ocular disease. Patients enrolled in this study were with active disease which full fill the criteria for the treatment. In this study the mean age of the patients in group A was 35 year (± 6 years) and 34 years (± 7 years) in group B.In Group A who
were given oral medication, the mean BCVA at the time of presentation was 0.95 ± 0.15 logMAR which improved to 0.8 ± 0.19 logMAR after the end of 6 months of treatment. Results of OCT thickness in group was supportive of the reduction correlating to BCVA. The mean OCT thickness at the start of treatment was 392 (±33 microne) which improved to 324 (±12 microne) at 6 month.

Patient in Group B who were treated with intravitral antibiotic clindamycin 1mg in 0.1ml and dexamethasone 0.4mg in 0.1ml has initial BCVA of 0.94 ± 0.17 logMAR. After intravitreal injection it improved to 0.79 ± 0.18 logMAR). In this group OCT thickness improved from 397 microne (±33 microne) to 324 microne (±11 microne) at 6 month.

<table>
<thead>
<tr>
<th></th>
<th>BCVA at presentation</th>
<th>BCVA at end 6 months</th>
<th>OCT thickness at presentation</th>
<th>OCT thickness at end 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>0.95 ± 0.15</td>
<td>0.8 ± 0.19</td>
<td>392 (±33)</td>
<td>324 (±12)</td>
</tr>
<tr>
<td>Group B</td>
<td>0.94 ± 0.17</td>
<td>0.79 ± 0.18</td>
<td>397 (±33)</td>
<td>324 (±11)</td>
</tr>
<tr>
<td>P value</td>
<td>0.7</td>
<td>0.8</td>
<td>0.6</td>
<td>0.7</td>
</tr>
</tbody>
</table>

DISCUSSION

The most common cause of intraocular inflammation in the world is toxoplasmosis. Ocular toxoplasmosis can lead to severe morbidity and blindness[5]. Treatment of ocular toxoplasmosis includes administration of antimicrobial drugs with or without corticosteroids. Following drugs are used in the treatment including trimethoprim/sulphamethoxazole, sulfadiazine, clindamycin, spiramycin and pyrimethamine[6].

Many pills are required daily in the treatment so the compliance remains an important issue. During the treatment, patients must be aware of the systemic complications, possible allergic reactions, and blood cell count monitoring[7].

The present study compared the systemic treatment with intravitreal injection in patients with ocular toxoplasmosis. This prospective study included patients with active toxoplasmic retinochoroiditis. 20 (twenty) eyes of 20 (twenty) patients were included in this study. Patients were randomised in two groups.

In group A the patients treated with systemic therapy and in group B the patients were treated with intravitreal injections. All patients were followed up for 6 months.

Mean baseline BCVA in group A improved from 0.95 before the treatment to 0.8 at the end of 6 months. Mean baseline BCVA improvement in group B improved from 0.94 before the treatment to 0.79 at the end of 6 months. At the end of follow up period there were no significant differences observed between the two groups.

Our findings agree with Soheilian et al.,[8] who compared the efficacy of trimethoprim/ sulphamethoxazole (CO TRIMOXAZOLE) plus prednisolone with the ocular toxoplasmosis classical treatment of [pyrimethamine, sulfadiazine and prednisolone]. After the treatment BCVA was 0.09 logMAR in the trimethoprim/sulphamethoxazole group and 0.12 logMAR in the classical treatment group, with no significant difference observed (p=0.56). The anatomic and functional outcome of the treatment of toxoplasmosis retinochoroiditis by intravitreal clindamycin and dexamethasone was reported by Lasave et al.[9]. In their study BCVA improved from 1 ± 0.4 to 0.5 ± 0.4 at the end of the follow up period. There was a significant reduction in CMT from 387.6 ± 70.1 micrometer to 185.2 ± 44.7 micrometer measured by OCT after 24 months follow up period. In the present study before treatment the mean CMT in group A was 392(±33)micrometer and 397 (±33)micrometer in group B. At the end of 6 months of follow up those measurement decreased to 324 (±12)micrometer in group A and to 324 (±11) micrometer in group B.

During the follow up period there is no significant difference between the groups. In all the cases of both groups, acute inflammation was resolved. No evidence of retinal toxicity was seen when toxoplasmic retinochoroiditis was treated with intravitreal trimethoprim/sulphamethoxazole by Choudhury et al[10].

The effect of trimethoprim/ sulphamethoxazole treatment versus a placebo was evaluated. In reducing the risk of toxoplasmic retinochoroiditis recurrences was done by Felix et al.[11]. There were 0 out of 46 (0%) and six out of 47 (12.80%) incidence of recurrence within 12 months in trimethoprim/sulphamethazole and placebo treated groups, respectively (p=0.26). These data are comparable with this study where the incidence of toxoplasmic retinochoroiditis was 0 within 12 months of follow up in both groups.

CONCLUSION

In this study intravitreal clindamycin and dexamethasone showed the equivocal effect com-
pared to the traditional triple regime (pyrimethamine, sulfadiazine, and prednisolone). So it is established that the intravitreal clindamycin and dexamethasone is an effective alternative for the traditional triple regime therapy.

REFERENCE
ABSTRACT

Background: To assess the closure rate of large macular hole and their visual recovery after a single surgery with two different surgical techniques.

Method: Prospective randomized controlled trial. We included patients with large macular hole (minimum diameter of 400 micron meter). Comprehensive ophthalmological examination was carried out for each patient. Patients were randomized in two groups. Group A underwent inverting flap technique and group B underwent conventional ILM peeling. Follow up measurements were repeated at 1 and 3 months after surgery.

Results: Twenty-four patients were enrolled in the study with 12 patients in group A and 12 patients in group B. The closure rate in group A was 91.66% and in group B was 75%.

Conclusion: Significant and faster recovery was observed with inverted flap technique.

Key Words: Large macular hole, internal limiting membrane, inverted flap.

INTRODUCTION

Internal limiting membrane [ILM] removal in macular hole surgery has become an essential step. 98% cases of macular hole closes with pars plana-vitrectomy and ILM peeling assisted with vital dye. Other macular diseases can be treated with this surgical technique. In challenging cases of macular hole associated with high myopia and large macular hole (minimum diameter of more than 400 micrometer), the surgical outcome is poor whether the ILM is removed or not. In large macular hole usually peel large area of ILM believing that more is better. Due to excessive removal of ILM, anatomical changes can be seen like asymmetry of macular displacement, optic nerve fiber layer dissociation and decreased papilla-macular distance. Large macular holes which are treated with conventional ILM peeling displays a V, shape flat open or W shape closure patterns. Patients with these types of closure patterns have poorer visual recovery and frequent need of reoperation due to the persistent loss of photoreceptor layer, tissue loss and retinal pigment epithelial defects. Research team lead by Michalewska introduced the inverted flap technique.

Large macular holes (minimum diameter more than 400 micrometer) are surgical challenges with poorer than usual prognosis. In such cases inverted ILM flap technique seems to be an effective alternative surgical procedure that may improve the anatomical outcome.

The aim is to remove all the antero-posterior and tangential traction with ILM and epiretinal membrane peeling, thereby increasing the chances of macular hole closure and visual improvement by cell proliferation and glial cell migration.

The aim of this study is to evaluate the...
Inverted ILM Flap Vs Internal Limiting Membrane Peeling Technique for Treatment of Large full Thickness Macular Holes

For analysis purpose only baseline, 1 and 3 months follow-up measurements were considered.

SPSS 20.0 software was used. Comparisons between continuous variable [with normal distribution] and categorical variables were performed using student’s t-test. Comparisons between categorical variables were assessed using chi square test on fisher’s test, when necessary. A value of P < 0.05 was considered as statistically significant.

Large macular holes (minimum diameter more than 400 micrometer) are surgical challenges with poorer than usual prognosis. In such cases inverted ILM flap technique seems to be an effective alternative surgical procedure that may improve the anatomical outcome.

METHOD

Patients who were 18 years or older were included in the study having larger stage 4 macular hole (minimum diameter greater than 400 micrometer) with clinical and tomographic diagnosis. Regardless of BCVA at presentation, gender, lens status and time of evolution. Following patient were excluded from the study, patients with diabetic retinopathy, past history of amblyopia, pan-retinal photocoagulation, inflammatory eye disease, glaucoma, high myopia (that’s greater than 6 diopters) and the patient who refused to sign the consent form.

Patients underwent a complete ocular examination after their enrollment in the study which included, medical and surgical history, intraocular pressure, BCVA in snellen lines[ later converted to logarithm of the minimum angle of resolution (log MAR)], anterior and posterior segment examination by slit-lamp microscopy and optical coherence tomography[ Cirrus HD-OCT, Carl Zeiss].

Images with cirrus HD-OCT were acquired with 5 raster single line 6 mm enhanced HD 0.25 mm spacing and protocol at a 0 degree angle. Patients fixated the red target with the fellow eye. If the scan was not centered aiming beam was manually centered in the macular hole so that the third line passes through the macular hole. The third raster line was used for all the measurements. We manually measured the macular minimum diameter by using the OCT caliper software tool.

Patients were randomized in two groups, patients in group A underwent inverted flap technique as discussed by Michalewska et al. Patients in group B underwent conventional 360 degrees 2 disc diameter ILM peeling. All patients underwent standard 3 port pars planavitrectomy and gas tamponade. In all cases ILM peeling was assisted with 0.2 ml brilliant blue G[BBG] 0.25 mg/ml, 23 gauge PPV was done in all the patients with non-expansile octafluoropropane(C3F8:14%) was used as tamponade.

After surgery, all patients were instructed for face down position for 3 days, follow up visits were done at first post operative day, 1 week, 1 and 3 months after surgery. On every follow up visit visual acuity, IOP, OCT, anterior and posterior segment examination with slit lamp was done.

For single surgery closure rate and visual outcomes of conventional 360 ILM peeling against inverted ILM flap.

RESULTS

A total of 24 patients [10 men, 14 women, with 8 right eyes, 16 left eyes] were enrolled into the study. Patients were randomized in group A 12 patients and group B 12 patients. All patients enrolled in this study were phakic. All patients had large idiopathic macular hole (minimum diameter >400 micrometer). In group A 58.8 ± 8.3 years and in group B 62.8 ± 5.3 years was the mean age. Meantime for group A macular hole evolution was 3.76 ± 1.5 months, while group B was 3.01 ± 1.5 months. No difference was noted in age and time evolution among groups (p = 0.51). Only one patient in group A and three patients in group B had an open macular hole at end of follow-up. Closure rate was 91.66% in group A and 75% in group B with p value of 0.001.

Table 1 shows the mean BCVA at baseline, 1 and 3 months of the follow up examination. Both of the groups showed improvement in visual acuity from baseline (1.4 snellenlines improvement). At the end of follow-up, patients in group B showed statistically significant improvement in BCVA at the end of follow-up. Mean preoperative BCVA was 0.80 (SD=0.30) logMAR in group A and 0.78 (SD=0.28) logMAR in group B, whereas mean postoperative BCVA was 0.48 (SD=0.32) logMAR in group A and 0.57 (SD=0.31) logMAR in group B (P=0.007).

Table 2 to shows closure rate at 3 months. Only one patient in group A and three patients in group B had an open macular hole at end of follow-up. Closure rate was 91.66% in group A and 75% in group B with p value of 0.001.
DISCUSSION
The staining and peeling of ILM is considered as the standard care by the majority of retina specialist in case of macular hole since its original description in 1991. By removing ILM there was an increased rate of macular hole closure and decreased rate of reoperations but no significant gain in visual acuity was observed. Surgical management of large macular hole is very challenging with ILM peeling. Surgery in such cases results in large retinal tissue devoid of ILM to increase the retinal flexibility and chances of primary closure. Such approach results in thinning of the temporal retina, displacement of the macular, dissociation of the optic nerve fiber layer and muller cell damage. Michalewska et al proposed a novel concept of inducing retinal gliosis by inverting ILM over the macular hole to increase the chances of closure. This procedure allows more ILM conservation thereby reducing the physiological effects of extensive ILM peeling. Michalewska et al documented 98% closure rate of macular holes (>400micrometer) and only 2% with flat open configuration. High success rate with this technique with follow-ups ranging from 1 month to 1 year were reported by Chen et al, Kuriyama et al and Kase et al. Michalewska et al retrospectively analyzed her own cases and concluded that the U-shape closure type was the most prevalent after inverted flap technique and had the better functional prognosis (2 lines improvement), than the other types of closure. The postoperative analysis of fovea revealed that the U-shape closure had less photoreceptor layer defects and normal retinal thickness at the end of the follow-up. Chong and Bycon describe two critical events in the development of macular holes: antero-posterior traction causes breaks in the internal limiting membrane and external limiting membrane and exposure of the outer retina to vitreous fluid resulting in edema of the macular hole borders. In large and chronic macular holes the centripetal movement of the retinal tissue induced by the gas bubble may not be sufficient enough to promote closure. Placement of an inverted flap over the macular hole will prevent further aversion and hydration of the retinal tissue thereby promoting glial proliferation. In our prospective study we compared the inverted flap technique and conventional ILM peeling. We measured the functional success in terms of change in visual acuity and anatomical success in terms of hole closure rate. Our results showed that vitrectomy with inverted flap technique is more effective than the standard ILM peeling technique. Anatomical success was achieved in 91.66% of the cases in inverted flap technique and in 75% in the ILM Peeling group. Both the techniques displayed a trend towards improvement in their BCVA, with the inverted flap technique had a significant visual gain at 3 months with a P-value of 0.007. Our findings agree with: Michalewska et al, Kuriyama et al, mete et al Andolenik et al found visual and anatomical results similar to us.

CONCLUSION
In our experience, large macular holes (minimum diameter more than 400micrometer) are surgical challenges with poorer than usual prognosis. In such cases inverted ILM flap technique seems to be an effective alternative surgical procedure that may improve the anatomical outcome.

REFERENCES


ABSTRACT
Background: Amongst refractive errors, myopia was found to be the leading cause of vision impairment, followed by astigmatism and hypermetropia in females age group 11 to 16 years.

Methodology: This study was carried out in eye O.P.D, where after verbal consent; presenting visual acuity of all individuals of selected age group was recorded and underwent ocular examination. Distance visual acuity was measured both monocularly and binocularly by using Snellens E Chart at a distance of 6 m. After refraction, best corrected visual acuity was then assessed and recorded. Retinoscopy with fogging was used for objective refraction and then its verification was made through subjective refraction. Cycloplegic refraction was carried out for subjects with hyper active accommodation, i.e. when dry retinoscopy gave fluctuating results.

Results: A total of 225 female patients were part of my study, out of which 105 patients had refractive error while 120 had no refractive error, i.e. 47% were ametropic while 53% were emmetropic, among these, 25 had hypermetropia, 50 had myopia and 30 had astigmatism.

Conclusion: Amongst refractive errors, Myopia was found to be the leading cause of vision impairment, followed by Astigmatism and Hypermetropia in females age group 11 to 16 years. Visual Impairment due to refractive error in any population suggests that eye care services in general in that population are inadequate, as treatment of refractive error is perhaps the simplest and most effective form of eye care i.e. a pair of spectacles.

Keywords: Refractive errors, Spectacles, Myopia, Hypermetropia, Astigmatism, Cycloplegic Refraction.

INTRODUCTION:
According to WHO estimates: Approximately 314 million people live with low vision and blindness, globally. Of these, 45 million people are blind (according to new definition of blindness from available correction), 145 million people’s low vision is due to uncorrected refractive errors. In most cases, normal vision could be restored with eyeglasses. Prevalence of blindness was 0.9 per cent as reported by Pakistan’s national survey of blindness and visual impairment in 2002–2004. Of this total, refractive error was the most common cause (43%), followed by cataract (42%)¹. Available studies indicate that in every region of the world, and at all ages, females have a significantly higher risk of being visually impaired than males. Visual impairment is not distributed uniformly throughout the world. More than 90% of the worlds visually impaired live in developing countries².

Amongst refractive errors, myopia was found to be the leading cause of vision impairment, followed by Astigmatism and Hypermetropia in females age group 11-16 years. Visual impairment suggests that eye care services in general are inadequate.

Emmetropia is the normal refractive condition of the eye, in which the parallel rays of light are accurately focused on the retina, when the accommodation is fully relaxed and far point is at infinity. It is a condition in which there is no refractive error³. Ametropia is the anomaly of the refractive state of the eye in which, with relaxed
accommodation, the image of objects at infinity is not formed on the retina. Thus vision may be blurred. There were three basic kinds of refractive errors:

Myopia: Images are focused in front of the retina.

Hyperopia: Images are focused behind the retina.

Astigmatism: Images have more than one focal point.

**METHODOLOGY.**

It is a descriptive cross-sectional study conducted for 1 Year (March 2017 –March 2018) in eye O.P.D. at Hayatabad Medical Complex, (Medical Teaching Institute) Peshawar, presenting visual acuity of all individuals of selected age group was recorded and underwent ocular examination. Distance visual acuity was measured both monocularly and binocularly by using Snellen’s E Chart at a distance of 6 m. After refraction, best corrected visual acuity was assessed and recorded. Retinoscopy with fogging was used for objective refraction and then its verification was made through subjective refraction. Cycloplegic refraction was carried out for subjects with hyperactive accommodation, i.e. when dry Retinoscopy gave fluctuating results > +0.50 D=Hyperopia, > -0.50 D=Myopia, > ±0.50 D=Astigmatism.

