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Ophthalmology update welcomes the participants of Islamabad Congress of Ophthalmology, Bhurban at (Murree)
In recent years, the health research in Pakistan has shown a significant increase when outputs like research publication and funded research projects are considered as indicators. However, this growth does not match the people to productivity ratio. It is a widely accepted view that health research is expensive and its impact in terms of economic and social outcomes are hard to measure, particularly in a country like Pakistan.

A recent report, based on the country-specific citation data analysis of PubMed focusing on Eastern Mediterranean region health research citations published between 2004 and 2013, by principal researchers affiliated to institutions from countries in the Eastern Mediterranean Region shows that, Pakistan trails behind Iran, Saudi Arabia, Egypt and Morocco when quality publications alone are used as indicators. It would not be entirely unrealistic to assume that much of the researches are published in substandard journals that are not captured by databases like PubMed. This dismal picture against the backdrop of increasing number of higher education research units, funded research projects, and relatively less number of publications gives a distinctly different impression.

There is no denying to the fact that until recently Pakistan has been facing a critical shortage of clinical researchers, mainly attributed to lack of training opportunities and encouragement from the relevant administrative bodies.

Recent trend of upgradation of medical colleges into Universities and encouragement from the national funding and regulatory bodies like Higher Education Commission (HEC), Pakistan Health Research Council (PHRC) and Pakistan Science Foundation (PSF) along with the recognition of research as a promotion criterion by the Pakistan Medical and Dental Council (PMDC) has generated greater interest among the clinical faculty. It is heartening to know that now we are witnessing the emergence of a new breed specified as “clinician scientists” among the faculty in Universities.

Another encouraging sign is the growing interest among the medical college teaching faculty to further their knowledge base by doing PhD, producing trained researchers to conduct clinical trials, epidemiological, behavioral, health services, and outcomes based research, which prepares them to supervise graduate level research students. With these changing scenarios the future of meaningful and applied research looks bright.

With the changing patterns of disease profile, with emerging infections, and non-communicable diseases in South Asia, it would be timely and beneficial to engage the clinical scientists, social scientists and epidemiologists to focus their efforts on improved health care services geared towards prevention and cure of emerging communicable and non-communicable diseases. Health education practice centers need to develop strategies to discover remedies for local health problems by developing integrated research programmes. Simultaneously, awareness need to be created regarding predatory and sub-standard journals so that the improved quality of publications can impact on indicators of health status.

Adherence to ethical standards of research and publishing is of prime importance for the health researchers to reach out to the global scientific community. Such approaches would bring in recognition and help local medical institutions on clinical decision making at par with global standards that could be estimated by the level of evidence of their research output.

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27-29 April,2018

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*******************************************************************************
Analysis of Four Point Score Scale for Pain Assessment in Phacoemulsification under Topical Anesthesia - Proparacaine

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Department of Ophthalmology KMU-IMS, Kohat, KPK

ABSTRACT
Background: For cataract surgery, different types of anesthesia are used. This study was conducted to analyze four point score scale for pain in phacoemulsification under topical anesthesia (proparacaine).

Materials and Methods: This analytical study was conducted on patients undergoing cataract surgery with phacoemulsification under topical anesthesia Proparacaine (Alcaine) in K.D.A Teaching Hospital Kohat from January, 2016 to December, 2016. 60 patients with age related cataract were selected. Out of them 34 (56.66%) were male and 26 (43.33%) were female. All the patients were in the age range from 53 to 77 years with mean age of 64.6% years. Pupils of patients were dilated properly with tropicamide 1% eye drop. All the patients were operated under topical anesthesia after instillation of 4 drops of alcaine at interval of two minutes into the eyes. Phacoemulsification with intraocular lenses implantation was carried out on all patients and four points score scale for pain was analyzed.

Result: Out of 60 patients 47 (78.33%) had score 0. 3(5%) patients had score I, 2 (3.33%) patients had score 2, 3(5%) patient had score 3 while 5 (8.33%) patients had score 4.

Conclusion: Topical anesthesia is very effective in phacoemulsification preventing complications of other invasive anesthesia.

Key word: Topical anesthesia. Phacoemulsification.

INTRODUCTION
Cataract surgery is most common elective surgery performed in developed countries¹. Local anesthesia is used and preferred for this procedure as survey has revealed this in Royal College of Ophthalmologist². Multiple local anesthetics technique like retrobulbar, peribulbar, sub-tenon, sub-conjunctival and topical anesthesia are in practice for cataract surgery³,⁴,⁵,⁶. Peribulbar and retrobulbar anesthesia provide excellent analgesia and akinesia but have more ocular complications like diplopia, ptosis, retrobulbar haemorrhage, globe perforation¹⁰, CRVO¹¹, CRAO, brain anesthesia¹², optic nerve trauma etc.

Topical anesthesia is widely used in cataract surgery as safe and inexpensive alternative. It is an accepted method of anesthesia by 61% ophthalmologists. As reported by Ezra and Allan¹³, topical anesthesia can be easily supplemented with intracameral anesthesia and sedation when needed but available studies have shown no significant differences favoring supplemental anesthesia¹⁴. The benefits of topical anesthesia include avoiding risks associated with orbital injections and fast functional recovery. It eliminates postoperative diplopia, decreases time and cost of surgery¹⁵, avoids use of occluder. Additionally trans-corneal route with topical anesthesia can be used in patients with coagulation disorders¹⁶. Topical anesthesia should be used in selected patients and by the experienced surgeons. Because topical anesthesia does not produce akinesia and it can be dangerous in uncooperative patients¹⁷,¹⁸.

The surgeon should be prepared to use ocular immobilization if need arises. The patient should be informed preoperatively that he /she will continue to see during surgery because it can cause anxiety for the patients. Sometimes with topical anesthesia oculocardiac reflex develops¹⁹.

-------------------------------------------------------------------------------------------
Topical anesthesia for cataract surgery is safe and effective method, it can eliminate many complications of invasive anesthesia
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MATERIALS AND METHODS.
This analytical study was conducted in K.D.A Teaching Hospital, Kohat on patients undergoing...
cataract surgery with phacoemulsification and IOL implantation under topical anesthesia from January, 2016 to December, 2016. Total 60 patients were selected with age range from 53 to 77, mean age being 64.6 years. Out of these 60 patients 34 (56.66) were male and 26(43.33%) were female.

Biometry was done and pupils were dilated with tropicamide eye drop. Grade-iv nuclear, hypermature and complicated cataracts were excluded from the study. All patients were instructed regarding the type of anesthesia and asked for cooperation. Alcaine one drop 4 times at interval of 2 minutes were instilled into eyes 5 minutes before surgery by phacoemulsification with IOL implantation. Four points score scale for pain assessment was already prepared for documentation (Table II). All surgeries were done by single surgeon to avoid any bias. Phacoemulsification time was recorded(Table-III).

RESULTS:
Out of 60 patients, 47 (78.33%) had 0 score. 3(5%) of patients had score 2, 2(3.33%) patients had score 1, 2 (3.33%) patients had score 2, 3 (5%) of the patients scored 3 while 5(8.33%) patients had score 4 (Table-IV).

Table-I. Gender Distribution.

<table>
<thead>
<tr>
<th>Gender</th>
<th>No of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>34</td>
<td>56.66%</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
<td>43.33%</td>
</tr>
</tbody>
</table>

Table-II. Four Points Score Scale For Pain Assessment.