Inclusion Criteria: All female individuals, of age group 11-16 years, visiting refraction rooms at H.M.C were included.

Exclusion Criteria: Subjects who were not willing to participate.

**RESULTS**

A total of 225 females subjects were examined, out of which 105 (47%) were Ametropia i.e. having refractive error, while 120 (53%) were Emmetrope.

Table No. 1

<table>
<thead>
<tr>
<th>REFRACTIVE STATUS</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMETROPIA</td>
<td>105</td>
<td>47%</td>
</tr>
<tr>
<td>EMMETROPIA</td>
<td>120</td>
<td>53%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>225</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

2. FREQUENCY OF COMMON TYPE OF REFRACTIVE ERROR. Among 105 refractive error subjects, 50 (47%) were having myopia, 25 (23%) had hypermetropia while 30 (30%) had astigmatism.

Table no. 2

<table>
<thead>
<tr>
<th>REFRACTIVE STATUS</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPERMETROPIA</td>
<td>25</td>
<td>23%</td>
</tr>
<tr>
<td>MYOPIA</td>
<td>50</td>
<td>47%</td>
</tr>
<tr>
<td>ASTIGMATISM</td>
<td>30</td>
<td>30%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>105</td>
<td>100%</td>
</tr>
</tbody>
</table>

3. Distribution of MYOPIA by age below 13 years of age, Myopia was only 20% while above 13 years of age, Myopia was 80%. So, Myopia was common in subjects of 14-16 years of age.

Table No. 3

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-13 YEARS</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>14-16 YEARS</td>
<td>40</td>
<td>80%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>50</td>
<td>100%</td>
</tr>
</tbody>
</table>

4. Distribution of HYPEROPIA by age Below 13 years of age, Hyperopia was 64% while above 13 years of age Hyperopia was 36%. So, Hyperopia was common in subjects with 11-13 years of age.

Table No. 4

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-13 YEARS</td>
<td>16</td>
<td>64%</td>
</tr>
<tr>
<td>14-16 YEARS</td>
<td>9</td>
<td>36%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>

5. Distribution of Astigmatism by age below 13 years of age, Astigmatism was 40% while above 13 years of age astigmatism was 60%. So, Astigmatism was common in subjects with 14-16 years of age.

Table No. 5

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-13 YEARS</td>
<td>12</td>
<td>40%</td>
</tr>
<tr>
<td>14-16 YEARS</td>
<td>18</td>
<td>60%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>100%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

A cross sectional study was conducted in Eye OPD, HMC Peshawar, 225 patients were examined. According to this study, table no. 1 shows
53% were free of refractive error (Emmetropia) while 47% were Ametropic. As my study was a Hospital-based study, so Frequency of refractive errors was higher than community and school-based prevalence i.e. 47%.

Table no. 2 shows that among 105 ametropes, 50 (47%) were having myopia, 25 (23%) had hypermetropia while 30 (30%) had astigmatism. During the National Blindness and Visual Impairment Survey, in Pakistan, the crude prevalence of myopia, hypermetropia and astigmatism was 36.5%, 27.1%, and 37%, respectively.  

Table no. 3 shows that age wise distribution of myopia was found to be only 20% in 11 to 13 years age while above 13 years of age, myopia was 80%. So, Myopia was common in subjects of 14-16 years of age. According to study conducted by D. O. Mutti, J. R. Hayes, G. L. Mitchell et al at Orinda, California, on refractive errors, the prevalence of myopia in students at 11 years old was only 22.61%, as it increased to 56.93% in students at 13 years old, and the rate was the highest (69.34%) in students at 15 years old. Another study reports that myopia prevalence varies with age, race and sex, increasing at least through adolescence, Goldschmidt (1968) found a higher prevalence of myopia in girls than in boys among Danish schoolchildren. Myopia occurs slightly more frequently in females than in males.

Table no. 4 shows that age wise distribution of hypermetropia was found to be 64% in 11 to 13 years age while above 13 years age Hypermetropia was 36%. So, Hypermetropia was common in subjects of 11 to 13 years. Study conducted by Shanti Pandey, Vivekanand Satyawali, Pankaj Kumar, Nishith Panwar at tertiary care centre in Kumaon region shows Hypermetropia is more common in 5-10 year age group (63.4) whereas myopia is more prevalent in compared with 11-15 year age group (62.8%).

Table no. 5 shows that age wise distribution of astigmatism was found to be 40% in 11 to 13 years age while above 13 years age astigmatism was 60%. So, Astigmatism was common in subjects of 14 to 16 years. In some patients, corrected Visual Acuity did not reach up to 6/6, because of Amblyopia. As amblyopia is the end result of uncorrected refractive error, especially Hyperopia. Amblyopia, also known as lazy eye, is a vision development disorder in which an eye fails to achieve normal visual acuity, even with prescription eyeglasses or contact lenses, So, occlusion therapy was suggested for those subjects.

**CONCLUSION**

Among refractive errors, Myopia was Found To Be The Leading Cause Of Vision Impairment, Followed By Astigmatism And Hypermetropia In Females Age Group 11 To 16 Years. Visual Impairment Due To Refractive Error In Any Population Suggests That Eye Care Services In General In That Population Are Inadequate, As Treatment Of Refractive Error Is Perhaps The Simplest And Most Effective Form Of Eye Care .I.e. A Pair Of Spectacles. The World Must Make Every Effort To Meet The Goals Of Vision 2020 And Eliminate Uncorrected Refractive Error Within The Next 12 Years.

If The World Cannot Eliminate Blindness And Visual Impairment By Delivering Spectacles To Those In Significant Need, We Are In A Sorry State. For That Reason Alone, We Must Cooperate, Mobilize Our Resources, And Make Sure It Happens –Preferably Before 2020.

Provision of appropriate spectacles is one of the simplest, most cost-effective strategies to improve vision, yet uncorrected refractive error is the primary cause of moderate vision impairment throughout the world. Another area of potential research to accompany the implementation of strategies to reduce uncorrected refractive error is to quantify the impact of this reduction on quality of life and other outcomes, such as road accidents. These data could provide evidence of the need for ongoing support of programmes to eliminate uncorrected refractive error.

**REFERENCES**


5. J. Schwiegerling, Field Guide to Visual and Ophthalmic Optics,
To Estimate the Frequency of Refractive Errors in Female Patients, 11-16 years' age in H.M.C, Peshawar


ABSTRACT:
Purpose: To assess what patients expect during phacoemulsification under topical anesthesia and what are their views after the surgery.
Material and Method: Hundred consecutive patients who had phacoemulsification with intraocular lens implantation under topical anesthesia were included in the study. They were interviewed as per the questionnaire just before the surgery, then they were counseled about the procedure and importance of their cooperation during surgery and immediately after surgery they were interviewed again as per the questionnaire.
Result: As per the inclusion/exclusion criteria there were 61 females and 39 males, with ages varying from 35-76 years. Before surgery, 70% of patients were afraid of surgery, 80% patients thought that there would be some pain during surgery, and 20% patients did not know what will happen during surgery. 90% patients felt that their eyes were being washed throughout the procedure. 70% patients had fears before surgery but only 10% after surgery called it a fearful experience, of these 8% were ready for surgery on the other eye under topical anesthesia.
Conclusion: Phacoemulsification under topical anesthesia is a safe procedure for most of the patients. Patients apprehensions can be minimized by counseling the patients before the procedure and during surgery patient should be engaged by encouraging words.
Key words: Topical anesthesia, phacoemulsification, patient expectations.

INTRODUCTION

Phacoemulsification under topical anesthesia is a standard technique for cataract surgery. Although it is being performed routinely, in inexperienced hands it can be a dreadful experience for both surgeon and the patient. Patient selection for the procedure is very important. There are many factors which should be taken into consideration while selecting a patient for the procedure. In our set up once patients are told that their surgery would be done without any injection, their first question is would there be any pain. This fear of pain keeps on mounting and few patients throughout the procedure remain apprehensive and fearful of pain in anticipation.

This leads to increase in anxiety of patients. This problem is even more pronounced in some illiterate patients. They come with some preconceived ideas about surgery with background of stories. Therefore their anxiety level is more. These patients need proper counseling in the language they understand. All patients should be briefed about the procedure. They should be told what to expect and what are taboos of surgery under topical anesthesia, it helps the patient in alleviating their anxiety. During surgery if patient is showing anxiety, surgeon has to play his role in calming down the patient. This study was planned to find out various sensations which patients perceive during surgery and what factors calm them down. Based on these findings we can improve our pa-
Patient counseling before surgery.

MATERIALS & METHODS

The study was carried out at Combined Military Hospital Okara from March 2018 to July 2018.

Inclusion Criteria:
All consecutive patients of Cataract waiting for operation underwent Phacoemulsification under topical anesthesia.

Exclusion Criteria:
Patients, who showed poor cooperation for Biometry, those who were hard of hearing were operated upon under peribulbar anesthesia. They were given sedation during surgery. Patients who had posterior capsular tear. Hard, brunescent cataracts were operated upon under peribulbar anesthesia. Non dilating pupils which need stretching for dilation were also operated upon under peribulbar anesthesia and those who had previous cataract surgery too.

A questionnaire was designed and consent of all patients was taken and they were informed about the study project. Patients were interviewed just before and immediately after the surgery. A general question about their experience was asked and later on leading questions as per the questionnaire were asked. The interview was taken by one interviewer. The surgery was performed by one surgeon. Question of religion was asked as during surgery, if patient showed apprehension, they were told to recite Quran verses and their religious recitations in mind.

RESULTS

Hundred consecutive patients of cataract who came for surgery and fulfilled the criteria of inclusion were selected for the study. Literate patients, comprehending the steps of procedure and role of their cooperation during surgery, behaved far better than illiterate patients. There were 61 females and 39 males, with ages varying from 35-76 years, were included for the study. 60% patients were either illiterate or had gone to primary school only, only 5% were graduates and above 60% patients had some co morbidity. 20% patients were briefed again and again to look at one point and do not move / blink /squeeze the eye while A Scan was being performed to find out the axial length. 10% patients were told again and again to keep looking in the light and not to move the eyes or head during surgery; 20% who were showing apprehension during “A” scan. Before surgery, 70% of patients were afraid/apprehensive about the procedure. 80% patients thought that there would be some pain during surgery. 20% patients did not know what to expect during surgery. After they were counseled about the surgical steps, their anxiety was relieved and they agreed to co operate during surgery. Those who were still anxious were excluded from the study and were operated under peribulbar anesthesia.

During surgery all patients experienced that there was bright light throughout the procedure, initially it was uncomfortable but subsequently they were used to it. 60% also noticed flashes of light at some stage during surgery. 90% patients also noticed some colors, predominantly red during surgery. Fear of pain was present in 80% patients before surgery, but 30% patients after surgery had some pain during the procedure. Feeling of pressure on the eye was predominant than pain. 100% patients before surgery thought that there would be feeling of touch during surgery and after surgery it remained the same. 90% patients felt that their eyes were being washed throughout the procedure. 40% patients expected that during surgery their vision would be cleared but 10% patients after surgery said that brightness of light increased during surgery, but vision was not cleared. 70% patients felt instruments touching the eye during surgery but it was not painful. 25% patients said that during surgery there were blackouts for shorter durations. 100% patients after surgery said that doctors encouraging words and directional remarks were of great help in alleviating their anxiety during surgery. Finally 98% patients were ready to go for cataract surgery under topical anesthesia in the other eye.

DISCUSSION

Phacoemulsification under topical anesthesia is routinely being performed throughout the world. Learning showed in his series of surveys on members of American Society of Cataract and Refractive surgery those respondents who said topical anesthesia as their primary method of anesthesia increased from 0.2% in 1993 to 37% in 1998 and 61% in 2003. This acceptance of topical anesthesia in noted in this study as well. Almost all patients were ready to go for surgery under topical anesthesia, and segregation was done on
the basis of inclusion and exclusion criteria. There are various advantages of topical anesthesia over peribulbar anesthesia; there is no chance of complications associated with peribulbar anesthesia, there is rapid return of postoperative visual acuity, no postoperative ptosis and no risk of globe or orbital contents damage. Patients experience during cataract surgery under different forms of anesthesia has been studied. Patients perception during surgery varies from no light perception, to bright light. There are other visual sensations like movements, flashes, color perception, seeing instruments, surgeon’s fingers or change in brightness of light, eye being washed out or pressure on eye during surgery. Since the procedure is being performed under topical anesthesia without any sedation, therefore patient’s cooperation is very important. There are several ways to calm the patients, best way is to engage and encourage the patient. Patient’s attention from the procedure can be diverted by telling him/her to keep busy in religious recitations in mind. Old illiterate ladies, especially can be engaged by asking about their kids or other ‘friendly’ family members.

Newman in his study showed that 6 out of 102 patients (5.9%) lost light perception for some time during phacoemulsification and IOL implantation under topical anaesthesia, transiently raised intraocular pressure could be the reason for this phenomenon. In this study, a higher proportion of patients (25%) reported transient loss of light perception during the operation. Loss of light perception during surgery can be perceived by patient as some intra-operative complication and can increase anxiety. Therefore preoperative counseling for this phenomenon should be specifically told to the patient.

Au Eong et al in their study reported that 15.4% were frightened by their visual sensations. These were the patients to whom preoperative counseling was not done. In my study fear of surgery was 70% before surgery and after surgery 10% patients had some reservations about visual sensations during surgery. This percentage is lower than the previously reported by Au Eong et al. Fear experienced during surgery is important. It can cause a sympathetic stress response and can result in tachycardia, hypertension, hyperventilation, ischaemic strain on the heart, and acute panic attacks, and also patients become less cooperative during the surgery. They start moving their eyes, or head or start straining. As most of our patients are of older age group with associated morbidities, chances of intra-operative complications are increased.

Rengaraj V et al in their study in India highlighted that visual experiences can be both pleasant and unpleasant. Perception of multiple colors during surgery is being described by some patients as pleasant experience. In this study patients described the encouragement and perception of multitude of colors as pleasant experience. Unexpected multitudes of colors and shapes has

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Patient expectations/visual sensations</th>
<th>Before surgery (Number of patients) (n=100)</th>
<th>After surgery (Number of patients) (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perception of light</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Perception of colors</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>Flashes of light</td>
<td>25</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Movements</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>Pain</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>6</td>
<td>Feeling of pressure on eye</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>7</td>
<td>Feeling of touch</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Increase of intra operative clarity</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>Feeling of surgeons fingers</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>Instruments touching eye</td>
<td>20</td>
<td>70</td>
</tr>
<tr>
<td>11</td>
<td>No light perception at times</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>Fear of surgery</td>
<td>70</td>
<td>10</td>
</tr>
<tr>
<td>13</td>
<td>Eye being washed</td>
<td>–</td>
<td>90</td>
</tr>
</tbody>
</table>
also been described by Zia et al\textsuperscript{19} and Eong et al\textsuperscript{20} in their study.

Tan et al\textsuperscript{21} in their study highlighted the importance of Preoperative counseling. Preparation of patients is of paramount importance for surgery under topical anesthesia. It is specifically aimed to allay anxiety and impart adequate knowledge of what they can expect to see during the surgery\textsuperscript{18}. In this study all patients were counseled before the surgery therefore 80% of patients showed cooperation during surgery and those who were anxious were engaged in conversation and encouraged to cooperate. There were various encouragement techniques, tailored for the type of patient. Patient selection criteria are very important for phacoemulsification under topical anesthesia. All patients are not suitable for surgery under topical anesthesia.

**CONCLUSION:**

Phacoemulsification under topical anesthesia is a safe procedure for most of the patients. Patients apprehensions can be minimized by counseling the patients before the procedure and during surgery patient should be engaged by encouraging words.

**REFERENCES**

The Prevalence of Strabismus Types in Patients in the Eye Department of University of Lahore

Zonish Faryad MBBS, 1 Jawad Waseem MBBS 2 Rao Faheem Aqeel MBBS 3

ABSTRACT
Objective: The objective of this study is to know about the prevalence of strabismus types in strabismus patients.
Material and Methods: A retrospective study was conducted in university of Lahore from 2016 to 2018, the study consisted of records of strabismus patients. From these, strabismus types and associated abnormalities, types of amblyopia and other ocular pathological findings were also recorded.
Result: In this study, 500 strabismic patients were included. Accommodative esotropia (ET) was the most prevalent type of strabismus accounting for 52% of all strabismic patients while intermittent exotropia (XT), non accommodative ET and partially accommodative ET, with 40.00%, 23.24% and 10.00%, respectively, were relatively common.
Conclusion: The prevalence of accommodative esotropia was more common than intermittent exotropia or any other strabismus type. This study suggests that strabismus screening of children could be useful in the early detection of strabismus, appropriate management of it and prevention of strabismic amblyopia.
Key words: Exotropia, strabismus, accommodative esotropia, amblyopia, retrospective

INTRODUCTION:
The term “strabismus” came from Greek, which means to squint or to look obliquely. Strabismus means ocular misalignment. One eye is misaligned in relation to the other while focusing on an object. It can be due to abnormalities in binocular vision or anomalies of neuromuscular control of ocular motility. 1

Strabismus is a very common ocular problem found at clinics of optometry and ophthalmology. In worldwide, 3–5% of children are affected with 126,400 new cases occurring each year. The national prevalence of squint is 5.4% and this suggests that there are 7.02 million patients with strabismus in a population of 130 million. 2 Strabismus constitutes a medical, social and psychological problem. Many studies investigating the prevalence of strabismus and its types have been conducted.