<table>
<thead>
<tr>
<th>Pain Score</th>
<th>Verbal Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No pain/Discomfort.</td>
</tr>
<tr>
<td>1</td>
<td>Slight discomfort/tolerable</td>
</tr>
<tr>
<td>2</td>
<td>Mild pain still tolerable/continue surgery no additional anesthesia.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate pain relieved with topical alcaine.</td>
</tr>
<tr>
<td>4</td>
<td>Severe pain, further subconjunctival local anesthesia given.</td>
</tr>
</tbody>
</table>

Table-III phacoemulsification time.

<table>
<thead>
<tr>
<th>Phaco time</th>
<th>No of Patients</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 minutes</td>
<td>39</td>
<td>65%</td>
</tr>
<tr>
<td>From2-3 minutes</td>
<td>17</td>
<td>28-33%</td>
</tr>
<tr>
<td>&gt;3 minutes</td>
<td>4</td>
<td>6.66%</td>
</tr>
</tbody>
</table>

Table-IV Four Points Score Scale For Pain Assessment Recorded.

<table>
<thead>
<tr>
<th>Pain score</th>
<th>No of Patients</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>47</td>
<td>78-33%</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3.33%</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>8.33%</td>
</tr>
</tbody>
</table>

DISCUSSION
The main objective of this analytical study was to find out better and easy technique of anesthesia for cataract surgery by phacoemulsification and implantation of IOL. As cataract surgery is the commonest ocular surgery, therefore every ophthalmologist has keen interest to have focus on easy and safe anesthesia as that being the objective of our study. As evident from our study 78.33% had score zero regarding the anesthesia and analgesia due to topical anesthesia and further 5% had score 1. This develops confidence of ophthalmologists over topical anesthesia.

Our data has been supported by many research data nationally as well as internationally. Ahmad S has reported pain score of zero by 76% of patients being nearly identical to our study. Syed Z, Malik TM, Malik AM has reported that 66% patients were satisfied from topical anesthesia and analgesia for phacoemulsification had score zero while 11.11% patients had some pain for which subconjunctival lignocaine were given.

This variation is usually due to sensitivity of patients as well as experience of surgeon. Waheed S has conducted study on topical anesthesia in phacoemulsification with IOL implantation. He reported that 85% of patients were happy and tolerated the surgery with score zero. Chuang L.H, Lai C.C, KU Wan, Chen et al reported that topical anesthesia for phacoemulsification is increasingly weighted with the experienced surgeon. They reported that 86.5% patients had score 0 in topical anesthesia.

Duguid IGM, Claoue CMP, et al have reported in their comparative study that topical anesthesia and peribulbar anesthesia had the same pain score. They reported that a small increase in discomfort was observed in topical anesthesia. The pain levels reported were small and may not be clinically significant when set against the reduced incidence of anesthesia related complications. Gupta SK, Kumar A, Agarwal S compared topical anesthesia in phacoemulsification VS MSICS. They reported that 70% of patients in phacoemulsification and 57% patients in MSICS had pain score of zero. The documented and reported research data of safety and efficacy of topical anesthesia in phacoemulsification strongly recommend the use of this type of anesthesia so that many complications of other types of anesthesia could be eliminated.

CONCLUSION
Topical anesthesia for cataract surgery is safe and effective method. It can eliminate many complications of invasive anesthesia. The use of this anesthesia mostly depend upon patients’ cooperation and surgeon’s experience and confidence.

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Prevalence of Visual Disabling Age Related Cataract in Al-Shifa Trust Eye Hospital Rawalpindi

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Hafiza Hina Rasheed MBBS3

ABSTRACT
Background: Visual impairment caused by age related cataract is the major cause for treatable blindness. It commonly occurs after the age of fifty years, which needs regular screening for the cataract.
Objective: To estimate the prevalence of age-related cataract in Al-Shifa Trust Eye Hospital and to make recommendations on the basis of results.
Materials and Methods: It was cross-sectional study in Al-Shifa Trust Eye Hospital and sample of 384 patients were collected by convenient sampling. Structured questionnaire was used with verbal consent to collect data.
Results: This study revealed that among visual disabling age related cataract 48.2% were posterior sub capsular cataract, while cortical and nuclear sclerosis were 37.2% and 42.2% respectively. Mature cataract was highly prevalent in patients coming from rural areas.
Conclusion: By this study it was concluded that posterior sub capsular cataract is the most prevalent type among visually disabled patients from age related cataract.
Key words: Age related cataract, Visual disability, Nuclear sclerosis, Cortical sclerosis, Posterior sub capsular cataract.

INTRODUCTION:
Cataract is derived from Latin word “cataract” meaning waterfall. It is the opacity of the crystalline lens, a leading cause of avoidable blindness and visual impairment throughout the world. According to the World Health Organization it has been shown that visual impairment and age related cataract may be the independent risks for increased morbidity of older persons. With the increased life expectancy the overall prevalence of vision loss due to age related cataract has also increased. According to World Health Organization’s survey of 2002 it has been estimated that cataract caused reversible blindness in more than 17 million (47.8%) out of 37 million blind individuals worldwide[1]

In Pakistan, a national survey on blindness was carried out in 2004-5, it was observed that the major cause of blindness (53%) is due to cataract.[2] Most of the cataracts are because of age related changes in the lens. However there are so many other factors are responsible for development of cataracts, which include diabetes, drugs i.e. corticosteroids, chlorpromazine and other phenothiazine related medications. There is an increased chance of cataract formation with the UV radiation exposure, smoking is seen to be associated with the nuclear cataract formation, and alcohol consumption is directly related to cataract genesis. Among nutritional deficiencies, low levels of antioxidants (vitamin C and E, carotenoids etc.) are observed to be contributing factor in its development. Rarely, congenital cataracts may be inherited or develop due to infection i.e. Rubella in the mother during pregnancy. Trauma to the eye is also a reason cataract.[3]

Age related cataract is still a major cause of visual disability in our country, as a large population of backward areas are unaware of it and they consult tertiary eye care hospitals when they become nearly blind. Posterior sub capsular cataract is the most prevalent type of the age related cataract.

Cataracts are classified on the basis of age, location of opacity and degree of opacity.[4] Age related cataract develops when the main structural proteins in the lens, alpha-crystalline proteins aggregates into clumps that cause clouding of the lens and consequently decrease in the visual acuity.[5] Cataracts can be diagnosed by through a comprehensive eye examination including visual acuity, refraction and lens examination after dilation. It is done after taking the patient’s history, ocular problems he is facing[6]
So far, no such medicines are available that can prevent the development of the cataract. However, according to some experiments antioxidants delays it\(^{[7]}\). The one and only treatment option for the cataract is its extraction through surgery, which may be ICCE, ECCE, and phacoemulsification. Phacoemulsification is the most common procedure, however, in mature cataract cases ECCE is the only option\(^{[8]}\).

**MATERIAL AND METHOD:**
A cross-sectional study was done in Al Shifa Trust Eye Hospital and sample of 384 patients was collected by convenient sampling. Structured questionnaire was used to collect data and study was done in four months from September 2015 to December 2015. The questionnaire was consisted of three parts, first part was of demographic data, second part consisted of was consists of medical history and third part included ocular examination after dilated pupil with mydriatic eye drops. Patient was fully examined i.e. staring from eyelids till retina. Those patients who met the inclusion criteria were kept in the study. Data was analyzed through SPSS version 20.00.

**RESULTS:**
The total subject group in the study consisted of 384 patients out of which 160(42%) were males and 224(58%) were females.