The prevalence of convergent squint varies in different parts of the world; however, esotropia (ET) is the most common form of strabismus constituting from a half to two thirds of all misaligned eyes. 3 In the US, ET was prevalent amongst 75% of total cases. 4 In Ibadan, Nigeria, ET was found in 80% of total cases. 5 Similarly in Ireland (UK), ET was found to be five times more common than exotropia (XT). 6 However, the prevalence of strabismus differs between various races and the prevalence of different types of strabismus also varies according to race.

The prevalence of accommodative esotropia is more common than intermittent exotropia or any other strabismus type. This study suggests that strabismus screening in children could be useful in the early detection of strabismus, appropriate management of it and prevention of strabismic amblyopia.

The different techniques to assess ocular deviation can be divided into objective methods, as for example the cover test, and subjective methods, such as the Maddox rod test. 1 However, all need active cooperation of the patient. Probably the most commonly used method in clinical practice is the prism cover test (PCT). However, the PCT is performed manually and measurements depend on the examiner’s attention and professional experience. Therefore the PCT is not absolutely reliable.
and may be inconsistent between repeated measurements by the same examiner or between several different examiners. Furthermore, the examiner must observe the ocular movements during covering and uncovering of the eyes and may miss very small movements that would be important in cases with subtle cranial nerve palsies.

Several variants of subjective screen tests are used clinically to measure and document ocular deviations. The Hess and Lancaster screen tests both use red–green glasses to break binocular fusion. In the Hess test, the patient has to indicate targets on a red grid. While the red grid is only visible with one eye through the green glass by color subtraction, the red laser pointer can only be seen with the other eye through the red glass by color addition (Video 1, available at www.aaojournal.org). In the Lancaster test, the examiner projects a red light streak with a flashlight onto a grid (invisible to the patient through the glasses), which the patient has to match with a green flashlight. This allows the examiner to also estimate ocular torsion. The Harms tangent screen is a similar but more cumbersome test that serves to quantify the horizontal, the vertical, and additionally the torsional components of ocular misalignment. In contrast to the Hess and Lancaster screen tests, for the Harms test the head rather than the eyes is rotated into 9 different positions to achieve eccentric gaze.

MATERIAL AND METHOD:
The retrospective study was conducted using the medical records of patients that had one of the types of strabismus. It should be noted those patients who showed an ortho response to the cover test with no head posture were excluded from this study. All patients were examined by two experienced examiners. All patients underwent ocular examinations such as cover test, Krimsky test, measuring corrected distance visual acuity (CDVA), manifest refraction, and slit lamp and fundus evaluations.

Strabismus was defined as 1 prism diopter or more misalignment of the visual axes of the eyes measured by unilateral cover test. Accommodative ET was defined as > 2.00 D of hyperopia, uncorrected ET of > 10\(^4\) for distance or near, and corrected ET of \(\leq 10^4\) for distance and near sight with use of full cycloplegic hyperopic correction. Early onset ET was defined as an initial manifest esodeviation, documented by an ophthalmologist with onset between birth and 6 months of age. In our clinic, visual acuity testing with the Snellen Eye Chart was done at 6 m distance if oral communication with the patient was practical. Binocular vision assessment was made using the cover test, and ocular motility was assessed in nine positions of gaze, testing both ductions and versions. Refractive errors and keratometry was measured with the Topcon auto-kerato refractometer KR 8800 and the Heine Beta200 retinoscope.

RESULTS:
In this study, 500 strabismus patients were studied in university of Lahore Hospital in between the age ranging from 0 to 20 years. Accommodative esotropia (ET) was the most prevalent type of strabismus accounting for 52% of all strabismus patients while intermittent exotropia (XT), non accommodative ET and partially accommodative ET, with 40%, 23% and 10.00%, respectively, were relatively common.

Table 1: Types of Esotropia and association with gender

<table>
<thead>
<tr>
<th>Esotropia type</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total esotropic patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodative</td>
<td>35</td>
<td>17</td>
<td>52</td>
</tr>
<tr>
<td>Non accommodative</td>
<td>19</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Partially accommodative</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Micro esotropia</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Sensory esotropia</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2: Types of Exotropia and association with gender

<table>
<thead>
<tr>
<th>Exotropia type</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total exotropic patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermittent</td>
<td>30</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>Constant</td>
<td>31</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>Other types</td>
<td>20</td>
<td>7</td>
<td>27</td>
</tr>
</tbody>
</table>

The result shows that intermittent is most common among all exotropic types which is more prevalent in males than females.

Table 3: Vertical Deviation types

<table>
<thead>
<tr>
<th>Vertical deviation type</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissociated vertical</td>
<td>35</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Hypertropia</td>
<td>20</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Hypotropia</td>
<td>11</td>
<td>10</td>
<td>21</td>
</tr>
</tbody>
</table>

The result shows that dissociated vertical deviation is most common among all vertical deviation types which is high in male than females.

DISCUSSION:
In this study 500 strabismic patients were
studied. Accommodative esotropia (ET) was the most prevalent type of strabismus accounting for 52% of all strabismic patients while intermittent exotropia (XT), non-accommodative ET and partially accommodative ET, with 40.00%, 23.24% and 10.00%, respectively, were relatively common.

Another study was conducted in Iran by Khorrami-Nejad M in 2017 in 1174 patients accordingly. Accommodative esotropia (ET) was the most prevalent type of strabismus accounting for 25.04% of all strabismic patients while intermittent exotropia (XT), non-accommodative ET and partially accommodative ET, with 12.09%, 11.24% and 10.39%, respectively, were relatively common. Also, 63.03% of all strabismic patients had eso-deviation with XT coming second for 24.53% of patients. Other pathologic findings in addition to strabismus were found in 236 (20.1%) patients. The most common association with those types of strabismus was inferior oblique over-action accounting to 11.07% of all cases while 88 patients had nystagmus in addition to strabismus. Significantly 45% of patients had no amblyopia and 37% of patients had a combined type of amblyopia which was the most common type of amblyopia found in strabismic patients.\(^{19}\)

Another study was conducted by Jennifer.M in 2013 in Ethiopia according to that 753 cases of new-onset adult strabismus were identified during the 20-year period, yielding an annual age and gender-adjusted incidence rate of 54.1 cases (95% confidence interval, 50.2–58.0) per 100 000 individuals 19 years of age and older. The 4 most common types of new-onset strabismus were paralytic (44.2% of cases), convergence insufficiency (15.7%), small-angle hypertropia (13.3%), and divergence insufficiency (10.6%). The incidence of adult-onset strabismus overall and its 4 most common forms significantly increased with age (\(P<0.001\) for all), with a peak incidence in the eighth decade of life. The lifetime risk of being diagnosed with adult-onset strabismus was 4.0% in women and 3.9% in men.\(^{20}\)

CONCLUSION:

The prevalence of accommodative esotropia is more common than intermittent exotropia or any other strabismus type. This study suggests that strabismus screening in children could be useful in the early detection of strabismus, appropriate management of it and prevention of strabismic amblyopia.

REFERENCES:

The Association of Serum Lipids with Age Related Macular Degeneration


ABSTRACT

Introduction: Pakistan is a developing country. The vast majority of the country’s 135 million inhabitants do not have access to healthy food, healthy living conditions. Because poverty and high population growth have aggravated, and mostly contributed to their unhygienic and unhealthy diet. Un healthy diet, and lack of education and some ethical issues has not only increased other public health problems but also have led to such ocular conditions which are not only going to make them deprive of their normal living but also increasing burden on the society. 2.1% of the blindness is due to age related macular degeneration (ARMD) which is responsible for the blindness in elderly population throughout Pakistan.

Objectives: The purpose of this study was to find out the association of ARMD with serum lipids in subjects attending Ophthalmology department Hayatabad Medical Complex Peshawar.

Main Outcome Measures: The main outcome measures were determination of blood cholesterol and the disease patterns in the subjects visiting HMC, from September 2017 to October 2018.

Study Design: Case control study

Material and methods: In this case-control study, the cases were patients having ARMD of age50 years or above who were normotensive, non-diabetic, with no family history of any such disease and no complication of posterior segment other than ARMD. Controls were of the same age, normotensive and non-diabetic and no symptoms of ARMD. The controls were selected either from the relatives of the patients or from the patients having eye disease other than posterior segment pathologies especially ARMD. Diagnosis of subjects with ARMD was done by ophthalmologists through conventional diagnostic technique. After that 5ml of venous blood from each subjects were taken after taking both verbal and written consent. The blood samples were than analyzed for TC, HDL, LDL and triglycerides through automated clinical chemistry analyzer in the chemical laboratory of HMC. Data were analyzed using independent t and chi-square tests.

Results: According to this study total cholesterol level was significantly higher in ARMD patients as compared to the control group. While HDL-cholesterol and LDL-cholesterol were non-significantly associated with ARMD. Thus, higher level of TC and TG concentration indicates these to be the causative factors for development of ARMD.

Conclusion: In this study higher level of total cholesterol and triglycerides concentration indicates these to be the causative factors for development of ARMD.

Key Words: Age-related Macular Degeneration, Serum lipids, Cholesterol, Triglycerides

INTRODUCTION:

Age related macular degeneration (ARMD) is a leading cause of central vision loss among individuals of 50 years of age or above, in which the ability to read, drive, recognize faces or watching television can be impaired or lost.

TC and TG were significantly higher in ARMD patients as compared to the control group. While HDL-cholesterol and LDL-cholesterol were none significantly associated with ARMD. Thus, higher level of TC and TG concentration indicates these to be the causative factors for development of ARMD.

This is more prevalent in developed countries affecting presently 2.5 million people in the Europe 1.75 million in the USA and 3 million peo-
people will be affected by 2020. \[1\] Even though the ARMD is thought to be more prevalent in developed countries but it is now emerging in Asians population too. The Indian subcontinent is one of the most populous regions of the Asia in the world. Pakistan is one of a developing country in the region. The vast majority of the country’s 135 million inhabitants do not have access to healthy food, healthy living conditions. Because poverty and high population growth have aggravated and mostly contributed to their unhygienic and unhealthy diet. Un healthy diet, lack of education and some ethical issues has not only increased other public health problems but also have led to such ocular conditions which are not only going to make them deprive of their normal living but also increasing burden on the society. The blindness due to ARMD is 2.1% which is responsible for the blindness in elderly population throughout Pakistan.\[2\]

ARMD, also called senile macular degeneration, affects all retinal layers of the macula in different degenerative pattern, photoreceptors, retinal pigment epithelium (RPE) and Bruch’s membrane (BM). The outer segments of rods and cones cells of the retina in the RPE are enriched in lipids contents which are normally phagocytized by the RPE cells and recycled back to these photoreceptor in order to maintain visual functions. With advancing age RPE cells, like the other functional cells of the body, become aged, decrease in number and eventually lose their functionality thus creating an imbalance in the normal physiology which leads to accumulation of pathological extracellular deposits like glycolipids, proteins and lipid containing debris i.e. lipoprotein in the form of drusen, and cellular debris in sub RPE and BM. This is a critical event and a prominent histopathological marker in development of ARMD. \[3\]

There are two main types of ARMD.
1). Atrophic ARMD, also known as non-exudative, dry ARMD, is responsible for 90% of the cases with ARMD \[4\] and it is clinically characterized by the accumulation of drusen between RPE and BM which is responsible for gradual progressive central vision loss. It is more noticeable during near work especially in the early stage of the disease. \[5\]
2). Exudative ARMD is also called wet ARMD and it accounts for 10% of the cases of ARMD only. 90% of this type of ARMD has significant loss of vision. It is caused by leakage of choroidal neovascularization originating from chorio-capillaries, which grow through the defects in the BM into sub retinal space with subsequent elevation of the RPE or neurosensory retina. \[4\] This type of ARMD results in rapid deterioration of central vision than the atrophic form. The patient experiences dysmorphopsia, scotoma and blurred vision.

RISK FACTORS FOR AMD: Risk factors for the development of ARMD includes advancing age\[6\], Race (whites more than black)\[7\], cigarette smoking\[8\], low socioeconomic status, cardiovascular disease and its risk factors, serum lipids level and dietary fat intake.\[9\]

Serum Lipids Level and Dietary Fat Intake:
Ingestion of saturated fat and cholesterol is associated with an increased risk for atherosclerosis\[10\][11] which increases the risk of development of AMD.\[9\] So the aim of this study was to find the association between ARMD and serum Lipids.

MATERIAL AND METHODS:
In this case-control study, the cases were patients having ARMD both male and female of age50 years or above who were normotensive, non-diabetic, with no family history of any such disease and no complication of posterior ocular chamber other than ARMD. Controls were of the same age, normotensive and non-diabetic and no symptoms of ARMD. The controls were selected either from the relatives of the patients or from the patients having eye disease other than posterior segment pathologies especially ARMD.

After diagnosis of ARMD, which was done through conventional diagnostic technique by professional ophthalmologists, 5ml of venous blood from each subjects were taken after taking consent from the patient. The blood samples were then analyzed for TC, HDL, LDL and triglycerides through automated clinical chemistry analyzer in the chemical laboratory of HMC. Data were analyzed using independent t and chi-square tests by SPSS software.

RESULTS:
In this study total 19 patients with ARMD and 19 normal subjects above 50 years of age were analyzed for the association of blood serum with ARMD in the patients visiting HMC Peshawar.
Table 1: General characteristics of the cases with “armd” (n=19) and control group without armd (n=19) using independent t-test and chi-square test:

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>CASES</th>
<th>CONTROLS</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1. GENDER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. MALE</td>
<td>16</td>
<td>13</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>55.2</td>
<td>44.8</td>
<td></td>
</tr>
<tr>
<td>b. FEMALES</td>
<td>3.00</td>
<td>6.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33.3</td>
<td>66.7</td>
<td></td>
</tr>
<tr>
<td>2. AGE (YEARS)</td>
<td></td>
<td></td>
<td>0.47</td>
</tr>
<tr>
<td>Mean (± SD)</td>
<td>73.11±7.08</td>
<td>70.63±9.30</td>
<td></td>
</tr>
</tbody>
</table>

Graph: Percentage of Males and Females in the two types of ARMD

There were total 13 number of patients with Atrophic ARMD (68.4%) with 84.6% males and 15.4% females. While Exudative ARMD (31.6%) consist of 6 number of patients with 83.3% males and 16.7% females. In controls 68.4% were males and 31.6% were females.
The Association of Serum Lipids with Age Related Macular Degeneration

Table 2: Association of serum lipids in cases with armd (n=19) and control groups without armd (n=19) using chi-square test.

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>ARMD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>A. Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Male</td>
<td>16 (84.2)</td>
<td>13 (68.4)</td>
</tr>
<tr>
<td>2. Female</td>
<td>3.0 (15.8)</td>
<td>6.0 (31.6)</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>18 (47.4)</td>
<td>20 (52.6)</td>
</tr>
<tr>
<td>High Density Lipoprotein</td>
<td>15 (39.5)</td>
<td>23 (60.5)</td>
</tr>
<tr>
<td>Low Density Lipoprotein</td>
<td>6.0 (15.8)</td>
<td>32 (84.2)</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>17 (44.7)</td>
<td>21 (55.3)</td>
</tr>
</tbody>
</table>

Association of serum lipids in cases and control groups are shown in Table 2. TCH (p=0.000) and TG (p=0.000) were significantly higher in cases with ARMD compared to control group without ARMD.

Table 3: Comparison of serum lipids of Dry ARMD with control group

<table>
<thead>
<tr>
<th>Serum lipids(mg/dl)</th>
<th>ARMD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>14 (43.8)</td>
<td>18 (56.2)</td>
</tr>
<tr>
<td>High Density Lipoprotein</td>
<td>11 (34.4)</td>
<td>21 (65.5)</td>
</tr>
<tr>
<td>Low Density Lipoprotein</td>
<td>5.0 (15.6)</td>
<td>27 (84.4)</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>14 (43.8)</td>
<td>18 (56.2)</td>
</tr>
</tbody>
</table>

Comparison of serum lipids concentration between DRY ARMD and controls are shown in table 3. In which TCH, HDL, LDL and TG were p=0.000, p=0.06, p=0.683 and 0.000 respectively. Which shows that TC and TG are significantly associated with development of Atrophic ARMD.

Table 4: Comparison of serum lipids in Wet ARMD and control group.