**Prevalence of different types of cataract:**
i. **Posterior sub capsular cataract**: 185/384 (48.2%)
ii. **Cortical sclerosis**: 143/384 (37.2%)
iii. **Nuclear sclerosis**: 162/384 (42.2%)

**Association between cataract and age:** Majority of the subjects fall in the age category ranging from 56-60 years i.e. 26.8% (24% patients lie in the age limit of 71-75 years. Minimum number 0.3% were in the age group of 81-85 years and >90 years. The distribution of subjects according to age groups in given in bar graph:

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>56-60</td>
<td>100</td>
</tr>
<tr>
<td>71-75</td>
<td>24</td>
</tr>
<tr>
<td>&gt;90</td>
<td>3</td>
</tr>
</tbody>
</table>

**DISCUSSION**
Visual disabling age-related cataract is the major cause of blindness in adults. It is easily treatable but still it is the most important eye health issue of the developing countries. In this study 384 patients were evaluated. It was found that males were 160(42%) while 224(58%) were females. All the patients were gone through full ocular examination after their visual acuity has been taken. All of the studied patients’ main complaint was that of decrease in visual acuity and in contrast sensitivity. The study also showed that visual disability because of cataract was mostly seen in the patients coming from rural areas (62%).

A study recently done in 2015 by Michal Szymon Nowak and Janusz Smigielski in the city of Lodz, Poland regarding prevalence of eye diseases and cataract surgery. In their study it was found that the prevalence of cataract was 12.10%. It means prevalence of visual disability because of age related cataract can be different from country to country depending on demographic conditions. Study showed that prevalence of age related cataract increases with age after fifty years and so does the decrease in visual acuity. Study also revealed that highest prevalence of age related cataract is posterior sub capsular cataract 48.2%. While that of cortical sclerosis is the minimum and its prevalence is 37.2%, whereas nuclear sclerosis type is 42.2% prevalent.\(^{[12]}\)

Another study was conducted by Cells T, Het., Caryl. P in England, according to this Cataract, AMD, open-angle glaucoma, DR, and visual impairment prevalence are high in four different studies of these conditions, especially in people over 75 years of age. There are disparities among racial/ethnic groups with higher age-specific prevalence of DR, open-angle glaucoma, and visual impairment in Hispanics and blacks compared with whites, higher prevalence of age-related cataract in whites compared with blacks, and higher prevalence of late AMD in whites compared with Hispanics and blacks. The estimates are based on old data and do not reflect recent changes in the distribution of age and race/ethnicity in the United States population. However, there are no epidemiologic estimates available for prevalence for many other visually-impairing...
Prevalence of Visual Disabling Age Related Cataract in Al-Shifa Trust Eye Hospital Rawalpindi

Prevalence of Visual Disabling Age Related Cataract in Al- Shifa Trust Eye Hospital Rawalpindi conditions.[14]

CONCLUSION:
This study indicates that age related cataract is still a major cause of visual disability in our country and a large population of backward areas are still unaware of it unless they consult hospitals and are nearly blind. The study showed that posterior sub capsular cataract is the most prevalent type of age related cataract (48.2 thus causing a great burden on health care system.

REFERENCES:
Ocular Health Status of Employees in a Pharma Factory in Karachi.

(A cross-sectional survey)

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Shehla Dareshani FCPS ³

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& Dow University of Health Sciences, Karachi

ABSTRACT

Background: Occupational ocular health hazards are often under recognized, especially in the developing world. Work-related eye problems faced by factory workers carry a significant economic and health burden. It is important to characterize the nature of these ocuviosial problems in order to help public health policy. We aimed to assess the ocular health status of employees at a pharmaceutical factory in Karachi, Pakistan.

Methods: A standard ocular examination was performed on 89 factory workers belonging to a Pharmaceutical Factory located in Korangi, Karachi. All clinical examinations were conducted on factory site by the principal investigator during February 2017.

Results: Out of 89 workers, 13 (14.6%) were female and 75% (n=66) of workers belonged to Sterile Optical Inspection department, while 12% (n=11) and 13% (n=12) worked in Indoor and Outdoor Warehouses, respectively. Overall, 28.1% (n=25) employees were diagnosed with at least one eye problem. Refractive errors were the most frequent diagnosis (n=15; 16.9%), followed by cataract or cataract-like lenticular changes (n=4; 4.5%). Other ocular problems detected included red-green color blindness, glaucoma and amblyopia.

Conclusion: In conclusion we identified that a considerable proportion of workers in one pharmaceutical factory in Karachi, Pakistan, is suffering from ocular morbidity. This finding underscores the importance of regular eye check-ups for factory workers as well as strictly observing occupational health and safety protocols.

INTRODUCTION

Occupational health problems contribute significantly to global health burden, and have a major socioeconomic and personal cost. According to a recent review, a total of two million deaths globally in 2012 could be attributed to acute or chronic work-related disorders ¹. Among the major occupational health hazards are eye-related injuries and illnesses. Factory workers may be especially prone to developing ociculo-visual symptoms, as certain eye diseases are associated with specific working conditions or environmental exposures. For example, occupational lifting work has been linked to increased risk of rhegmatogenous retinal detachment² long working (humidity ≤1%) increase the risk of developing dry eye syndrome³ exposure to trinitrotoluene and organic solvents is associated with cataracts⁴ and color-vision impairment⁵ respectively. Workers in the pharmaceutical industry have even been reported to develop specific immune reactivity to drug compounds⁶.

There have been several attempts to characterize ocular health status and distribution of ocular diseases within working populations. A Kenyan population-based study found the prevalence of ocular morbidity to be 25.8% in manual laborers, and 18.1% in non-manual workers⁷. In a collective survey of several industries – including cement, coal and iron/steel works in Nigeria, 81.7% of the workers examined suffered from eye-related disorders⁸. A similar study in India that examined workers from the shipbuilding, rubber and chemical fertilizer industries noted a 32.1% overall prevalence of ocular morbidity⁹. These largely differing figures reflect the variety in nature of industrial work, and the need to identify particular sectors of industry that carry the greatest work-related ocular morbidity.

Despite their negative impact on workers’ productivity, occupational ocular problems in developing countries still remain largely unrecognized¹⁰. Regular eye check-ups of workers are crucial to determining and quantifying occupational health hazards. Such findings have the potential to inform and influence public health policy and development of preventive work protocols. This is especially relevant to developing countries such as Pakistan, where there is little

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Received: Nov’2017 Accepted: March’2018
A considerable proportion of workers in a pharmaceutical factory in Karachi is suffering from ocular morbidity. This finding underscores the importance of regular eye check-ups for factory workers and strict observation of occupational health and safety protocols.

**METHODOLOGY**

This cross-sectional study included 89 workers from a Pharmaceutical Factory, at Korangi industrial area of Karachi. Workers were broadly categorized as belonging to one of 3 departments, based on the type of work they did: Sterile Optical Inspection, Indoor or Outdoor Warehousing departments. Workers in the Sterile Optical Inspection department were involved in inspection of packaging of medicines, and checking for instance for any leakages after this process of packaging. Workers in the Indoor Warehouse were assigned to assist in loading and unloading of materials, using indoor fork-lifts, while those working in the Outdoor Warehouse manually transported the finished packaged products from delivery vans to the Outdoor Warehouse. None of the tasks was reported to involve direct exposure of workers to any chemicals. Working hours for all employees were 8 hours a day, 6 days per week.