<table>
<thead>
<tr>
<th>Serum lipids(mg/dl)</th>
<th>ARMD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>6.0 (24)</td>
<td>19 (76.0)</td>
</tr>
<tr>
<td>High Density Lipoprotein</td>
<td>8.0 (32)</td>
<td>17 (68)</td>
</tr>
<tr>
<td>Low Density Lipoprotein</td>
<td>4.0 (16)</td>
<td>21 (84)</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>5 (20)</td>
<td>20 (80)</td>
</tr>
</tbody>
</table>

Comparison of serum lipids concentration in Wet ARMD with controls are shown in table 4. In which TC is significantly associated with development of ARMD with p value of 0.015. HDL-C is 0.06 LDL-C has p=0.694 and TG shows p value= 0.070.

Table 5: Comparison Of Serum Lipids Concentration (Mean And Standard Deviation) In Cases with...
The Association of Serum Lipids with Age Related Macular Degeneration

ARMD (N=19) and Control Groups Without ARMD (N=19) Using Independent t- Test:

<table>
<thead>
<tr>
<th>Serum lipids(mg/dl)</th>
<th>CASES Mean ± SD</th>
<th>CONTROLS Mean ± SD</th>
<th>p- value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol</td>
<td>207.15 ± 34.34</td>
<td>167.68 ± 29.38</td>
<td>0.000</td>
</tr>
<tr>
<td>High Density Lipoprotein</td>
<td>35.158 ± 7.61</td>
<td>37.63 ± 8.96</td>
<td>0.246</td>
</tr>
<tr>
<td>Low Density Lipoprotein</td>
<td>99.316 ± 48.40</td>
<td>109.16 ± 23.99</td>
<td>0.58</td>
</tr>
<tr>
<td>Triglyceride</td>
<td>221.94 ± 27.29</td>
<td>126.36 ± 38.41</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Interpretation: Comparison of the total cholesterol, high lipoproteins, low lipoproteins and triglycerides concentration (Mean and standard deviation) in cases with ARMD and controls without ARMD show that TCH, and TG shows significantly higher concentration than LDL and HDL.

DISCUSSION:

The focus of the study was to clinically analyze the association of serum lipids with ARMD. According to this study TC level and TG were significantly higher in ARMD patients as compared to the control subjects (p=0.000). While HDL-cholesterol (p=0.246) and LDL-cholesterol (p=0.58) were none significantly associated with ARMD.

In this study TC level and TG were significantly higher in ARMD patients as compared to the control subjects (p=0.000) which correlates with the study conducted by Bleda sanchis et al. in which concentration of TCH and TG were higher in AMD patients compared to controls (p<0.001) which correlates with our study. However in this study LDL was lower in the cases compared to the study in which LDL was markedly higher. [12]

A Case-Control study conducted in Iran founded that TCH and TG were significantly higher in cases with ARMD (p=0.001). The authors also found significantly higher concentration of LDL in ARMD cases (p=0.001), however we found no significant difference for LDL between the cases with ARMD and controls. [13]

A study conducted on sixty women with AMD aged 55-71 year (mean age 65.1±5.7) in an outpatient ophthalmic clinic for more than two years. They analyzed TCH, TG, HDL, LDL and lipoproteins. They found a significant increase of TCH, LDL and TG and a significant decrease of HDL in AMD patients compared to the control group. They found no significant difference in the average TG level between the two groups, Apo-lipoprotein A1 and Apo-lipoprotein B while I found significant increase in concentration in TC and TG with no significance between HDL and LDL concentration. [14]

A population based study on age related eye disease conducted on 963 elderly residents of France, accounted the association of AMD with plasma lipids level and lipid lowering medication use. According to this study higher HDL was significantly associated with an increased risk of early AMD (p=0.0002) and any AMD (p=0.0003) while no such association of HDL level with late AMD was found (p=0.45). Higher HDL concentration may be at increased risk for AMD. While in our study we found no association of HDL in cases with ARMD compared to control. [15]

A study conducted by Renolds. R et al. founded higher cholesterol level to be a risk of ARMD which correlates with our study. [16] Similar study reports were also found by Colak et al. who showed elevated plasma lipid concentration
could play an important role in the development of AMD in elderly people.[17]

Another study assessed 60 male patients with AMD in Iran and reported serum levels of LDL was high among patients but no significant changes was reported in TCH, TG and HDL concentrations.[18] while we found no significant difference in HDL level and LDL level. A cohort study conducted in USA reported a significant correlation between AMD and TCH, LDL and smoking.[19]

In contrast to this some studies found no association[20][21] or negative association of Serum lipids with ARMD.[22] The particular population of AMD of present study show elevation of TC and TG concentration which indicates that high level of these to be the causative factor for development of ARMD.

CONCLUSION:
According to this study TC and TG were significantly higher in ARMD patients as compared to the control group. While HDL-cholesterol and LDL-cholesterol were none significantly associated with ARMD. Thus, higher level of TC and TG concentration indicates these to be the causative factors for development of ARMD.

REFERENCES:
15. Cougnard-Grégoire A, Delyfer MN, Korobelnik JF, Rougier, Dartgues, Barberger Gateau et al.
Effect on Intraocular Pressure of Preoperative Sub-tenon Injection of 5-Fluorouracil in Chronic Open-angle Glaucoma

Khalid Mahmood, FCPSc, Mehreen Sohail, MCPSc, Hina Adeel, MCPSc, Muhammad Tariq Khan FCPSc, Sidrah Riaz FCPSc

ABSTRACT

Objective: To observe the effect of preoperative 5 FU injection in patients of chronic open angle glaucoma. Primary open-angle glaucoma usually requires medical treatment as a first line of therapy. The application of pre-trabeculectomy 5-FU is a novel innovation in which instead of injecting the drug per-op or post-op multiple times, it was used in a single dose, 48 hours before the surgery in cases of chronic primary open-angle glaucoma. The patients were on maximum tolerated medical therapy (three or more than three drugs) for minimum of three years. The purpose was to achieve a safer IOP level and to avoid the complications of anti-metabolites after trabeculectomy.

Materials and Methods: 71 eyes of 58 patients were selected and enrolled from January 2016 to August 2017 from eye OPD. All patients had chronic open-angle glaucoma and were using three or more than three topical medications for at least 3 years. Pre-operative intraocular pressure was in the range of 24-32 mmHg with Goldman’s applanation tonometer.

Results: Target of IOP, 14mm of Hg was achieved in 49 eyes, 17 eyes were given a single additional topical medication to achieve target IOP and in 05 cases the target IOP was not achieved.

Conclusion: The application of pre-trabeculectomy 5-FU is a novel innovation in which instead of injecting the drug per-op or post-op multiple times, resulted in better control of IOP after trabeculectomy.

Keywords: intraocular pressure (IOP), trabeculectomy, primary open angle glaucoma (POAG)

INTRODUCTION:

Primary open-angle glaucoma usually requires medical treatment as a first line therapy. Monotherapy usually not successful in achieving target intra-ocular pressure (IOP) which requires additional topical drugs to be added. Even oral anti-glaucoma agents are required in many cases to reach a safe IOP level in order to avoid optic nerve damage and to save visual fields. Long term use of topical anti glaucoma medication leads to changes in conjunctival and sub-tenon area. These fibrotic changes ends up in failure of surgical treatment.

5FU application (a novel technique) through single injection in the area of treatment has proved to be very effective in controlling IOP in chronic POAG with failed maximum medical therapy. Bleb remains functional and avascular, post-op complications are few as compared to MMC application.

Attempts to make glaucoma surgery successful are every surgeon’s wish which sometimes ends devastatingly in moderate to high risk glaucoma. Some important risk factors are younger age, black race, myopia, previous ocular surgery and/or inflammations of the eyeball. Long term use of topical anti glaucoma medications in primary open-angle glaucoma is an important cause of trabeculectomy failure. The main interface is at the sub-conjunctival sub-tenon space complex. Maximum scarring occurs at this place which leads to closure of the trabeculectomy window and ends in diminished aqueous outflow. To avoid such results, attempts and innovations are regularly made while performing glaucoma surgery.

Different modifications are adopted by surgeons like use of antimetabolites is usually common. Routinely used antimetabolites are 5-Fluorouracil (5-
5-FU and Mitomycin-C (MMC).\textsuperscript{15,16,17} Antimetabolite use in glaucoma surgery is very common nowadays\textsuperscript{8,19}. In spite of having multiple disadvantages\textsuperscript{20} and side effects\textsuperscript{21}, these drugs are usually applied to improve the success rate of glaucoma surgery. Among a long list of adverse effects are hypotony and its related maculopathy, cataract, corneal epithelial defects, bleb leaks with over-drainage, blebitis and late onset endophthalmitis\textsuperscript{20,22}. 5-Fluorouracil is a chemotherapeutic agent that specifically mediates its anti-proliferative effect by antagonizing pyrimidine metabolism; hence its classification as an antimetabolite\textsuperscript{5,6,7}. 5-Fluorouracil is active on the synthesis phase of cell cycle\textsuperscript{17,23}. Fibroblastic proliferation is inhibited while fibroblastic attachment and migration are unaffected.\textsuperscript{6}

The application of pre-trabeculectomy 5-FU is a novel innovation in which instead of injecting the drug per-op or post-op multiple times, it is used as a single dose, 48 hours before the surgery in cases of chronic primary open-angle glaucoma. The patients were on maximum tolerated medical therapy (three or more than three drugs) for minimum of three years. The purpose was to achieve a safer IOP level and to avoid the complications of antimetabolites after trabeculectomy.

**MATERIAL AND METHODS**

71 eyes of 58 patients were selected and enrolled from January 2016 to August 2017 from outpatient department of ophthalmology department of Avicena Medical college Hospital. All patients had chronic open-angle glaucoma and were using three or more than three topical medications for at least 3 years. Pre-operative intraocular pressure was in the range of 24-32 mmHg with Goldman’s applanation tonometer. Best corrected visual acuity, detailed anterior and posterior segment examination including disc morphology, visual fields and OCT retinal nerve fiber layer was recorded. Gonioscopy was performed to assess the anterior chamber angle configuration. The patients under age of 25 years, with close angle, with history of previous trabeculectomy, uveitis, secondary close angle and steroid induced glaucoma were excluded.

The procedure was carried out in two steps. The initial procedure was under topical anesthesia with Proparacaine Hydrochloride 0.5%. The conjunctival and Tenon capsule mobility was checked with a moist cotton bud. Taking aseptic measures, 0.3 ml of 50mg/ ml of 5-Flourouracil (5-FU) was injected 6.0mm away from limbus at 12 o’clock meridian in the sub-Tenon space. This corresponds to the presumed surgical bleb site. Topical antibiotics and mild steroids were prescribed four times a day.

Routine fornix based trabeculectomy was performed on the 2nd day of the sub-Tenon injection of 5-FU. Follow up was carried out at day 1, week 1, and monthly for 1 year. Visual acuity, IOP, detailed anterior and posterior segment examination was done with special emphasis on bleb morphology, patency of peripheral iridectomy and anterior chamber depth. Complication data was maintained and all complications were managed accordingly.

**RESULTS:**

Target IOP in range of 12 to 16 mmHg was selected and 14mm of Hg was achieved in 59 eyes, 17 eyes were given a single additional topical medication to achieve target IOP and in 05 cases the target IOP was not achieved. Visual acuity remained stable in 50 eyes, while it deteriorated in 05 eyes due to complications. Bleb morphology was remarkably avascular and moderately elevated which qualified as a functional bleb. No signs of bleb thinning or blebitis was noted in the post-op period. Shallow anterior chamber resulted in immediately post-op days in 4 eyes which was managed accordingly. Only one eye got hypotony (IOP 6 mmHg) which was normalized after 2 weeks. No case required repeat trabeculectomy or needling.

![Figure 1](image)

**DISCUSSION:**

Trabeculectomy aims to produce a long-functioning drainage fistula, with the least possible risk of complications. In an ideal case, the bleb should be diffused and mildly elevated, with standard vascularity\textsuperscript{24}. 5FU is used to control healing, as it allows lower IOPs to be obtained. However, it must be used vigilantly in order to avoid thin or ischemic blebs, which are concomitant with leakage, and bigger risks of endophthalmitis\textsuperscript{22} and hypotony and its related maculopathy.

The 5FU area of action is confined to the area of exposure. The risk of a cystic bleb forming can be reduced by applying the anti-metabolites over a wide area. This also avoids escalated risks of premature failure that are caused by scarring around the site of the drainage\textsuperscript{35}.

Our hypothesis was, that by injecting the anti-metabolite into the sub Tenon layer, we would obtain a diffused area of action and direct toxicity to the conjunctiva and cornea would be reduced. As the patients in our study were all given the injections at the bleb site, it was thought to possibly increase the risk of bleb failure. However, these apprehensions were just that, and were not reflected in our results. Our results actually matched, and at times, surpassed those in which the injections next to the bleb were avoided.
As compared to the previous trabeculectomy any fibroblast activity initiated by the injection is likely to be inconsequential. Most complications that arise with 5FU manifest months or even years subsequent to the procedure; in one study of primary trabeculectomies with 5FU which had 5-year follow-ups, the average intervals before the onset of bleb leak, blebitis, hypotony and endophthalmitis were 27, 35, 26 and 15 months, respectively. Therefore, before further conclusions regarding this technique are made, the long-term follow-up of our patients will be studied.

An additional factor to be taken into consideration is that this was a non-comparative study, and so, it only reported the results from one surgeon with a specific technique. In order to determine the advantages of this technique over existing means of 5FU application, a prospective and randomized controlled trial should be conducted, using a formal means of bleb assessment.

CONCLUSION:
This is a direct and quick technique of 5FU application that has been described and tested above; a single injection is administered in the area for treatment, as opposed to preparing and then transferring the fragments of the sponge material to the conjunctiva, this can be expected to give an even exposure to the entire area involved. The risks of involuntary exposure of areas of conjunctiva or the corneal epithelium to 5FU, or of retained sponge fragments are absent. This novel technique is unique and proved to be very effective in controlling IOP in chronic POAG with failed maximum medical therapy. Bleb achieved was functional and avascular post-op complications were few as compared to studies in which MMC was applied.

REFERENCES
Ocular & Multi-system involvement in Congenital Rubella Syndrome

ABSTRACT:
Aim: To describe the ocular manifestations of congenital rubella syndrome (CRS), a common cause of congenital cataracts in developing countries.

Material and method: A Retrospective analysis of case records of 50 sero-positive infants under 5 year of age who presented at Mayo Hospital Ophthalmology Department, Lahore between 2012-2018. The ocular and systemic examination details were recorded.

Result: Both eyes were affected in 41 (89%) patients. Cataract was present in 81 (93.1%) eyes; most of them were nuclear cataract (79, 97.5%). Other common ocular presentations included microphthalmos in 74 (85.1%) eyes, iris abnormalities in 51 (58.6%) eyes, and pigmentary retinopathy in 33 (37.9%) eyes. Cataract, microphthalmos and iris hypoplasia was a common combination present in 49 (56.3%) eyes. Systemic manifestations included cardiac anomalies in 23 (50%) and neurological anomalies in 16 (34%) children. Multi-system involvement was present in 32 (70%) children. Low birth weight (below 2 kg) was seen in 30% infants.

Conclusion: CRS may present with a wide spectrum of ocular and systemic findings and requires a high index of suspicion for diagnosis. Any sick infant with unilateral or bilateral congenital cataract should be investigated thoroughly for CRS.

Key points: CRS, microphthalmos, hypoplasia, retinopathy, cataract, iris, bilateral, ophthalmoscopy

INTRODUCTION:
Rubella is the prototypical teratogenic viral agent. It consists of single-stranded RNA surrounded by a lipid envelope, or “toga”; hence its inclusion in the Togaviridae family. Although rubella is still an important cause of blindness in developing nations, the epidemic pattern of the disease was interrupted in the United States by the introduction of a vaccine in 1969. The peak age incidence shifted from 5–9 years (young children) in the pre-vaccine era to 15–19 years (older children) and 20–24 years (young adults) today. Approximately 5%–25% of women of childbearing age who lack rubella antibodies are susceptible to primary infection. Rubella may involve the retina as a part of the congenital rubella syndrome (CRS) or during acquired infection. Maternal infection with rubella in the first trimester of pregnancy results in congenital rubella syndrome (CRS). This is an important cause of blindness, deafness, congenital heart disease and mental retardation.

CRS may present with a wide spectrum of ocular and systemic findings and requires a high index of suspicion for diagnosis. Any sick infant with unilateral or bilateral congenital cataract should be investigated thoroughly for CRS.

Rubella vaccine is not included in the immunization schedule in Pakistan, and there is no routine
surveillance for rubella infection or CRS. According to recent reports from Pakistan a significant proportion of women of child-bearing age are susceptible to rubella infection. Several hospital based studies have shown 10-15% of congenital cataract in infants is due to maternal rubella in Pakistan, but the criteria to be used for screening rubella suspect are unresolved.