Demographic characteristics including age, sex, medical history of diabetes and hypertension; and industrial work history of the participants, were recorded. Administrative and non-technical staff was excluded from our study, as well as those workers who did not provide informed consent.

Visual acuity and the color vision were assessed and noted as simply 'normal' or 'abnormal'. Anterior segment was examined along with IOP and visual fields in suspected glaucoma cases were assessed. Fluorescein staining of corneal lesions was also carried out. All clinical eye examinations were conducted by the principal investigator at the factory site during the month of February 2017. The principal investigator served as a consultant for the pharmaceutical company. All data were entered in Microsoft Excel 2007 and subsequently analyzed.

**RESULTS**

The factory workers were all aged between 20 and 60 years. Only 14.6% (n=13) of the sample population were women, and all of them were employed in the Sterile Optical Inspection department, the only department that did not entail any manual labor work.

Among all the workers examined, only 2 had diabetes mellitus (2.2%), and 7 had hypertension (7.9%). All these individuals belonged to the Indoor Warehouse department.

Overall, about one-fourth (25/89; 28.1%) persons examined were diagnosed with at least 1 eye problem. Most commonest among the factory employees were refractive errors (15/89; 16.9%), cataract-like lenticular changes (4/89; 4.5%). Other problems detected included red-green color blindness, glaucoma and amblyopia. The frequency of ocular health problems among workers, department-wise is shown in Table 1.

Table 1. Distribution of ocular problems in workers across 3 departments of a pharmaceutical factory

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterile Optical Inspection (n=66)</td>
<td></td>
</tr>
<tr>
<td>Refractive error</td>
<td>10(15.2)</td>
</tr>
<tr>
<td>Glaucoma suspect</td>
<td>2(3.0)</td>
</tr>
<tr>
<td>Cataract (posterior polar)</td>
<td>1(1.5)</td>
</tr>
<tr>
<td>Indoor Warehousing (n=11)</td>
<td></td>
</tr>
<tr>
<td>Red-green color blindness</td>
<td>1(9.1)</td>
</tr>
<tr>
<td>Refractive error</td>
<td>3(27.3)</td>
</tr>
<tr>
<td>Cataract</td>
<td>1(9.1)</td>
</tr>
<tr>
<td>Outdoor Warehousing (n=12)</td>
<td></td>
</tr>
<tr>
<td>Red-green color blindness</td>
<td>1(8.3)</td>
</tr>
<tr>
<td>Glaucoma suspect</td>
<td>1(8.3)</td>
</tr>
<tr>
<td>Cataract (or lenticular changes)</td>
<td>2(16.7)</td>
</tr>
<tr>
<td>Amblyopia</td>
<td>2(16.7)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Although the reported ocular morbidity among industrial workers ranges from 32.1% to as high as 96.4% (9-12), the general prevalence of ocular disorders among our cohort was 28.1%, which is lower than previous findings. Considering the major contribution of refractive error to overall ocular morbidity and its established risk factors. Our findings may be associated with the age and socioeconomic status of our subjects; evaluation of the site of the pharmaceutical company reveals a generally low literacy. Previous studies have taken into account multiple industrial hazards, including traumatic injury and exposure to damaging chemicals 4,5,8,9, whereas none of these risks were detected in the working conditions of our cohort.

Our study concurred with previous findings in identifying refractive error (inclusive of both uncorrected myopia and presbyopia) as the most common ocular disorder amongst pharmaceutical workers10,11. The Indoor Warehousing department was found to yield the highest frequency of refractive errors; the older mean age of employees in this department likely contributed to significant findings of presbyopia. On the other
hand, workers in the department of Sterile Optical Inspection showed a considerable inclination towards myopia rather than presbyopia. Since the employed population in this department focused on thorough inspection of physical impurities not only manually but also for extended periods of time per day, it would not be unreasonable to consider them particularly susceptible to developing myopic changes. Furthermore, distribution of all female pharmaceutical workers to this department provides additional support of this finding, given their increased risk of developing myopia as compared to males.

In contrast to refractive errors, cataracts among our cohort were found to be much more prevalent in comparison with previous studies. This may be explained partly by the tropical climate in which the company is based, thus exposing employees to sunlight and consistently high temperatures. Past analyses have identified ultraviolet (UV) radiation as a risk factor in the development of cortical and posterior sub-capsular cataracts, which proves relevant to the consideration of environmental factors in our study in the context of non-traumatic ocular morbidity. This association is further solidified by the detection of the highest frequency of cataracts among workers of the Outdoor Warehouse, the department involving most exposure to sunlight. The Indoor Warehousing department follows in previous indoor housing employees as well as red-green color blindness. While the latter may simply be a result of high rates of consanguineous marriages Amblyopia among Outdoor Warehouse workers is likely unrelated to refractive error and therefore needs further scrutiny to be fully understood in this setting. It should be noted that the small size of our sample population may hamper the reliability of our results. Furthermore, demographic and clinical characteristics in this study lack the statistical values needed to understand their impact in.

CONCLUSION

Ocular morbidities among pharmaceutical workers are likely to vary according to department-wise distribution, with refractive errors and cataracts being among the most frequent overall. These aforementioned disorders are associated not only with demographic characteristics, including age and socioeconomic status, but also with specific working conditions such as exposure to UV radiation. Hence, protective eye-wear and cautious allocation of working hours should be encouraged, and future studies detailing prevalence should focus on each industry discretely in order to identify specific modalities of disease.

REFERENCES


Authors’ contributions.

Dr Tariq Saleem:
Data collection ,interpretation of results and literature search

Dr Shehla Dareshani:
Topic selection, interpretation of results,literature search for discussion

Dr Khwaja Faiz ur Rab:
Methodology and interpretation of results.
Prevalence and Clinical Characteristics of Dry Eye Syndrome in Patients with Diabetes Mellitus

Khizar Hayat MBBS¹, Muhammad Irfan MBBS² Ali Asad MBBS³

ABSTRACT

Background: Diabetes affects the human body’s systems and organs, including the eye. Tear composition of diabetic patients is different from non-diabetic patients.

Objective: To get to know about association of dry eye in diabetic patients.

Material And Methods: A cross sectional study was done during July 2017-september 2017. A non-probability convenient based sampling was done and 200 patients sample was taken. SPSS version 20 was done for analysis.

Results: Male patients (n=16) with dry eye disease had an average duration of diabetes was 13 years whereas it was 15 years in female (n=56). The diabetic duration of highest mean was found in 65-75 year old cases, duration of diabetes was not statistically significant among sex and age (r=0.712 and r=0.719 respectively). Highest fasting glycaemia was found in the 45-55 year old group, and was highest in men. However, it was not statistically significant among age and sex (r=0.277 and r=0.456 respectively).

Conclusion: There was a strong association between dry eye and diabetes but no statistically significant association between age and gender of diabetic patients with dry eye.

Key words: Diabetes, Glycemia, Dry eye, Significant.

INTRODUCTION:

Diabetic subjects demonstrated dry eye symptoms that were also supported by the low values of the clinical tests. Diabetes mellitus (DM) has become a major public health problem in recent century. The global prevalence of diabetes was 246 million in 2007 and could be reached up to 380 million by 2025. Almost 80% of cases occur in the developing world, with Southeast Asian countries having the highest number of cases. Diabetes mellitus may cause many problems like neuropathy, retinopathy and also it may change the tear composition. These disorders have bad effects on systems, such as cardiovascular, genitourinary and gastrointestinal. These all depend on poor glycemic control.