The fetus is infected with the rubella virus transplacentally, secondary to maternal viremia during the course of primary infection. The frequency of fetal infection is highest during the first 10 weeks and during the final month of pregnancy, with the rate of congenital defects varying inversely with gestational age. Although obvious maternal infection during the first trimester of pregnancy may end in spontaneous abortion, stillbirth, or severe fetal malformations, seropositive asymptomatic maternal rubella may also result in severe fetal disease. A unilateral or bilateral pigmented retinopathy is the most common ocular manifestation of CRS (25%–50%), followed by cataract (15%) and glaucoma (10%). The pigmented disturbance, often described as “salt-and-pepper” fundus, shows considerable variation, ranging from finely stippled, bone spicule–like, small, black, irregular masses to gross pigmentary irregularities with coarse, blotchy mottling. It can be stationary or progressive. Despite loss of the foveal light reflex and prominent pigmentary changes, neither vision nor the electro-retinogram is typically affected. Congenital (nuclear) cataracts and microphthalmia are the most frequent causes of poor visual acuity and, rarely, CNV. Unless otherwise compromised by glaucoma, the optic nerve and the retinal vessels are typically normal in appearance.

MATERIAL AND METHOD:
A retrospective study was conducted in Mayo Hospital between 2012-2018. Children of under 12 month were included in this study. Patient’s previous record was used to check the effect of rubella syndrome on eyes. In which patient were examined by a senior ophthalmologist. The cases that fulfill the CRS definition were evaluated annually for the presence of manifestations. The tertiary child health care units maintained details of such cases. The detail ophthalmic examination was utilized that included evaluation of best-corrected visual acuity, indirect ophthalmoscopy, slit lamp examination of the anterior segment, measurement of intraocular pressure, and examination of the posterior segment by means of indirect ophthalmoscopy through dilated pupils. B-scan ultrasonography was performed for posterior segment evaluation in cases of media opacities. Axial length was evaluated by means of A-scan ultra-sonography. Presence of strabismus was established by performing the Hirschberg test. SPSS was used to analyze that data.

RESULT:
Eighty seven eyes of 46 infants were analyzed. Age at diagnosis ranged from 1 day to 12 months. Thirty-one (67%) infants were diagnosed within five months of life. The birth weight distribution was as follows: less than 1.50 kg in five infants; 1.50-2.0 kg in 25 infants; 2.0-2.50 kg in six and more than 2.5 kg in four infants. Birth weight was not available for 5 infants. Significant neonatal problems included seizures in six infants, jaundice in two, septicemia with acute renal failure in one, rash after birth in one and hepato-splenomegaly in one infant. Nineteen (41.3%) mothers gave a positive history of fever with rashes during the early months of pregnancy.

Table 1 shows the ocular abnormalities in children with CRS. Cataract was the commonest finding seen in 81 (93.1%) eyes, which included all the five cases with unilateral ocular involvement. The type of cataract was nuclear in 98 eyes including all the five from the unilateral group. Others included bilateral 34 (92%), and unilateral 6 (8%) microphthalmos, iris hypoplasia 51 (58.6%), cloudy cornea of variable intensity 16 (18%), Rubella retinopathy 33 (38%), nystagmus 25 (56%), concomitant strabismus 12 (26%), primary optic atrophy 2 (4.3%), and bilateral dacryostenosis 1 (2.1%). All 40 patients with microphthalmos also had cataract. The corneal diameter in our patients ranged from 8-10 mm. In 11 eyes with corneal oedema IOP was within normal limits (<20 mm Hg). Five eyes with corneal oedema had associated glaucoma. Four eyes with glaucoma were microphthamic and had cataract. Only one eye with glaucoma had megalocornea with clear lens.

<table>
<thead>
<tr>
<th>Table:1 Ocular manifestation in congenital rubella syndrome</th>
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<tbody>
<tr>
<td><strong>Ocular manifestation</strong></td>
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<tr>
<td>Cataract</td>
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<tr>
<td>Corneal opacity</td>
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<tr>
<td>Rubella Retinopathy</td>
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<td>Strabismus</td>
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<td>Glaucoma</td>
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<td>Nystagmus</td>
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<tr>
<td>Optic atrophy</td>
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<tr>
<td>Iris hypoplasia</td>
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<td>Microphthalmos</td>
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</table>
Systemic abnormalities were present in 32 (70%) children. Cardiovascular anomalies were found in 52% children. Developmental and neurological defects were seen in 31% which included microcephaly, psychomotor retardation and seizure disorder. Hearing abnormality was detected in 5% patients.

Table 2: Systemic manifestation in congenital rubella syndrome

<table>
<thead>
<tr>
<th>Systemic manifestation</th>
<th>%</th>
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<tbody>
<tr>
<td>Cardiac anomalies</td>
<td>52</td>
</tr>
<tr>
<td>Central nervous system anomaly</td>
<td>31</td>
</tr>
<tr>
<td>Hearing issue</td>
<td>5</td>
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DISCUSSION:

The result shows that both eyes were affected in 41 (89%) patients. Cataract was present in 81 (93.1%) eyes; most of them were nuclear cataract (79, 97.5%). Other common ocular presentations included microphthalmos in 74 (85.1%) eyes, iris abnormalities in 51 (58.6%) eyes, and pigmentary retinopathy in 33 (37.9%) eyes. Cataract, microphthalmos and iris hypoplasia was a common combination present in 49 (56.3%) eyes. Systemic manifestations included cardiac anomalies in 23 (50%) and neurological anomalies in 16 (34%) children. Multi-system involvement was present in 32 (70%) children. Low birth weight (below 2 kg) was seen in 30% infants. A study conducted at Ethiopia by markus.L on etiology of congenital cataract in 2012 showed that 25% were due to rubella infection in infants below one year of age and all of them were of the nuclear type. Nuclear cataract in this group of children had a positive predictive value of 75% for CRS.

Another study was conducted in India by Vajay.lakhshami.P in 2014 which shows that both eyes were affected in 41 (89%) patients. Cataract was present in 81 (93.1%) eyes; most of them were nuclear cataract (79, 97.5%). Other common ocular presentations included microphthalmos in 74 (85.1%) eyes, iris abnormalities in 51 (58.6%) eyes, and pigmentary retinopathy in 33 (37.9%) eyes. Cataract, microphthalmos and iris hypoplasia was a common combination present in 49 (56.3%) eyes. Systemic manifestations included cardiac anomalies in 23 (50%) and neurological anomalies in 16 (34%) children. Multi-system involvement was present in 32 (70%) children. Low birth weight (below 2 kg) was seen in 30% infants.

A study was conducted in Oman by Kheilikander.j in 2004 according to that the age-adjusted prevalence of CRS in Oman was 73.2 per million in the Omani population younger than 20 years, and the incidence was 0.6 per 1000 live births. Cataract, retinitis, microphthalmos, and glaucoma were observed in 11, 16, 6, and 4 patients, respectively. Keratoconus, corneal hydrops. Vision testing was possible in 16 children; 4 were bilaterally blind. Patients who had undergone eye surgery had significantly lower visual acuity, as compared with those who had not undergone surgery (relative risk 2.53; 95% confidence interval, 1.07-6.13). Among the 11 patients with CRS with cataract, we found hearing loss, cardiac anomalies, and neuropsychological anomalies in 7, 4, and 6 children, respectively.

CONCLUSION: CRS may present with a wide spectrum of ocular and systemic findings and requires a high index of suspicion for diagnosis. Any sick infant with unilateral or bilateral congenital cataract should be investigated thoroughly for CRS.

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3. Armstrong NT. The ocular manifestations of congenital rubella syndrome. Insight. 1992;1714-16.


Management of Referred Cases of Endophthalmitis

Sidrah Riaz FCPS,FRCS1, M. Tariq Khan FCPS2, Prof. Munir Ahmad FCPS3

ABSTRACT

Purpose: To review incidence, different causes, clinical characteristics and visual outcomes after treatment of endophthalmitis. It was a Retrospective case series

Methods and materials: In this study, 21 diagnosed cases of endophthalmitis were included, which were referred from different medical centers to a senior faculty for management from January 2017 to December 2018. The demographic, clinical and laboratory data was collected and analyzed by SPSS 20. P value <0.05 indicated statistical significance.

Results: During 2 years period, 21 cases of endophthalmitis were received from different medical centers operated by different eye surgeons. 13 (62%) were male and 8 (38%) were females. Nine (62%) developed postoperative endophthalmitis after cataract surgery, 6 (28%) after trauma, 5 (24%) were endogenous endophthalmitis and 1 (5%) after intravitreal avastin injection. The culture sensitivity report was negative in 16(76%), positive in one (5%) and NA in 4 (19%). Initial VA was faulty PL in 11 (52%), PL in 4 (19%) and HM in 6 (29%). Final VA was HM in 4 (19%), CF in 8 (38%) and above CF in 7 (33%). Two patients (10%) ended up in painful blind eye for which evisceration was done. All patients received intravitreal antibiotics and steroids initially but only 1 (5%) responded well remaining required PPV with silicon oil. Two (10%) required evisceration. 19 (90%) were cases of acute endophthalmitis and 2 (10%) were chronic endophthalmitis cases. Among 19 acute cases 9 (43%) developed clinical features of endophthalmitis within a week of surgery or trauma and 10 (47%) within second to fourth week. Two (10%) cases presented 6 weeks after cataract surgery and others within one month of ocular surgery or trauma.

Conclusion: Early intervention can save eye from profound visual loss and 71% eyes got final VA CF or above. So prompt treatment is essential and early vitrectomy has significant role in management of endophthalmitis.

Key words: endophthalmitis, endogenous, exogenous, phacoemulcification, visual acuity (VA), Perception of light (PL), hand movements (HM), counting fingers (CF), EVS (endophthalmitis vitrectomy study), VFD (Vancomycin, Fortum, and dexamethasone) and culture sensitivity (C/S).

INTRODUCTION:

Cataract surgery a is most commonly performed ocular surgery worldwide1. This procedure has some complication but post operative endophthalmitis is most devastating and fearful complication2, 3, 4. Incidence of endophthalmitis is variable in different parts of world depending upon skills of surgeon and operating facilities5,6,7. According to one study in Pakistan incidence of post operative endophthalmitis is around 0.65% and in our study it was around 0.087% which is close to worldwide incidence8. The clinical features of endophthalmitis include pain, redness, visual loss, lid swelling, chemosis, conjunctival injection, hypopyon, vitritis, corneal haze and loss of red reflex.

Early intervention can save 71% eyes from profound visual loss. Prompt treatment is essential and early vitrectomy has significant role in management of endophthalmitis.

Causes of exogenous endophthalmitis include cataract surgery, trauma9 and intravitreal injection. The hematogenous spread of infectious organisms to ocular tissue causing endogenous endophthalmitis. Both can lead to visual loss of variable degree10 as a result of intraocular inflammation. Chronic post operative endophthalmitis present 6 weeks after surgery11.

MATERIALS AND METHODS:

It was a retrospective study including 21 patients (13 males and 8 females Fig 1) operated and managed by different eye surgeons at differ-
Management of Referred Cases of Endophthalmitis

ent places in Punjab and sent to senior retinal surgeon for further management of endophthalmitis. Acute endophthalmitis is defined as inflammation involving vitreous and anterior chamber by microorganisms’ i.e. bacteria and fungi within 6 weeks after eye surgery or trauma. Different causes of endophthalmitis are seen in Fig 2.

Data was collected including patient name, age, gender, cause and time of presentation after surgery or trauma. Complete history was taken regarding patient complaints and inciting event leading to endophthalmitis. Diagnosis was further supported by B scan ultrasonography. VA noted at time of presentation and vitreous samples were sent for culture sensitivity and staining. Final visual acuity was noted 6 weeks post operatively.

Treatment approaches followed EVS guidelines in general. Intravitreal antibiotic and or antifungal drugs with steroids (dexamethasone 400 microns) were injected in all patients depending upon clinical picture, diagnosed as acute post operative or post traumatic endophthalmitis. All patients who did not respond to VFD (showed no improvement in VA and worsening of pain) were planned for PPV (pars plana vitrectomy) 23 Gauge with silicon oil and VFD or intravitreal antifungal, under local anesthesia in 17 patients and general anesthesia in 4 patients. Single surgeon performed all vitrectomies. Oral antibiotic 500mg ciprofloxacin b.d started one before vitrectomy 23.5 ports of 23 gauge vitrectomy were made. Vitreous samples were collected and sent for culture sensitivity (C/S), gram, Giemsa and KOH staining. Antibiotics and or antifungal were injected in infusion after vitreous sample collection. Vitrectomy completed with intravitreal injection of triamcinolone acetate (kenacort) assuring maximum clearing of vitreous and taking care to avoid iatrogenic retinal breaks as retina is fragile in endophthalmitis. All whitish colonies also aspirated with silicon tip flute needle and 360 degree endolaser applied. Silicon oil was injected in 19 out of 21 cases. In cases of post traumatic endophthalmitis primary repair was done already before referral and VFD was given. For cases of chronic endophthalmitis, IOL removal with removal of anterior and posterior capsule was done. A positive culture was defined as organism growth on 2 or more culture media. Statistical analysis was performed by SPSS 20. The variables were analyzed and P value < 0.05 was considered significant.

RESULTS

During 2 years time period from January 2017 to December 2018, all 21 referred patients were included in study. Single senior retinal surgeon managed all patients. The mean patient age was 47±24 years. The age range was 2 years to 75 years. The left eye involved in 14 (64%) and remaining 8 (36%) had right eye endophthalmitis. 13 (62%) were male and 8 (38%) were females (Fig1). Nine (62%) developed postoperative endophthalmitis after cataract surgery, 6 (28%) after penetrating trauma, 5 (24%) were endogenous endophthalmitis and 1 (5%) after intravitreal avastin injection (Fig 2). The culture sensitivity report was negative in 16 (76%), positive in one (5%) and NA in 4 (19%) as shown in Fig 5. Initial VA was faulty PL in 11 (52%), PL in 4 (19%) and HM in 6 (29%) shown in Fig 3. Final VA was HM in 4 (19%), CF in 8 (38%) and above CF in 7 (33%) at 6 weeks postoperatively (Fig 4). Two patients (10%) ended up NPL after evisceration. Among 19 acute cases 9 (43%) developed clinical features of endophthalmitis within a week of surgery or trauma and 10 (47%) within second to fourth week. Two (10%) cases presented
6 weeks after cataract surgery. All patients with acute presentation received intravitreal antibiotics + antifungal and steroids initially but only 1 (5%) responded well to intravitreal VFD, remaining required PPV with silicon oil. Two (10%) patients required evisceration. 19 (90%) were cases of acute endophthalmitis and 2 (10%) were labeled as chronic endophthalmitis cases.

![Graph: VA Initial]

**Figure: 3**

![Graph: VA Final]

**Figure: 4**

![Graph: CS Report]

**Figure: 5**

**DISCUSSION**

Incidence of endophthalmitis varies in different studies, some studies report higher 15,16 and other found lower than our study 0.087%. 17,18. The standard treatment for any acute endophthalmitis is intravitreal injections or PPV 19. EVS shows that PPV is only indicated in patients with initial VA (visual acuity) PL but early vitrectomy can achieve better visual outcome 20. The decision of early PPV depends upon many factors like availability of vitreoretinal (VR) surgeon, lack of vitrectomy facilities in Operation Theater, media opacity i.e. corneal involvement with trauma or infection and lack of finance. Our study shows that early intervention with intravitreal antibiotics steroid combination was associated with significant vision improvement 21 from CF to 6/9 in 3 weeks, in a 45 years old myopic lady who underwent phacoemulification with IOL, when VFD was given within 24 hours of developing acute postoperative endophthalmitis. All other patients also received intravitreal injections but planned for PPV when did not respond to 3 VFD injections 22. After PPV 15 (71%) patients attained final vision CF or above out of 21. early vitrectomy also resulted in better cosmesis, maintaining globe integrity and some useful vision. 500mg ciprofloxacin was given b.d to all patients planned for surgery for 5 days started one day before vitrectomy 23.

In cases of post traumatic endophthalmitis with open globe injuries first corneal tear repair was done and vitrectomy was deferred till 3 weeks to induce PVD (posterior vitreous detachment) but VFD with antifungal were given 24,25,26. Management of endogenous endophthalmitis involved intravitreal VFD with antifungal in one case but did not respond well and PPV had to be performed 26. 360 degree endolaser was applied and silicon oil was not injected in one case and second case ended up in evisceration 27 due to painful blind eye.

Final VA improvement above CF in cases of endophthalmitis after intravitreal injection avastin is variable from 33% to 78% 28,29,30. But generally it is below CF 31 as seen in our study. Two patients developed symptoms of chronic postoperative endophthalmitis were treated with IOL and capsular bag complete removal with anterior and posterior capsule 26,33 and had better visual outcome than final VA in acute post operative cases 34.

2 patients (10%) developed painful blind eye and ended up in evisceration 25. Both had VA faulty PL at presentation. One was 70 years lady treated by primary retinal surgeon with PPV and silicon oil with antifungal (fluconazole) intravitreally and in irrigation solutions during vitrectomy and evisceration revealed whitish membrane over ciliary body. Fungi were suspected but C/S report
did not confirm diagnosis. Second was case of endogenous endophthalmitis 65 years old female with uncontrolled diabetes and chronic renal failure and refused immediate VFD, deferred till 4 days but painful blind eye ended up in evisceration.