Diabetics complain of dry eye, as confirmed with the Schirmer test. Some researchers revealed that the tear composition of diabetic patients is different from that of normal subjects. Damage to the microvasculature of the lacrimal gland in long-lasting diabetes might impair the lacrimation. Sensory neuropathy of the cornea in diabetics may also reduce tear secretion.

Dry eye (DE) is a multifactorial pathology characterized by a progressive dysfunction of the lacrimal and meibomian glands that typically leads to decreased aqueous tear production and increased tear evaporation, respectively. These disorders are associated with signs and symptoms of ocular discomfort such as stinging, eye watering or redness and may cause serious irritation to the interpalpebral ocular surface, particularly the cornea. Several studies have identified a relationship between diabetes and DE with an increase in the risk of DE in these patients. However, other studies found neither a significant decrease in the aqueous tear flow nor any tear break up time impairment.

It is difficult for practitioners to get to know about changes in tear functions in diabetic subjects to start a proper treatment for DE which may improve their quality of life. The results of this research may increase the understanding of the association between DM and tear film function. This study aim to compare DE symptoms and signs between diabetics and non-diabetics and tear functions between diabetic subjects with and without DE.

Statistically, there is a significant association of diabetes with dry eye. Not necessarily related to age and gender of the patient. In clinical practice, examination for dry eye should be part of the assessment of diabetic disease.
MATERIAL AND METHODS:
It was a cross sectional study on patients of age group 40-60 at Christian Hospital Taxila with convenient sampling of 200 with the help of a self-structured questionnaire. Data analysis was done through SPSS version 20 during July-September 2017. The Ethical Committee reviewed the synopsis and after its approval, the study was carried out. Participation of the subjects in the study was voluntary and an informed written consent was taken from all the respondents. Schirmer test is done to get to know about dry eye in diabetic patients. Slit lamp also used for this. Also visual acuity was assessed in those patients.

RESULTS:
The result shows that total 185 diabetic patients were examined, out of them 66 patients had moderate to severe dry eye. In between these 16 were men and 50 were female. The average age was 63 years for men, and 64 for female. The distribution in age groups was statistically significant (p<0.005). Most of the patients were in the age group of 75-85. While the 65-75 year-old had the fewer complaints. Male patients (n=16) with dry eye disease had a average duration of diabetes was 13 years whereas it was 15 years in female (n=56). The diabetic duration of highest mean was found in 65-75 year old cases. Mean duration of diabetes was not statistically significant among sex and age (p= 0.712 and p=0.719 respectively). Highest fasting glycaemia was found in the men in the age group of 45-55. However, it was not statistically significant about age and sex (p= 0.277 and p=0.456 respectively).

D.F:
Ocular Discomfort Frequency - 1: Absent 2: Mild 3: Moderate 4: Intense
conj. staining: 1: Absent 2: Mild 3: Moderate 4: Intense
corneal staining 1: Absent 2: Mild 3: Moderate 4: Intense
BUT: Break-up time - 1: Variable 2: <10s 3: <5s 4: Immediate
Schirmer: 1: Variable 2: < 15mm 3: < 5mm 4: <2mm

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

Table: Patient profile by age group and gender - mean variables (SD)

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>No.</th>
<th>Age (SD)</th>
<th>Glycaemia (SD)</th>
<th>Diabetes Duration Yrs.</th>
<th>VA OD (SD)</th>
<th>VA OS (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 – 45</td>
<td>16</td>
<td>39.50 (4.20)</td>
<td>225 (10)</td>
<td>0.87 (0.231)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45– 55</td>
<td>40</td>
<td>51.43 (2.74)</td>
<td>226 (11)</td>
<td>0.49 (0.306)</td>
<td>0.51 (0.271)</td>
<td></td>
</tr>
<tr>
<td>55 – 65</td>
<td>46</td>
<td>61.40 (2.99)</td>
<td>167 (10)</td>
<td>0.56 (0.334)</td>
<td>0.51 (0.346)</td>
<td></td>
</tr>
<tr>
<td>65– 75</td>
<td>12</td>
<td>70.78 (3.03)</td>
<td>194.5 (15)</td>
<td>0.32 (0.200)</td>
<td>0.37 (0.305)</td>
<td></td>
</tr>
<tr>
<td>75- 85</td>
<td>75</td>
<td>83.00 (3.46)</td>
<td>142 (13)</td>
<td>0.35 (0.392)</td>
<td>0.48 (0.386)</td>
<td></td>
</tr>
<tr>
<td>p value</td>
<td>&lt;0.001</td>
<td>0.233</td>
<td>0.712</td>
<td>0.255</td>
<td>0.245</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>No.</th>
<th>Age (SD)</th>
<th>Glycaemia (SD)</th>
<th>Diabetes Duration Yrs.</th>
<th>VA OD (SD)</th>
<th>VA OS (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16</td>
<td>63 (14,18)</td>
<td>216.62 (139.462)</td>
<td>13</td>
<td>0.44 (0.323)</td>
<td>0.5 (0.365)</td>
</tr>
<tr>
<td>Female</td>
<td>50</td>
<td>64(10,64)</td>
<td>176.87 (85.426)</td>
<td>15</td>
<td>0.50 (0.326)</td>
<td>0.51 (0.320)</td>
</tr>
<tr>
<td>p value</td>
<td>0.56</td>
<td>0.476</td>
<td>0.719</td>
<td>0.569</td>
<td>0.984</td>
<td></td>
</tr>
</tbody>
</table>

Table:2 Patient profile by age group and gender; clinical signs, median variables and amplitude

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>O.D.F.</th>
<th>Conj. Staining</th>
<th>Corneal Staining</th>
<th>Tear Meniscus</th>
<th>M.G.A.</th>
<th>BUT</th>
<th>Schirmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 – 45</td>
<td>3 (3-4)</td>
<td>1 (1 - 2)</td>
<td>1 (1-1)</td>
<td>1.5 (1 - 2)</td>
<td>1 (1 - 1)</td>
<td>2 (2 - 2)</td>
<td>2 (2 - 3)</td>
</tr>
<tr>
<td>45.8 – 56.6</td>
<td>3 (3-3)</td>
<td>1 (1 - 2)</td>
<td>1 (1-2)</td>
<td>2 (1 - 3)</td>
<td>1 (1 - 2)</td>
<td>2 (2 - 2)</td>
<td>3 (2 - 3)</td>
</tr>
<tr>
<td>56.6 – 67.4</td>
<td>3 (3-3)</td>
<td>1 (1 - 3)</td>
<td>1 (1-3)</td>
<td>2 (1 -3)</td>
<td>1 (1 - 2)</td>
<td>2 (1 - 3)</td>
<td>2.5 (2 -4)</td>
</tr>
<tr>
<td>67.4 – 78.2</td>
<td>3 (3-4)</td>
<td>1 (1 - 2)</td>
<td>1 (1-3)</td>
<td>2 (1 -2)</td>
<td>1 (1 - 2)</td>
<td>2 (2 - 2)</td>
<td>2 (2 - 3)</td>
</tr>
<tr>
<td>78.2 – 89</td>
<td>3 (3-4)</td>
<td>2 (1 - 3)</td>
<td>1 (1-3)</td>
<td>2 (2 -3)</td>
<td>2 (1 - 2)</td>
<td>2 (1 - 3)</td>
<td>2 (2 - 3)</td>
</tr>
<tr>
<td>p value</td>
<td>0.710</td>
<td>0.225</td>
<td>0.934</td>
<td>0.186</td>
<td>0.054</td>
<td>0.825</td>
<td>0.382</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>O.D.F.</th>
<th>Conj. Staining</th>
<th>Corneal Staining</th>
<th>Tear Meniscus</th>
<th>M.G.A.</th>
<th>BUT</th>
<th>Schirmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>3 (3-4)</td>
<td>1 (1 - 2)</td>
<td>1 (1-2)</td>
<td>2 (1 -2)</td>
<td>1 (1 - 2)</td>
<td>2 (2 - 2)</td>
<td>2 (2 - 3)</td>
</tr>
<tr>
<td>Female</td>
<td>3 (3-4)</td>
<td>1 (1 - 3)</td>
<td>1 (1-3)</td>
<td>2 (1 -3)</td>
<td>1 (1 - 2)</td>
<td>2 (1 - 3)</td>
<td>2 (2 - 4)</td>
</tr>
<tr>
<td>p value</td>
<td>0.346</td>
<td>0.866</td>
<td>0.765</td>
<td>0.912</td>
<td>0.793</td>
<td>0.585</td>
<td>0.226</td>
</tr>
</tbody>
</table>
DISCUSSION:

Several previous studies have proved the association between DM and dry eye. Although some found as high risk factor, others found neither a significant decrease in aqueous tear flow nor impaired TF BUT among those treated with insulin. Kaiserman proved that DM increases dry eye and its effects. Seifart et al. found that diabetes type 2 patients suffer mostly from this issue. Sendecka et al. noticed that the mostly diabetic patients and hypertensive patients suffer from this issue. Jain et al. observed in his research that 80 diabetic patients in a group of 400 patients suffered with dry eye. The reason of the association may be autonomic neuropathy and damage to microvasculature of the lacrimal gland, as well as sensorial corneal neuropathy.

Another study that was conducted in India in which they used a performa to get to know about the symptoms of dry eye, we choose grade “3” and “4” and linked to the Schirmer test inferior to 15mm in 5 minutes. Some studies reported that Schirmer and BUT reduced in diabetic dry eye, in contrast to other authors that found that Schirmer, BUT and Rose Bengal staining contain reduced sensitivity and underestimate dry eye disease when compared with a self-reported questionnaire about symptoms. Symptoms can be taking as important, due to the lack of support between all tests that are used in diagnosis. Doctors also depend mainly on the evaluation of symptoms for dry eye diagnosis.

There are more studies regarding this issue, and it ranges between 14.4% to 54.3%. We did not find any other research that used only moderate to severe dry eye syndrome particularly in diabetes. As all of us know that of dry eye normally presents a variation with environmental conditions, such as sun exposure, which increases this rate, and a high humidity ambient, that reduces it.

In this study we found that 24.4% cases were men and 75.86% cases were women, but it was not significant. Some authors found that dry eye issue is commonly found in female. of one of the justification is the low rate of protector hormones like androgens. Other researches in diabetics show that diabetes has no sex specification.

Our research presented a mean age of moderate to severe dry eye of 64 in men and 65 in women, and these distributions of age groups was statistically significant. Kaiserman et al. found higher percentage of dry eye with age in diabetics, while Liu et al. found that diabetes and increased age were important factors to dry eye. However, Manaviat et al. did not found this type of association. We believe that it seems to possibility that the dysfunction of lachrymal and meibomian glands with androgen insufficiency and other disjunctions that occur with age an increase in dry eye disease in older people, irrespective of whether they are diabetic or not.

However, some studies report that diabetic keratoconjunctivitis sicca is commonly present in diabetics with poorer glycemic control, and that dry eye syndrome occurs more often in the hyperglycemia phase, due to the high extracellular fluid osmolarity that disturbs tear production.

We also analyzed co-morbidities and use of medication in these patients. The most commonly used medication was oral hypoglycemic agents (98%) followed by angiotensin converting enzyme inhibitors (56.0%). It is controversial that some comorbidities can be a risk factor to dry eye syndrome. Schauberg found that patients with hypertension and using drugs to treat hypertension and antidepressants had a higher prevalence of dry eye. Moss, in 2000, found that allergies, hypertension and use of antihistamines and diuretics were an important risk factor to dry eye. However, the same author in 2004 did not find any relation between a lot of comorbidities with dry eye, like arterial hypertension, cardiovascular disease, thyroid disease, smoking, stroke, allergies or use of antidepressants; diuretics and antihistamines were shown to be relevant risk factors; use of angiotensin converting enzyme inhibitor might be a protection factor. Eye drops were used by 19 of the 58 patients, and 14 of these used lubricants (24%). Kaiserman proved that 20.6% patients used lubricants.

Limitations of our research were that it was mainly a descriptive study, which disturb measurements, and that diabetic patient had other comorbidities that could be an independent risk factor to dry eye, although this is controversial.

CONCLUSION

It is concluded that there was a statistically significant association between dry eye and diabetes, but there was not statistically significant association of dry eye with age and gender of diabetic patients. Further studies are required on it due to the poor association between symptoms and objective tests for dry eye disease. There is a lack of epidemiological profile studies about diabetic symptomatic dry eye. Further research needs to be done to establish a real etiologic relationship between diabetes and dry eye, and its correlation to other risk factors. In spite of these limitations, we have strong evidence of this relationship, and in clinical practice, examination for dry eye should be part of the assessment of diabetic disease.

REFERENCES:

3. Dry eye syndrome, NICE CKS, September 2012 (UK access only)
Refractive Changes in Diabetic Patients during Intensive Glycemic Control in General Hospital, Lahore.

Ali Asad MBBS\textsuperscript{1} Khizer Hayat MBBS\textsuperscript{2} Riffet Samreen MBBS\textsuperscript{3}

ABSTRACT:

Aims: To evaluate the clinical course and the characteristics of transient refractive error occurring during intensive glycemic control of severe hyperglycaemia. Methods: Total 30 eyes of patients with persistent diabetes were included in this prospective study. During the observation period, patients underwent general ophthalmological examination and A-mode scan ultrasonography was performed at each examination—on days 1, 3, and 7, and then once every week or every other week until recovery of hyperopia. Results: There was a positive correlation between the magnitude of the maximum hyperopic change and (1) the plasma glucose concentration on admission (p<0.01), (2) the HbA\textsubscript{1c} level on admission (p<0.005), (3) the daily rate of plasma glucose reduction over the first 7 days of treatment (p<0.001), (4) the number of days required for hyperopia to reach its peak (p<0.001), and (5) the number of days required for the development and resolution of hyperopic changes (p<0.0001). Conclusion: The degree of transient hyperopia associated with rapid correction of hyperglycaemia is highly dependent on the rate of reduction of the plasma glucose level. A reduction of refractive index in intraocular tissues, especially in lens, appears to be responsible for this hyperopic change. Key Words: hyperopia, refractive index, hyperglycemia, correlation, intraocular changes.