The rate of evisceration 5% in our study was consistent with another conducted in tertiary care hospital in southern Iran 36. Approximately 30% cases of post operative endophthalmitis are culture negative 37. But in our study only 5% were culture positive. C/S report was not available in 4 (19%) consistent with few studies in Korea 38, USA 39,40 and Singapore 41.

CONCLUSION:
First and foremost treatment of endophthalmitis is prevention of endophthalmitis because once infection involves ocular contents, visual loss to variable extent occurs. Endophthalmitis can be nightmare for an ophthalmologist but high suspicion sensitivity for earliest diagnosis is required. Intravitreal injections should be given in first 24 hours of clinical diagnosis of endophthalmitis and don’t require much expertise and specialized operation theater. Early planning or referral for PPV is wise step because it can save globe integrity and useful vision in most patients.

REFERENCES:


Traumatic Globe Luxation with Optic Nerve Transection (A Case Report)

Mehreen Ali MBBS1, Arif Khan (FCPS)2
Department of Ophthalmology, Pakistan Institute of Medical Sciences, Islamabad

BACKGROUND:

Globe luxation is a fairly rare but dramatic clinical event. Most cases are associated with high energy trauma and orbital or maxillofacial fractures. While maximal attempts are made to preserve the eyeball in all cases, we present here a case report of a traumatic globe luxation with complete optic nerve transection in which the eyeball could not be preserved due to a number of factors.

INTRODUCTION:

Globe luxation is said to have occurred when the equator of the eyeball protrudes beyond the orbital rim. Rarely, this maybe accompanied by transection of the optic nerve. Here, we present a unique case with complete traumatic globe luxation and optic nerve transection of one eye, while the contralateral eye remained healthy.

CASE REPORT:

A 26 year old male was referred to the ophthalmic emergency with a history of a road traffic accident 2 days previously. A driver by profession, he was driving his rickshaw when it was hit by a bus from behind, which caused the rickshaw to overturn. On examination, the left globe was found to be completely luxated. The optic nerve was transected 7 mm posterior to the back of the globe. He had no perception of light in the involved eye. The pupil was dilated and non-reactive. The cornea was edematous and showed signs of exposure. There was a 2 mm long laceration in the sclera, located about 7 mm medial to the limbus, with prolapse of uveal tissue. The contralateral eye was normal in all respects, with a visual acuity of 6/6, reactive pupil, and full motility. Computed tomography revealed a Le Forte II fracture. The patient was fully conscious and oriented. Treatment options were discussed with him, along with the likely prognosis. The risks and benefits of attempting to preserve the eyeball versus primary enucleation were discussed. Informed consent was acquired for primary enucleation. Exploration was done under general anesthesia. A thorough attempt was made to retrieve the disinserted extraocular muscles, but this was not fruitful. Necrotic soft tissue was found within the orbital cavity, along with vegetative foreign matter. These were carefully removed. Based on the presence of extensive necrosis, the complete severance of the optic nerve, and inability to find extraocular muscles for re-attachment, a decision was made to perform primary enucleation in order to spare the patient further physical and psychological pain. It was decided not to place an implant in the primary surgery due to extensive wound contamination. The orbital cavity was thoroughly irrigated and decontaminated. A two-layered closure was carried out with Vicryl 6/0 sutures, first of Tenon’s capsule and then of the conjunctiva. An eyepad was placed and the patient was placed on broad spectrum intravenous antibiotics along with pain relief.

Mehreen Ali

1. Post-graduate Resident 2. Assistant Professor

Correspondence: Dr. Mehreen Ali, Email: dr.mehreenali@gmail.com Tel: +92-3225099304, House 301-E, Street 49-A, G-10/3, Islamabad.

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Fig 1. Pre-operative view of the luxated left globe with transected optic nerve

DISCUSSION:

Globe luxation is most frequently seen in the setting of high energy trauma, characteristically with motor vehicle accidents. Associated optic nerve transection may occur due to severe forward propulsion of the globe due to coup and contrecoup injuries, or by bony fragments as a result of orbital fracture. It is recommended that every effort should be made to reposit the globe into the orbit in case of an intact globe. However, the risk-benefit ratio should be analysed in every individual case. In this case, the globe along with the optic nerve were completely detached, as were the extraocular muscles. The presence of extensive contamination and necrotic tissue, the poor expected prognosis, and the patient’s wishes were all considered and a decision to enucleate was made keeping all of these factors in mind.

REFERENCES:


1. Takayasu’s Arteritis  (Fundus Fluorescein Angiographic Studies.)
A young lady with Takayasu’s arteritis with a 4-week history of gradual, painless loss of vision in both eyes. Ophthalmologic examination revealed severe impairment with perception of light only in the right eye and hand motion in the left eye. Funduscopic examination revealed impaired circulation in retinal arteries and veins, known as “boxcarring”. Takayasu’s arteritis is a rare, systemic, large-vessel vasculitis. Impairment of vision is associated with involvement of the carotid and vertebral arteries and their branches that leads to decreased perfusion of the eye. The patient underwent percutaneous endovascular stenting of the common carotid and vertebral arteries and initiated treatment with oral glucocorticoids and azathioprine. At follow-up 4 weeks later, repeat fundus fluorescein angiography showed that the retinal blood flow had improved and was no longer segmented. Visual acuity improved to 20/400 in the left eye, and perception remained limited to light in the right eye. (Curtesy: NEJM)

2. Bitot’s Spots
A 4-year-old boy was brought to the ophthalmology clinic with a 1-year history of enlarging white deposits in both eyes and decreased night vision. On examination, the conjunctivae of both eyes appeared dry and wrinkled, with foamy, cream-colored deposits near the outer corners. The corneas were clear, the fundi were normal, and the visual acuity was 20/30 in both eyes. The child appeared pale, with hypopigmented hair. The ocular findings were consistent with Bitot’s spots, which are accumulations of keratin, often intermixed with an overgrowth of Corynebacterium xerosis, that result from epithelial metaplasia caused by vitamin A deficiency resulting in night blindness, as a result of dysfunction of rod photoreceptor cells. The serum vitamin A level was 16.8 μg per deciliter (reference range, 20 to 40 μg per deciliter), and the retinol-binding protein level was 0.01 g per liter (reference range, 0.03 to 0.06). Further history revealed extreme poverty, signs of dietary deficiency. The patient received an oral dose of vitamin A, which was repeated 4 weeks later. Artificial tears were also administered. The Bitot’s spots abated (less severe), although they did not completely resolve, over the course of 12 weeks. The patient was advised to administer another dose of vitamin A every 6 months until the child was 5 years of age. (Curtesy: Jagat Ram, M.S., Jitender Jinagal, M.S. Post Graduate Institute of Medical Education and Research, Chandigarh, India)

3. Neurofibromatosis type 2
A 32-year-old man had mild balance difficulties and hearing loss in the left ear. Evaluation revealed profound sensorio-neural loss in the left side and normal hearing on the right side. MRI of the brain revealed tumors in both internal acoustic canals (33 * 26 * 31 mm on the left side and 32 * 28 * 30 mm on the right side), with extension in the cerebello-pontine angles and brainstem compression, representing bilateral vestibular schwannomas. DD., Multiple endocrine neoplasia type 1, von Hippel-Lindau syndrome, Neurofibromatosis type 1, Li-Fraumeni syndrome, Neurofibromatosis type 2
Curtesy: NEJM
Visual acuity improved to 20/400 in the left eye, and perception remained limited to light in the right eye. (Curtesy: NEJM)
4. Retrograde Epistaxis (Hemolacria)
A 52-year-old man presented with painless, bloody tears from both eyes. The bleeding had begun spontaneously, had lasted a few minutes with recurrence. He was taking captopril for mild hypertension and his blood pressure was normal. The clinical examination revealed slight conjunctival hyperemia without periorbital or palpebral edema. The patient had normal vision and extraocular movements.
D.D. Hemangioma, Infection, Adverse reaction to systemic antibiotics, Trauma to eye or surrounding structures, Retrograde epistaxis
(Curtesy: NEJM)
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Address for correspondence:
The Managing Editor, Ophthalmology Update
267-A, Street: 53, Sector F-10.4, Islamabad 44000
E. Mail>ophthalmologyupdate@gmail.com
website: www.Ophthalmologyupdate.com
Cell: 0333-5158885
Demographic Features with Presenting Intraocular Pressure of Patients in Newly Diagnosed Primary Open Angle Glaucoma.


ABSTRACT
Objective: To determine the demographic features and presenting intraocular pressure of patients with newly diagnosed primary open angle glaucoma in a tertiary care centre of KPK
Introduction: Glaucoma is one of the leading causes of blindness globally as well as in most regions according to the WHO survey 2002. It accounts for 12.3% of global blindness (Vision <20/200 in better eye). In Pakistan Primary open angle glaucoma is the most common type of glaucoma. Commonly used medical treatments for glaucoma are topical or oral agents that decrease aqueous humor production or augment outflow. Fixed combinations of IOP-lowering medications have been developed by combining different pharmacologic classes of ocular hypotensive drugs commonly prescribed for the treatment of elevated IOP. Modern fixed combinations pair beta-blocker with either prostaglandin analogs or carbonic anhydrase inhibitors.
Materials and Methods: This study was conducted in the Department of ophthalmology, PGMI, Lady Reading Hospital, Peshawar, from November 1/1/2013 to 1/1/2014. Through a descriptive study design, a total of 306 patients presenting with primary open angle glaucoma were studied.
Results: The mean age of the patients in group A was 52.3 ± 7.8 years while in group B it was 52.3 ± 8.4 years (p value 0.99). The mean baseline IOP was 28.39 ± 1.7.
Conclusion: primary open angle glaucoma is common in our setup especially in middle age and in male patients and majority of the patients with high intraocular pressure showing unawareness and signifying its timely management.
Key Words: Primary open angle glaucoma, intraocular pressure, demographic features.

INTRODUCTION
According to the World Health Organization (WHO) global estimation in 2002, more than 161 million people were visually impaired, of whom 124 million people had low vision and 37 million were blind worldwide. It was also estimated that up to 75% of all blindness is avoidable1. The prevalence of blindness in Pakistan was found to be 2.7% (1,140,000) by National Health Survey of Pakistan in the year 20032.

Primary open angle glaucoma is common in our setup especially in middle age and in male patients and majority of the patients with high intraocular pressure showing unawareness and signifying its timely management.

Glucoma is the second leading cause of blindness globally as well as in most regions according to the WHO survey 2002. It accounts for 12.3% of global blindness (Vision <20/200 in better eye). It was
suggested that an estimated 60.5 million people in the world may have glaucoma in the year 2020 and glaucoma was found to be the fourth most common cause of blindness in Pakistan.

In Pakistan Primary open angle glaucoma is the most common type followed by primary angle closure, aphakic, secondary and congenital glaucoma. The causes of secondary glaucoma are mainly four folds: Neovascular, Uveitis, Lens induced and traumatic. Trauma, Cataract and infectious uveitis represent special risks for developing secondary glaucoma which is frequent cause of blindness in the third world countries.

Primary open angle glaucoma (POAG) is defined as a chronic optic neuropathy with characteristic changes in the optic disc and visual field. Risk factors for POAG include older age, black race, family history (first-degree relative), thinner central corneal thickness, myopia, and elevated intraocular pressure (IOP). POAG is a multifactorial optic neuropathy characterized by progressive retinal ganglion cell death and visual field loss. Elevated intraocular pressure (IOP) is the only currently treatable risk factor for OAG, although a high percentage of individuals with elevated IOP do not develop glaucoma.

MATERIALS AND METHODS

It was a cross sectional observational study in Department of Ophthalmology, Lady Reading Hospital Peshawar. A total of 306 patients with primary open angle glaucoma were included in the study. It was a consecutive (non probability) sampling from 1/1/2013 to 1/1/2014.

Inclusion Criteria:

• All patients with primary open angle glaucoma with baseline IOP of at least 25mmHg.
• Adults with age above 18 years
• Either gender.

Exclusion Criteria: all patients with glaucoma other than primary open angle glaucoma e.g., Patients with history of chronic glaucoma on medical records, Patients with blast injuries on history etc.

The study was conducted after approval from hospital ethical and research committee. All patients meeting the inclusion criteria i.e. with primary open angle glaucoma and having baseline IOP of at least 25mmHg were included in the study through OPD/ER department. The purpose of the study were explained to all patients and a written informed consent obtained.

A detailed history followed by completed ophthalmologic examination was done on all patients that include slit lamp examination, fundoscopy, gonioscopy and ultrasonographic biomicroscopy. Data was collected and then analyzed. Mean ± SD was calculated for numerical variables like age and baseline IOP. Frequency and percentages were calculated for categorical variables like gender. All results were presented in the form of tables.

RESULTS:

The study comprised a total of 306 patients diagnosed with primary open angle glaucoma. Various demographic features were studied. The mean age of the patients of the whole study population was 52.3 ± 8.1 years. (Table 1). The mean baseline IOP of the whole population was 28.5 ± 1.75mmHg. (Table 2). While distributing the sample with regards to gender, there were 172 (56.209%) males and 134 (43.791%) females. (Table 3). We also distributed the patients with regards to different age groups. We took four age groups i.e. up to 40 years, 40.01 to 50 years, 50.01 to 60 years and 60.01 and above. We distributed patients as per these age groups for both study groups of the treatment. It reflected that the glaucoma is more common in the age group above 40 years. (Table 4)

<p>| TABLE NO. 1: Mean age (N = 306) |
|------------------|--------|-----------|-----------|</p>
<table>
<thead>
<tr>
<th>Age of Patient in years</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>306</td>
<td>52.31765</td>
<td>8.12804</td>
<td>.65712</td>
<td></td>
</tr>
</tbody>
</table>
TABLE NO. 2: Baseline IOP (N = 306)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline IOP</td>
<td>306</td>
<td>28.58305</td>
<td>1.74411</td>
<td>.14101</td>
</tr>
</tbody>
</table>

TABLE NO. 3: Gender wise distribution of patients (n=306)

<table>
<thead>
<tr>
<th>Patient Gender of the Patient</th>
<th>n</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>172</td>
<td>56.209</td>
</tr>
<tr>
<td>Female</td>
<td>134</td>
<td>43.791</td>
</tr>
<tr>
<td>Total</td>
<td>306</td>
<td>100</td>
</tr>
</tbody>
</table>

Table: 4 Age group wise distribution of patients (n=306)

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>N</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 40 years</td>
<td>30</td>
<td>9.8</td>
</tr>
<tr>
<td>40.01 to 50.00 years</td>
<td>123</td>
<td>40.1</td>
</tr>
<tr>
<td>50.01 to 60.00 years</td>
<td>87</td>
<td>28.431</td>
</tr>
<tr>
<td>60.00 and above</td>
<td>66</td>
<td>21.569</td>
</tr>
<tr>
<td>Total</td>
<td>306</td>
<td>100</td>
</tr>
</tbody>
</table>

DISCUSSION

Primary OAG continues to be difficult to interpret or understand in some patients, with continued progression of the disease, despite significantly lowered IOP. According to a study, Mean IOP measurements by Goldman Applanation Tonometer ± 1 SD were 15.8 ± 4.5 mmHg, conducted on glaucoma patients. Intraocular pressure (IOP) is a critical clinical parameter in the diagnosis and management of glaucoma. Goldman applanation tonometry (GAT) has been considered as the gold standard for clinical IOP measurement due to its low intra- and inter-observer variability. In this study we used Goldman tonometer as gold standard.

Primary OAG continues to be difficult to interpret or understand in some patients, with continued progression of the disease, despite significantly lowered IOP. The primary aim of treatment of glaucoma is to control intraocular factor. Vascular considerations in patients with OAG continue to be actively discussed, with ever-increasing data to support their relevance in optic neuropathy.

To significantly impact ocular blood flow, topical OAG medications must penetrate the anterior surface of the eye, reach critical concentrations, and exert a physiological effect on the vascular tissue. Each of the different classes of OAG therapies maintain the potential to interact with vascular smooth muscle. Topical medications may have a direct vascular interaction in ocular tissues, or may increase OPP by lowering IOP; thus, producing a net effect on the ocular circulation and possibly influencing OAG pathology.

The ultimate goal of treating glaucoma is to preserve the remaining visual field. Only treatment to reduce IOP has shown evidence of being effective in preserving the visual field. Monotherapy remains the preferred initial choice of treatment in glaucoma, using prostaglandin analogs and β-blockers as initial treatment for lowering IOP. Nevertheless, target IOP levels are not always achieved with a single medication, and patients frequently require multiple medications, which can lead to unsatisfactory adherence with treatment. Adherence with treatment for glaucoma is better when regimens are simple rather than complex. In this study, POAG was found to be most prevalent in age group above 40 years and more prevalent in males than females. These findings are consistent with those reported from India. This study proves that intraocular pressure needs to be controlled which is a significant risk factor in the development and prevention of this type of glaucoma.

CONCLUSION:

Primary open angle glaucoma is common in our setup especially in middle age and in male
patients and majority of the patients with high intraocular pressure showing unawareness and signifying its timely management.

REFERENCES
Ocular Trauma in Children Admitted to Eye Department in a Tertiary Care Hospital

Afzal Qadir FCPS1, Ashfaqur Rehman FCPS2, M. Arif Khan FCPS3, Israr MBBS,4, Usman Atiq FCPS5

ABSTRACT:
Objective: To describe the pattern and causes of ocular trauma in children below 16 years of age requiring hospitalization. Ocular trauma is a leading cause of preventable monocular blindness worldwide and is a serious public health concern in both developed and developing countries. In a research program for the prevention of blindness, the World Health Organization (WHO) estimated that 55 million eye injuries occur yearly, of which 750 000 people require hospitalization.

Methodology: A retrospective descriptive study was conducted in ophthalmology Department of Hayatabad Medical Complex, Peshawar. Data of 658 patients admitted with ocular trauma during a period of three years, from January 2016 to December 2018 was reviewed and analyzed. The details of patients regarding age, gender, causes, types of injuries and outcomes were evaluated from the data.

Results: In our data majority were boys (63%). The mean age at admission was 6.4 years. Ocular trauma was noted more frequent in children between 5 and 10 years than those below or above age group. Most cases of trauma occurred at home (54%) followed by playgrounds (22%), roads and streets (20%), farms (3%) and schools (1%). Open globe injuries were reported more frequently than closed globe and adnexal injuries. Among the causes of injury, projectile objects constitute (22%), household objects (18%), blunt objects (16%) and others 44%. Open globe injuries with corneal laceration were the most common presentation causing severe visual impairment.

Conclusion: Most ocular injuries in children are preventable, therefore importance of health education, supervision at home and application of appropriate protective measures are necessary in order to reduce and avoid the incidence and severity of trauma.

Key words: Ocular trauma, children.

INTRODUCTION:
Ocular trauma is a leading cause of preventable monocular blindness worldwide and is a serious public health concern in developed and developing countries.1 In a research programme for the prevention of blindness, the World Health Organization (WHO) estimated that 55 million eye injuries occur yearly, of which 750 000 people require hospitalization.2 Population based studies even in developed country like USA have reported eye injury as the third most common indication for hospitalization in emergency departments, and the National Society for the Prevention of Blindness estimates that up to 90% of all eye injuries are preventable, especially in the paediatric age group.3,4

Most ocular injuries in children are preventable through parental health education, supervision with appropriate protective measures which are necessary to reduce and avoid severity of trauma.

Ocular trauma especially in children is an unpleasant event. Children are found more inquisitive than adults, hence they are exposed to violent environment in terms of place and causative objects. Male gender affects more than females for their adventurous and aggressive behaviour. Oc-
cular injuries in paediatric patients have different patterns regarding nature of trauma and cause of insult as compared to adult and have age-specific type of injuries. Children below 3 years of age mostly suffer handler-related injuries such as finger nails of parents, siblings or caretakers while in older children injuries are mostly due to sharp pointing objects such as toys, sticks, pencils, needles, scissors, sports objects and stones etc. Bringing the patient to the nearest available eye care facilities and rapid evaluation and assessment of severity along with early management must be provided timely in order to avoid blindness causing complications. Paediatric eye injuries account for approximately 8-14% of total injuries and the most common type requiring hospitalization. Ocular injuries are simply classified into three types: Open globe, closed globe, and adnexal injuries. Most common emergencies are due to open-globe injuries and require immediate interventions. Even small trauma to an eye may lead to permanent visual impairment creating significant impact on future quality of life. Thus, patient and social education regarding eye injuries and its early specialized treatment can give good visual prognosis.

Our study was aimed at describing the pattern of paediatric injuries in terms of age, place, causes and types of injury. The suggestions based on results would help in taking protective and precautionary measures at home and outside for kids to avoid blindness causing injuries.

**MATERIALS AND METHODS:**

A retrospective descriptive study was conducted inophthalmology department in Hayatabad Medical Complex, Peshawar. The data of 658 patients with 672 eyes admitted for ocular trauma during a period of three years, from January 2016 to December 2018 was reviewed and analysed. The details of patients regarding age, gender, causes and type of injuries were evaluated from the data. Children with age 16 years or below were included in study. Data consisted of only patients who presented or were referred to the hospital from all parts of Khyber Pakhtunkhwa and adjacent tribal areas requiring hospital admission.

**DISCUSSION:**

Ocular injuries were more frequent (82%) in age-group between 6 and 16 years than below 6 years (18%) which is similar to other studies like MacEwen where it was 84% of ocular injuries in 5-14 years age-group. Children of this age group are more susceptible to injuries than younger age-groups, because of their independent, adventurous and aggressive behaviour in many unsupervised activities, making them more vulnerable. While children of age-group below 5 years are most of the time under supervision of parents and less active in physical activities as compared to other age groups. So, younger age-groups are more susceptible to handler-related injuries like fingernails of siblings, mother, or caretakers. We found male gender affected more than female with 63:37 ratio, with similar observations in other one conducted in child age groups. This owing to more adventurous and aggressive behaviour of boys compared to girls for getting more and severe ocular injuries.

Ocular injuries were more commonly domestic (54%), followed by play ground (22%) which are very much similar to MacEwen C (51%) and Desai T et al., (45.62%). Home is the commonest place of injuries both for pre-school and school-going children, for the amount of time is spent more at home. Early treatment acquisition is very important for good visual outcome and in our study 85% of patients reported within 24 hours, 10% within first week which was contradictory with few studies like in Desai T et al., where around 70% presented after 24 hours. Malik R et al., found 47.50% visit within 24 hours and 30.50% in more than 48 hours. It appears to be due to improved infrastructure like transport, availability of specialized hospitals in remote area, and increasing awareness in parents and society at large. Those visited late were due to poor parental carelessness, poverty, extremely remote area, and fear factor in children.

In our study, projectile objects caused more number of eye injuries (22%), followed by household injuries (18%), blunt objects (16%) and sports (14%) which are more common in older age-groups (6-16 years). Due to low socio-economic status and lack of supervision on part of parents, accidental fall, burns and animal bite injuries were more common in younger age-group.
Ocular Trauma in Children Admitted to Eye Department in a Tertiary Care Hospital

(>6 years). Similarly, in sports injuries, cricket ball and bat injuries are more common to *gulli-danda* and bow-arrow injuries nowadays even in rural areas. Adnexal, closed globe and open globe injuries had different incidences of 15 %, 37%, and 48% respectively, which are different from other studies like Desai T *et al.*, where incidence of adnexal and closed globe injuries were 27% and 32% respectively. While open globe injuries incidence varies in different studies in different countries.8,11

All patients treated were admitted at our hospital. Eyes with traumatic cataract were treated surgically with posterior chamber intraocular lens (PC-IOL) implantation. Eyes with lacerated adnexa and globe were surgically repaired under general anaesthesia. 4 % eyes had intraocular foreign bodies that were removed with vitrectomy by vitreoretinal surgeons. 3% of eyes needed enucleation or evisceration with implants due to either irreparable shattered globes or endophthalmitis.

Post-traumatic complications caused disfigurement, amblyopia, and blindness that affects quality of life. Therefore, it is very important for the health care providers and the parents to be aware of the ocular traumas and its consequences, risk factors and causative objects at home and in surroundings and to take preventive measures to avoid traumas. Moreover, in addition to describe patterns of trauma, further studies are required on visual outcome and long term complications of traumatic eyes.

**CONCLUSION:**

Most of the eye injuries in paediatric age group occur below 10 years, due to aggressive and curious behaviour prevailing at this period of life, particularly in male gender. Risk factor such as playing with stones, sticks and other sharp pointed objects should be identified and discouraged. Provision of pictorial educational material to parents and at schools in order to prevent patient’s miserable quality of life is also helpful. Moreover, seeking treatments in time is helpful for better outcome and avoid complications in traumatic eyes.

**REFERENCES:**

ABSTRACT: 
Objective: To describe the indications and importance of neuroimaging in ocular diseases.

Materials and methods: A descriptive study on 102 cases, that were advised neuroimaging (Computed Tomography (CT), Magnetic Resonance Imaging (MRI) or (MRA) during a year time period, from January to December 2017. Patients advised imaging were seen either in outpatient department or in eye units. The patients presented with different problems such as impaired visual acuity, visual field defects, headache, diplopia, ptosis, oculomotor nerve palsies, papilledema, optic atrophy, recurrent optic neuritis and traumatic orbits. Both the clinical and neuroimaging records of the patients were analysed to describe the indications and importance of neuroimaging in ocular diseases.

Results: Out of 102, most of the patients (53) underwent CT scan alone, 28 were advised MRI,19 were advised both CT scan followed by MRI while 2 patients were advised MRA. Orbital pathologies constitute the most common group of indications (44 cases) for neuroimaging.

Conclusion: Neuroimaging has a vital role in ocular diseases. It helps in diagnosis, disease confirmation and indicating the location, nature and extent of the lesion. It serves as helping tool in follow ups and prognosis of a disease.

Key words: Neuroimaging, papilledema, Computed Tomography (CT), Magnetic Resonance Imaging (MRI).

INTRODUCTION

Ocular diseases are most of the time diagnosed clinically with the help of slit lamp biomicroscope, direct and indirect Ophthalmoscope examinations. However there are various diseases of orbits, brain and globe badly affecting the eyes that can be diagnosed or confirmed only after extensive investigations including; haematological and serological tests, oculart ultrasonography and neuroimaging.

Since the discovery of X-rays in 1895, there has been a significant advancement in technology that has a tremendous impact on the practice of ophthalmic radiology. Now with wide availability of imaging modalities such a Computed Tomography (CT) and Magnetic Resonance Imaging (MRI), Magnetic Resonance angiography, Computed Tomography and angiography etc. the diagnosis of orbital and ocular pathological conditions can be made with much more certainty than were carried out in the past.

Neuroimaging has a vital role in ocular diseases. It helps in diagnosis, disease confirmation and indicating the location, nature and extent of the lesion. It serves as helping tool in follow ups and prognosis of a disease.

CT scan uses X-ray beams to obtain tissue density values from which detailed images are formed by a computer. CT is widely available, easy to perform, relatively inexpensive and quick but unlike MR it exposes the patient to ionizing radiation. Although the advantages offered by MRI are many, there are certain areas where CT can be
more useful such as, evaluation of bony trauma, evaluation of calcification, and in very sick patients who need rapid assessment.1

In contrast to CT scan, the imaging technique in magnetic resonance imaging (MRI) relies on the interaction of hydrogen atoms, mostly water, with the intense magnetic field generated by the MRI scanner. Thus, as opposed to CT, there is no radiation exposure with MRI.2 Due to better soft tissue contrast resolution and no ionizing radiation, MRI has become the modality of choice in most cases of orbital / ocular pathologies.3 An increasing number of clinical questions that were formally in the domain of computed tomography (CT) are now examined with MRI.4

The patients with suspected brain vascular abnormalities like stenosis, occlusion, dissection, arteriovenous malformations and aneurysms may undergo assessment using CT or MR angiographic techniques. The CT angiography is emerging as the method of choice in investigating intracranial aneurysms as it provides anatomical information of arteries after intravenous injection of iodinated contrast.5 On the contrary, MRA is non-invasive method and depends on flowing blood to provide contrast and can be done without intravenous contrast but unreliable in detecting very small aneurysms.

To our knowledge no such study on importance of neuroimaging is available locally. Therefore this study was designed with the aim to highlight the indications and importance of neuroimaging in diagnosis and confirmation of suspected ocular and neuro-ophthalmic clinical entities.

MATERIALS AND METHODS:

A descriptive study was carried out for a period of one year from January to December 2017. Data of 102 cases, that were advised neuroimaging, i.e. Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) of the orbits, brain and visual pathways or MRA brain, were collected on designed pro-forma that included age of the patient, gender, presenting complaints and clinical features subjecting patients to neuroimaging for provisional diagnosis. Patients included were seen either in outpatient department or in eye units.

The patients presented with different problems such as impaired visual acuity, visual field defects, headache, diplopia, proptosis, ptosis, ocular motor nerve palsies, papilledema, optic atrophy, recurrent optic neuritis and traumatic orbits. For the purpose of simplicity the indications for neuroimaging were categorized into globe related, orbital and brain diseases. Both the clinical and neuroimaging records of the patients were analysed to describe and highlight the indications and importance of neuroimaging in ocular diseases.

RESULTS:

Age group most commonly exposed to neuroimaging was of between 30-45. Male to female ratio of was 1:1.3.

Out of 102, most of the patients (53) underwent CT scan alone, 28 were advised MRI alone, 19 were advised both CT scan followed by MRI while 2 patients were advised MRA. Orbital pathologies were the most common group of indications (44 cases) for neuroimaging followed by brain (40 cases) and globe diseases (18 cases). Overall 14 % of the neuroimaging reports had no significant findings with normal impressions given by radiologist.

Cases with orbital diseases presented with impaired vision, congestion and proptosis, disc oedema and anophthalmos in traumatic orbital wall fractures. There were 11 cases of orbital tumours, 9 cases of orbital fractures. Orbital tumours included optic nerve glioma, rhabdomyosarcoma, lymphangioma, and metastatic lesions. Other orbital entities included; dermoids and paranasal sinus diseases such as nasal polyps or tumours that affected the adnexa or orbit, causing ptosis, proptosis and inflammation of the eyeball and orbit. (Table 1)

Majority of the patients with CNS diseases presented with ocular features of impaired visual functions often associated with headache and clinical sign of papilledema, benign Intracranial hypertension and space occupying lesions were most common entities to be rule out with neuroimaging. (Table 2) Third category had mostly patients of OFBs, Retinoblastoma and Melanoma. (Table 3) Table 1:
Neuro-imaging as a Diagnostic Tool in Ocular Diseases

**Table 1:**

<table>
<thead>
<tr>
<th>Category 1 (Orbital diseases)</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumours</td>
<td>11</td>
</tr>
<tr>
<td>Trauma (Fracture /haematoma)</td>
<td>9</td>
</tr>
<tr>
<td>Endocrine(Enlarged extraocular muscles (hyperthyroidism)</td>
<td>5</td>
</tr>
<tr>
<td>Dermoid</td>
<td>4</td>
</tr>
<tr>
<td>Orbital inflammation (pseudo tumour)</td>
<td>4</td>
</tr>
<tr>
<td>FBs in the orbit</td>
<td>4</td>
</tr>
<tr>
<td>Orbital cellulitis</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44</strong></td>
</tr>
</tbody>
</table>

**Table 2:**

<table>
<thead>
<tr>
<th>Category 2 (Brain diseases)</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIH (Pseudo tumour cerebri)</td>
<td>14</td>
</tr>
<tr>
<td>Optic Neuritis</td>
<td>13</td>
</tr>
<tr>
<td>SOP (space occupying lesions)</td>
<td>6</td>
</tr>
<tr>
<td>Cranial nerve palsies</td>
<td>5</td>
</tr>
<tr>
<td>Vascular lesions</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

**Table 3:**

<table>
<thead>
<tr>
<th>Category 3 (Globe diseases)</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOFBs</td>
<td>9</td>
</tr>
<tr>
<td>Retinoblastoma</td>
<td>7</td>
</tr>
<tr>
<td>Melanoma</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

**DISCUSSION:**

Imaging modalities such as computerized tomography (CT) and Magnetic resonance imaging (MRI) have brought a new dimension in the diagnosis and management of various ocular, orbital and neurological diseases. Although CT is more widely used, MRI is the modality of choice in specific conditions and is considered a complement to CT in many situations but Ferromagnetic foreign body is absolute contraindication for MRI. MRI has a distinct advantage over other imaging techniques owing to its greater soft tissue differentiating capabilities; however, CT scans are very useful in detecting subtle bony erosions, fractures, and deformities.6

In our study on one year data, CT Scans alone were done more frequently (51.9 % of cases) than MRI(27.45%). The nature of diseases and its presentation, investigation protocol for the diseases, availability and affordability were the factors that determined imaging modalities. CT Scans were the techniques of choice in traumatic orbital fractures and intra orbital foreign bodies, BIH, thyroid eye disease, retinoblastoma for calcification etc. while MRI Scans were most frequently observed in soft tissue lesions like space occupying lesions and orbital tumours. Orbital apex lesions and intra cranial extension of orbital tumours are best detected with MR scans.

Our study data showed(43.13 %) cases of orbital diseases which were the most common indications for neuroimaging followed by brain diseases (39.21%), which most commonly constitute space occupying lesions and BIH. Our results were different from results of Tayyaba Gul et al7 in their 8 years data analysis, where (34.78%) had brain diseases, 56 (24.35%) had orbital diseases and 29 patients (12.6%) showed normal imaging.

In Orbital diseases, traumatic orbital wall fractures and foreign bodies were found less frequent compared to tumours of the orbit, including; primary optic nerve tumour, meningioma of optic nerve sheath and metastatic tumours etc. We had 5 cases of dermoid, 4 cases of pseudo-tumour and orbital cellulitis each. All the four paranasal sinuses lie adjacent to the orbit. Orbital extension of sino-nasal infection or tumours occur to sinuses. Thyroid eye disease had fusiform enlargement of extra ocular muscles with sparing the tendons on CT and MRI scans. While in orbital pseudo tumour and orbital cellulitis, there is extension of inflammation to the tendons, lacrimal apparatus, sclera, optic nerve sheath and orbital fat as well.