INTRODUCTION:

Patients with diabetes mellitus (DM) can develop various ocular complications including cataract, optic neuropathy, uveitis, and keratopathy as well as retinopathy. In addition, transient refractive error occurs during the course of DM and is associated with treatment induced changes in the plasma glucose concentration.\textsuperscript{1}Regarding the effect of chronic changes in plasma glucose, myopia associated with hyperglycaemia and hyperopia with hypoglycaemia have been reported to develop in diabetic patients.\textsuperscript{2} Some investigators have suggested that acute changes in plasma glucose for 1–2 months will cause hyperopia,\textsuperscript{3} while others have suggested that either myopia or hyperopia will occur when the plasma glucose level increases or decreases.\textsuperscript{4} Thus, the biological basis of refractive changes in the eyes of diabetic patients has not yet been established and the underlying mechanism is still unknown. \textsuperscript{4}While most published reports have been retrospective studies of a limited number of patients, the authors conducted a prospective study of 28 eyes of 14 diabetic patients who were hospitalized for severe hyperglycaemia and underwent glycemic control, in an attempt to make an objective evaluation of refractive changes during treatment.\textsuperscript{5} Diabetes mellitus can affect lens clarity, as well as the refractive index and accommodative amplitude of the lens. The degree of transient hyperopia associated with rapid correction of hyperglycaemia is highly dependent on the rate of reduction of the plasma glucose level. A reduction of refractive index in intraocular tissues, especially in lens, appears to be responsible for this hyperopic change.

As the blood glucose level increases, so also does the glucose content in the aqueous humor. Because glucose from the aqueous enters the lens by diffusion, glucose content in the lens will likewise be increased. Some of the glucose is converted to sorbitol, the sugar alcohol of glucose, by the enzyme aldose reductase. Sorbitol is metabolized slowly by the lens and accumulates in the lens cell cytoplasm. The resulting increase in osmotic pressure may cause an influx of water, which leads to swelling of the lens fibers. The state of lenticular hydration can affect the refractive power of the lens. Patients with uncontrolled diabetes may show transient refractive changes owing to large changes in their blood glucose level. Acute myopic shifts may indicate undiagnosed or poorly controlled diabetes. People with diabetes have a decreased amplitude of accommodation compared to age-matched controls, and presbyopia may present at a younger age in patients with diabetes than in those without.\textsuperscript{6}

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Cataract is a common cause of visual impairment in patients with diabetes. Acute diabetic cataract, or snowflake cataract, consists of bilateral, widespread sub-capsular lens changes of abrupt onset, typically in young people with uncontrolled diabetes mellitus. Multiple gray-white sub-capsular opacities that have a snowflake appearance are seen initially in the superficial anterior and posterior lens cortex. Vacuoles and clefts form in the underlying cortex. Intumescence and maturity of the cortical cataract follow shortly thereafter. Researchers believe that the underlying metabolic changes associated with the acute diabetic cataract in humans are closely allied to the sorbitol cataract studied in experimental animals. Although acute diabetic cataracts are rarely encountered in clinical practice today, any rapidly maturing bilateral cortical cataracts in a child or young adult should alert the clinician to the possibility of diabetes mellitus.

**MATERIAL AND METHOD:**
A prospective study was done in which 30 patients were included in this study. 16 patients with DM who were admitted to LRBT Hospital between January 2017 and August 2017, had plasma glucose level of 400 mg/dl or higher, or HbA1c of 12.0% or higher on admission. Convenient based sampling was done in this study. SPSS version 20 was used for analysis. In which data was analyzed by taking percentage, standard deviation and confidence interval.

Excluded from this study were the patients who did not come to the hospital within 4 days after plasma glucose measurement on the initial examination at admission and those who failed to undergo ophthalmological examinations according to the protocol because of poor general health.

All patients of diabetes who joined us during working hours were included in this study. Refraction, intraocular pressure, radius of the anterior corneal curvature, depth of the anterior chamber, lens thickness, vitreous length, and axial length were measured on admission and at the end of week 1, 2, 3 and 4 during glycemic control. During the observation period, patients underwent general ophthalmological examination and A-mode scan ultrasonography was performed at each examination at end of week 1, 2, 3 and 4 during glycemic control.

**RESULTS:**
30 patients were included in this study in which the subjects consisted of 13 men and three women, with a mean age of 53 (SD 13.1) years. 4 of the 16 patients complained some symptoms including thirst, polydipsia and polyuria at the first visit to outpatient clinic, were diagnosed with diabetes mellitus, and admitted on that day. In four patients elevated plasma glucose levels were detected during health screening examination. The remaining five patients had been diagnosed as having DM 2–5 years before, but left the disease untreated after diagnosis. The mean plasma glucose concentration at admission was 535 (SD 141) mg/dl (range 286–824 mg/dl) and the mean HbA1c value was 11.9% (2.8%) (range 6.8–16.0 %). By the type of disease, 13 patients had non-insulin dependent diabetes mellitus and two patients had insulin dependent diabetes mellitus (Table 1 summarises the characteristics of the patients enrolled in this study.

**Table 1 Clinical characteristics of the diabetic patients**

<table>
<thead>
<tr>
<th></th>
<th>Sex (M/F)</th>
<th>Age</th>
<th>Duration of DM (years)</th>
<th>Plasma glucose at admission (mg/dl)</th>
<th>HbA1c(%)</th>
<th>Type of DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>27</td>
<td>ND</td>
<td>285</td>
<td>14.2</td>
<td>I</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>54</td>
<td>4</td>
<td>511</td>
<td>10.1</td>
<td>II</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>35</td>
<td>6</td>
<td>576</td>
<td>8.2</td>
<td>II</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>73</td>
<td>ND</td>
<td>710</td>
<td>14.0</td>
<td>II</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>66</td>
<td>ND</td>
<td>544</td>
<td>12.9</td>
<td>II</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>36</td>
<td>5</td>
<td>555</td>
<td>12.4</td>
<td>I</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>43</td>
<td>ND</td>
<td>509</td>
<td>13.5</td>
<td>II</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>70</td>
<td>ND</td>
<td>834</td>
<td>16.0</td>
<td>II</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>59</td>
<td>4</td>
<td>740</td>
<td>15.6</td>
<td>II</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>37</td>
<td>ND</td>
<td>460</td>
<td>12.4</td>
<td>II</td>
</tr>
<tr>
<td>11</td>
<td>F</td>
<td>59</td>
<td>ND</td>
<td>306</td>
<td>10.6</td>
<td>II</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>46</td>
<td>ND</td>
<td>508</td>
<td>8.0</td>
<td>II</td>
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<tr>
<td>13</td>
<td>F</td>
<td>31</td>
<td>4</td>
<td>418</td>
<td>12.0</td>
<td>II</td>
</tr>
<tr>
<td>14</td>
<td>M</td>
<td>48</td>
<td>ND</td>
<td>409</td>
<td>6.8</td>
<td>II</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>51 (13)</td>
<td>532 (141)</td>
<td>11.9 (2.8)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Refractive changes: A transient hyperopic change occurred in all patients receiving improved control after hyperglycaemia. Hyperopic change appeared a mean of 3.4 (SD 2.0) days (range 1–7 days) after treatment was started; the maximum hyperopic change occurred 10.3 (6.1) days (range 4–28 days) after treatment was started. Refraction gradually returned to the baseline value over 44.7 (26.9) days (range 14–84 days) from the start of treatment. Treatment of hyperglycaemia produced a mean maximum hyperopic change in the 28 eyes of 1.47 (0.87) diopters. The largest magnitude of the refractive change was 3.75 diopters in patient 4 (Table 2).