In category of brain pathologies, BIH was the leading indication (35 %) for neuroimaging followed by optic neuritis in (32.5%). Although CT scan is useful in acute or emergent setting of
brain diseases, definitive imaging recommendation is MRI of the brain and orbits with and without contrast, with fat suppression of the orbit, and MRV of the head. The MRI might show aetiology for increased intracranial pressure including space-occupying lesions, hydrocephalus, meningial disease, or may show radiographic signs of idiopathic intracranial hypertension (IIH). The MRV of the head might show venous sinus thrombosis or sinus stenosis. In ocular diseases we had 9 cases of open globe injuries with IOFB, 7 children had retinoblastoma and underwent for either CT or MRI Scans to look for calcification and optic nerve spread respectively. However, we had only two patients of choroidal melanoma.

Overall 14% of the cases had normal CT and MRI Scans. These mostly included patients with features of headache, impaired visual acuity and isolated cranial nerve palsies. Thus, the referring clinician must realize that the images are representation of different processes in the patient and could be normal in face of definite clinical findings.

It is suggested that since neuroimaging entails different variables that leads to many sequences such as T1, T2 weighted, FLAIR, IV contrasts etc. ophthalmologists need radiologists help for required sequence and examination technique. Second, proper clinical profile of the patient must be provided with the request form of imaging, and in case of any doubt or confusion regarding the findings or diagnosis, the ophthalmologist should liaise and discuss with radiologist the clinical and radiographic differential diagnosis to reach the most unifying diagnosis.

CONCLUSION:

CT and MRI have a vital role in ocular diseases. It helps in diagnosis, disease confirmation and indicating the location, nature and extent of the lesion, serve as a tool in follow up and prognosis of a disease. Complete and accurate clinical profile of the patient in addition to required enhancing techniques for neuroimaging is very important for the ophthalmologist to get accurate and most likely diagnosis.

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Experience of Masters in Health Professional Education in Pakistan. (A qualitative study of student’s perspective)

Saima Rafique, FCPS, CHPE, MME1 Abeera Fatima MBBS1, Homaira Iqbal Khan, M.Phil (Anat)2, Gohar Wajid Ph.D.3, Prof. Rehan Ahmed Khan FCPS, FRCS., MHPE4 PhD (Scholar) University of Maastricht (Ned)

ABSTRACT
Objective: The number of Master programs in health-care education, focused on developing in-depth competencies for medical education, has globally proliferated in the past 15 years. These programs promise to produce effective leaders and professionals in health professional education, who can manage the curricular change and bring reforms in medical education. One of the major challenges associated with these programs is students encountering a new social science paradigm which is different from what they have experienced learning in basic and clinical sciences. This poses challenges not only to the students but also to the teachers.

Aim of study: Aim of the study is to gain an insight into the learning experience of students doing master of health professional education.

Methodology: Qualitative Phenomenal study was carried out in department of medical education, University of Lahore. Data was obtained through three focus group discussions. After data, participants were given numerical identity. Transcripts were analyzed one by one; NVivo-10, a data analysis tool was used to assist the process of qualitative data analysis.

Results: Sixteen out of eighteen students from second year (batch 5), MME program participated in the study. Participants included ten clinicians and six professional from basic sciences. Three major themes were identified which include students’ motivation, experience and their suggestions for improvement. Self development was identified as the main drive for seeking admission in MME. Curriculum development was considered as the most useful module in MME Program, while the group task was considered to be the favorite learning methodology. Most of the participants suggested that certificate course in health professional education should be mandatory for getting admission in to MHPE/MME program.

Conclusion: Overall students shared positive experience about MME program. Program was considered helpful to train medical teachers, providing them with the key skills in teaching and learning strategies, curriculum development and assessment methods.

Key words: Perspective, Curriculum development, educational psychology, Self development,

INTRODUCTION
The history of medical education departments dates back to late 1950s when the first Project in Medical Education was initiated at the University of Buffalo. These departments have many roles, including supporting medical education research, teaching, program evaluation, and facilitating the use of educational technologies. Educational activities include workshops, seminar series, short courses, and Longitudinal programs (e.g. fellowships, Masters and PhDs). The master in health professional education programs are offered under various titles, like MHPE program (in Chicago, Maril- ia, Brazil), Masters of Medical Science -MsMed - (in Jeddah, Saudi Arabia), Masters in Medical Education MME (in Bern, Switzerland). The master programs in health care education have proliferated in the past 15 years with number grown from 7 to 121. New MHPE programs continue to be developed each years, due to increased demand for individuals with specialized health professional knowledge. In developing countries, there is an even greater need for healthcare education experts to cater the need of medical education and healthcare. The overall aim of the MHPE program is to support teachers and organizers of medical education to acquire in-depth competencies in education underpinned by a firm foundation of educational theory and evidence.

MME program is considered helpful to train medical teachers, providing them with the key skills in teaching and learning strategies, curriculum development and assessment methods.

The reason to choose this program may include
credential benefit during promotions; enhance knowledge, teaching skills, new ways of approaching education. Individuals with masters in medical education has improved self efficacy in their educational practice and they engage more positively in educational community with their educational research activities.

In Pakistan the first Department of Medical Education was established in the College of Physicians and Surgeons Pakistan in 1979 with the objective to support the Postgraduate training programs and examination system. Currently there are 144 public and private medical and dental colleges recognized by the Pakistan Medical and Dental Council. In 2008 Pakistan Medical and Dental Council (PMDC) made it mandatory to establish Departments of Medical Education (DME) in every medical college. Ultimately, over a period of time, these departments will have a minimum of two full time educationists and a number of ‘satellite’ educationist, term used for persons whose primary specialty would be other than Health Professions Education (HPE). The number of Master programs in Health Professions Education (MHPE) in Pakistan has risen from one in 2009 to 11 in 2017.

The PM&DC has declared it mandatory that faculty members considered for promotions to assistant professor or above, should have certificate in health professional education. Moreover those who have completed MHPE degree will have appointment as Assistant professor in DME if they want to serve as educationist. This proved to be the main motivational drive for promoting health professional education in the country. Teaching and learning in most of these program in Pakistan is through blended methods, with use of web-based technology to facilitate learning, teaching and face to face contact session. This approach provides students with opportunity to make their own learning schedule, flexibility of continuing other professional commitments and proves to be less demanding on faculty time. The content includes educational psychology, curriculum development, instructional methods/teaching and learning, assessment strategies, research design, and leadership. The average duration for completion is 2 years. The main challenge to these programs is that students will encounter a new social science paradigm which is different from what they have experienced in basic and clinical sciences. This presents challenges not only to the students but also to the teachers.

The current study is planned to gain an insight into the experience of MME students at the University of Lahore, about the program and their suggestions to improve it. There is no documented study to date, which explores such knowledge so it would be very first study on said subject.

RESEARCH METHODOLOGY

Study was conducted with students of Masters of medical education (MME) in the University of Lahore (UOL), a private sector university. The program is a modular offering 60 credit hours, six modules are identified each with its own contact session. After completion of modules the students are required to conduct educational research to qualify for masters.

Duration of Study is from June to September 2017

Inclusion Criteria: All Second year students of MME programme(batch 5) at UOL.

Exclusion Criteria: Those Working in DME department as may have biased opinion through financial benefit or general challenges faced by DME.

Sampling Technique -Whole batch of eighteen students was invited for discussion. However, only eleven students showed their availability and consent for study.

Data collection- Qualitative data was collected through three focus group discussions duration varied from 52 to 70 min. First focus group consisted of six MME student of UOL who were senior clinicians. Second group had five members, all from basic sciences. As a first step in the interview process, the researcher informed participants about the purpose of the study, research procedures and anticipated benefits, their right to withdraw from the study at anytime, and protection of confidentiality. A semi-structured interview was conducted through focus groups. The questions includes, Why did you opt for masters in medical education? What is your experience about content and learning methodologies? What are your suggestions to improve this program?

Both focus groups were conducted by the same moderator. Interviews were audio recorded (on two sources for backup). Sampling was discontinued as there was data saturation with no new information added. Transcripts of interviews were produced in Microsoft Word document after listening to audio recordings. The data anonymization was done and participants were given numerical identity. Transcripts were analyzed one by one; NVivo-10, a data analysis tool was used to assist the process of qualitative data analysis. The initial codes were condensed in to small number of categories, which were later used to generate themes.

Control of bias- Instrumentation bias was controlled with single moderator conducting focus groups, same interview questions and uniform language (English) was used. To enhance the trustworthiness of this study, researcher used Member checking (sending the manuscript back to participant and follow up with clear feedback).

Reflexivity --Researcher herself is student of MME program. She observed the process of data collection and took brief notes of focus group interview for her own
RESULTS

Sixteen people participated in study. There were ten male participant and six female participants. Among them, ten were clinicians, eight FCPS and two with MCPS degree. Six participants were basic scientists, three with M.Phil degree in their subject. Figure 1 shows the most frequently used words in the transcript.

Figure 01: Nvivo Analysis of the interviews; Top 20 keywords in samples

Participants shared that the program brought many positive changes in their Professional life which can be best explained by quote ‘Transformation-literally means going beyond your form’. Researcher used the metaphor ‘RIDE’ in amusement park for MME and themes are linked as why they want to take ride, what they felt during ride and what are their suggestions to further improve it.

Theme 1. Student’s motivation to join MME program

Majority of student joined the program as they wanted to improve their presentation and teaching skills. However, two of the participants in this research mentioned that they were working in periphery and wanted to establish DME in their medical college. According to Participant 2, “I belong to Sialkot, there are three medical colleges, one public and two are in private sector but in all three medical colleges, there was no medical educationist at the time of my admission, even at this time of interview. I have decided to stay in my respective area in Sialkot and decided to get degree of medical education and serve my area.” Participant 4 shared an interesting experience, “I joined basically on the desire of my wife. She said that it is promising field and there is shortage of medical educationist and researcher. As the times has passed and we have gone through four sessions, I realized it is not desire, it is basically the need. I have learnt so much and whatever I have learnt, it has practical application in my life, for my students, institutions and everyone. Initially the desire of wife, now it has converted to my own social motivation”.

Three participants mentioned flexibility of blended program as prime reason to choose MHPE. According to participant 8 “I have quitted my FCPS medicine due to certain problems and I have shifted to Sialkot. I came to know about this blended program I attend 10 days session then 3 to 4 month gap, so it was feasible for me.”

Theme 2. Students’ Experience

Majority found educational psychology boring initially, but the participant 13 shared different experience “It was the most important aspect which I really love and appreciate. I think all those things, procedures, happenings in which we have to interact and communicate, the first thing we need to know is psychology of stakeholders including teachers and how to actually kind of manipulate and get use of those psychological theories. I could be following teaching style just because of my experience for last 10 years but it might not be clicking for some good reason like Maslow hierarchy like my students did not have a good night or breakfast was missing at the mess. For me, communication is all about psychology and all good communicators know the psychology of person whom they are talking to.” All participants found curriculum development module very relevant especially table of specification, SPICE model and integration.

Participant 7 shared “I can see benefits of integration, in integration we cut down the things like many things biochemistry and physiology repeat. It saves lot of time from student’s perspective. It decreases cognitive load of students and decrease work of faculty also.” Another interesting experience was shared by participant 9 “I have never seen the document of curriculum, not in my student life nor in professional life. I saw it first time in MME session, we were making TOS in department ourselves but now I think it should be done in systematic way. Though I can find flaws in PMDC but still it is producing competent doctors, well renowned in the world.”

Majority agreed that assessment drives learning and found blueprinting and item analysis very useful. Participant 8 told “It was second session after educational psychology from which I have learned a lot. I have my own MCQS book for biochemistry, when I gone through the session now i can see flaws in my own MCQS I will try my best to remove these flaws in next edition”.

Participant 13 shared “Alignment of assess-
ment of curriculum teaching and learning methods is very important. What I felt, in many medical colleges lot of things are assessed but not taught in curriculum”

Majority shared that session has familiarized them with new concept of research. Participant 3 said“- For me this is a purely c6 or creative level session. Throughout the session, we were pulled to that levels of creativity .We were made to think holistically, think out of box. I applied the whole methodology of session even after watching TV interview. I was assessing how they conduct unstructured questions.”

**Participant 7** told” My M.Phil research was quantitative and now I look at the research from another perspective. The other thing I liked the most is emotional intelligence managing myself and others”. Most participants liked group tasks.

**Participant 15** shared “My favorite methodology would be group task as it is interesting to do and students can cover their weakness or confusion drawing on each others’ strength and it saves time”. In contrast participant 6 said “Group task ---I feel like I had been doing all the work, though its good thing that I learn more when I do more but I feel that others who are timid, do not come up ahead with their ideas then.”

**Theme3. Student’s Suggestions for MME/ MHPE program.** Four participants suggested that there should be some strict inclusion criteria. Participant 5 shared” Medical education is full time job, if one want to get through the program. There should be inclusion criteria like he/she should have certificate course or diploma. In 9 days of contact session some time is so heavy on head for the reason of amount of knowledge it pushes your mind to break it down” Three participants suggested spiral curriculum with revisiting in each module.

**Participant 1** shared “I feel that there should be internship programme for fresh graduate opting career as purest “Two participants suggested relaxation in free especially for fresh graduates taking medical education as primary post-graduation.

**DISCUSSION**

This research explored participants’ experience of MME. Oxford dictionary laid the meaning of experience as “An event or occurrence which leaves an impression on someone” or Practical contact with and observation of facts or events.

The research specifically looked at first theme, motivation of participants to get admission in MME/ MHPE programme. Motivation is an independent variable in medical education influencing important outcomes. Medical colleges have increased expectations from faculty especially from clinicians for curriculum development, small group teaching and assessment responsibilities. An important sub theme includes personal development that they want to improve their teaching skills and establish DME at work place, especially in periphery that underpins wish to serve their area. This reflects Maslow’s hierarchy, fifth level self actualization when person identifies his worth, they select mission in life and that they feel their responsibility, duty, or obligation.(11) In another study the main motivating factor to teach medical students were intellectual satisfaction, personal skills and altruistic role in development of junior doctors (13).

Another identified reason for seeking admission is the fact that it is career development and job opportunities. PM&DC finally declared that those who have completed MHPE degree will have appointment as Assistant professor in DME if they want to serve as educationist(7). This is an important motivation for fresh graduates to choose these programs and pursue a career as educationist. Since the program offer blended learning, those who want to do it as part time are attracted by flexibility. Study reported similar results that blended learning increased access to learning opportunities, made training more flexible and convenient for adult learners resulting in high motivation and active engagement (13)such as blended learning (BL).

Second question explored the experience of content, teaching and learning strategies. Majority found educational psychology difficult initially but later on, they can relate it with practical social application. Educational psychology helps the teacher to plan and organize classroom activities and behaviors of students. The student centered teaching and most of modern instructional strategies including peer and collaborative learning, as well as situated learning, are based on principles of social constructivist theory (15).

Challenges associated with health-care are changing with ever increasing expectation from society, so medical curriculum is expected to change over the time. Medical training is becoming more student centered, community oriented with emphasis on the assessment of clinical competence. Continuously evolving, high quality medical education system is required to maintain quality in medical education. Another challenge currently we are facing in Pakistan is urgent need to revise the MBBS curriculum to meet with the WFME standards. Many medical colleges are adopting integrated modular curriculum, creating a need for educationist for faculty and curriculum development. Majority of participants find curriculum development module very relevant and confident to bring change in their institutes.

Qualitative research is relatively new concept for all participants; there are relatively few research papers in local journals. One reason behind this, may be the fact that qualitative data analysis depends on the researchers creativity and insight, so may remain hidden. Researcher should keep careful record of data col-
lection and analysis so that it can be used as self-critical analysis and proof of truthfulness for readers(17).

Majority found group task beneficial learning strategy. The benefits may be through shared learning for group dynamics and interpersonal relationships within the practice. Peer assisted learning acts as a dynamic tool for academic development as well as help to establish professional identity. (18)

Participants of this research came up with some good suggestions like mandatory certificate programme in medical education so that attrition rate can be minimized. As more young people are opting it as primary degree, there should be some internship programme for them so that they can have more practical experience.

One suggestion is spiral-curriculum, it is based on the premise that a student learns more about a subject, each time the topic is reviewed. Last point is the cost, a common issue in all developing countries. Many participants suggested that there should be some relaxation in fee. However this is may not be practical due to the fact that these programs requires considerable investment for their implementation in term of IT technology, which may be factor for increased cost.

CONCLUSION

This research used qualitative, phenomenological design, to have an insight into the experience of students in MME program. Overall students shared positive experience about the program. Three major themes were identified including, student ‘motivation, experience and suggestions. Self-development was identified as the main motivation to seek admission in MME program. Majority found curriculum development module was the most practical one. They were confident that this will bring a positive change in their institutes. Students suggested that certificate course in health professional education should be criteria for admission in MME program.

Limitation of Study

The one limitation of the study is the fact, sampling limited to one MME program only. This limits the scope of the study.

Second there may be an issue of social desirability bias. Participants were aware that the researcher is their colleague, perhaps skewing answers to those apparently more favorable.

REFERENCES