Table 2 Clinical course of transient hyperopic change

<table>
<thead>
<tr>
<th>Patient No</th>
<th>Onset time of hyperopic change (days after admission)</th>
<th>Peak time of hyperopic change (days after admission)</th>
<th>Recovery time of hyperopic change (days after admission)</th>
<th>Baseline refraction (R/L; D)</th>
<th>Maximum hyperopic change (R/L; D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>6</td>
<td>28</td>
<td>−1.6/−1.9</td>
<td>1.7/1.9</td>
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<tr>
<td>2</td>
<td>2</td>
<td>7</td>
<td>21</td>
<td>+0.5/+0.4</td>
<td>0.6/0.6</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>3</td>
<td>14</td>
<td>−3.5/−3.6</td>
<td>1.3/1.4</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>29</td>
<td>84</td>
<td>−3.3/−8.0</td>
<td>3.0/3.8</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>13</td>
<td>56</td>
<td>−1.0/−0.1</td>
<td>1.3/1.2</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>6</td>
<td>84</td>
<td>+0.3/0.0</td>
<td>2.4/2.4</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>6</td>
<td>35</td>
<td>+0.1/+0.3</td>
<td>1.2/1.1</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>14</td>
<td>70</td>
<td>−0.3/−0.3</td>
<td>2.3/3.0</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>13</td>
<td>−</td>
<td>−0.3/−0.7</td>
<td>1.0/1.3</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>14</td>
<td>84</td>
<td>−1.0/−1.0</td>
<td>1.9/2.1</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>7</td>
<td>28</td>
<td>−5.0/−0.3</td>
<td>1.3/0.7</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>7</td>
<td>21</td>
<td>+0.3/+0.5</td>
<td>0.8/0.6</td>
</tr>
<tr>
<td>13</td>
<td>4</td>
<td>7</td>
<td>42</td>
<td>−0.9/−1.4</td>
<td>0.8/0.5</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>7</td>
<td>14</td>
<td>−1.1/−0.3</td>
<td>0.6/0.5</td>
</tr>
</tbody>
</table>

DISCUSSION

During intensive hypoglycaemic treatment in the hospital, some diabetic patients complain of disturbance of vision such as difficulty in reading and blurred vision with their own glasses because of refractive changes. If a new prescription for glasses is made at that time, there is a possibility that the new glasses will soon become inadequate. This phenomenon occurs with transient hyperopia due to acute changes in plasma glucose levels.

In diabetic patients, rapid reduction in plasma glucose sometimes aggravates diabetic retinopathy and reduces visual acuity. Although progression of retinopathy occurred in three patients in the present study, there were no abnormal findings such as macular edema or diabetic maculopathy directly affecting visual acuity, and no patient suffered a decline in corrected visual acuity.

Refractive changes associated with DM are both acute and chronic. Regarding chronic refractive changes in diabetic patients, Duke-Elder reported that hyperglycaemia led to the development of myopia, while hypoglycaemia led to the development of hyperopia. However, the available data are conflicting. Many authors who investigated the effect of acute changes in plasma glucose level, have reported that decreasing plasma glucose levels causes hyperopic change. It was also reported that a hyperopic change occurred regardless of whether the plasma glucose level increased or decreased. Some investigators have observed both myopic and hyperopic changes in diabetic eyes. This, the underlying mechanism of the relation between plasma glucose concentration and refractive change in diabetics remains to be established. Several papers have reported that an abrupt reduction in plasma glucose in diabetic patients with marked hyperglycaemia induced transient hyperopia. In a study of 10 eyes of five diabetic patients, bilateral transient hyperopia with a maximum refractive change of between 1.1 and 4.9 diopters, occurred after initiation of strict hypoglycaemic control.

Few studies regarding the effect of rapid correction of hyperglycaemia on refraction in diabetic patients have been conducted. Those which have been published included a small number of subjects, and were conducted as a retrospective study. A study that analyses the refractive error in diabetic patients, and elucidates the underlying mechanism, has not been reported. The present study investigated the clinical course of the refractive change of 28 diabetic eyes.
Refractive Changes in Diabetic Patients during Intensive Glycemic Control in General Hospital, Lahore.

During intensive glycaemic control in detail, using many parameters not previously examined. This study revealed that during treatment of hyperglycaemia in diabetic patients, a transient hyperopic change of 0.5 diopter or more developed in all eyes.

Although refractive errors may occur in adults who have various ocular disorders, the incidence of transient hyperopia among adults with ocular diseases is low. Hyperopia may result from morphological changes in the cornea, axial length, or lens, the three refractive components of the eye.

Hyperopia may develop as a result of development of a chalazion which presses the cornea, causing central corneal flattening and reducing the refractive power. In such cases, elimination of pressure would cure the hyperopia. In the present study, the corneal curvature did not significantly change over the follow up period; therefore, corneal involvement in transient hyperopia appears to be unlikely. A reduction of the axial length could cause hyperopia. An orbital tumor adjacent the posterior pole of the eyeball may reduce the axial length with pressure and cause hyperopia. Hyperopia secondary to Vogt-Koyanagi-Harada syndrome, central serous chorio-retinopathy, or retinal detachment is attributable to relative reduction of the axial length due to neurosensory retinal detachment in the macula.

In the present study, fluorescein fundus angiography was performed when the hyperopic change reached 2 diopters or more and again after refraction was stabilized. The angiographic examinations did not reveal any abnormalities in the macula. In addition, ultrasonographic biometry did not showed any significant changes of the axial length of the eyes. These findings could exclude the possibility that a change in the axial length might be involved in the development of transient hyperopic change. Lens abnormalities have been suggested as a cause of hyperopia in diabetic patients. Excess glucose in the crystalline lens is converted to sorbitol through the action of aldose reductase. Sorbitol, a sugar alcohol, has poor permeability through membranes and tends to accumulate in the lens. When the body rapidly changes from a hyperglycaemic to a hypoglycaemic state, excess sugars which had accumulated in the lens will flow out into the aqueous humor. However, although glucose freely enters the intracellular space, sorbitol, which is less permeable and harder to metabolize, will remain in the lens longer. The difference in osmotic pressure results in the influx of water from the aqueous humor into the lens, causing lenticular swelling with hyperopic refractive changes. This is a possible hypothesis for explaining the occurrence of transient hyperopic changes. Saito et al. reported that a rapid reduction in blood glucose resulted in transient hyperopia in 10 eyes of five patients with severe diabetes, and that the lens thickness increased significantly and the anterior chamber depth decreased significantly during transient hyperopia. Their findings support this hypothesis. However, the hypothesis which incorporates both morphological and functional changes of the lens is debatable, because an increase in lens thickness would promote myopic changes by reducing lens curvature. The refractive power of a lens is determined by its thickness, anterior and posterior surface curvature, refractive index, and the refractive index of the aqueous humor and vitreous body directly in contact with the lens. Thus, the hypothesis cannot be verified without knowing the effects of each of these contributing factors.

In the present study, the lens thickness did not increase significantly and the anterior chamber depth did not decrease significantly during the occurrence of hyperopic changes. No significant changes were observed in the other optical components—anterior corneal curvature and axial length. Thus, the transient hyperopic changes in diabetic patients during intensive glycemic control is attributed not to morphological changes in the cornea, axial length, or lens, but to some intraocular change in refraction. Hyperopia can be caused by a functional change, which may occur in the absence of morphological changes in the lens. The refractive index of the lens changes with ageing and cataract. An acute increase or reduction in blood glucose in diabetic patients can sometimes lead to the development of transient cataracts. Thus, a rapid reduction in blood glucose may alter the composition of the lens. An experimental study demonstrated that a decrease in refractive index from 1.42 to 1.40 produced a hyperopic change of 3.2 diopters; therefore, a slight change in the refractive index produces a significant hyperopic change. Gwinup and Villarreal gave an intravenous injection of a 50% glucose solution (50 ml) to diabetic patients and measured the change in refraction over 90 minutes, and reported that the vision of diabetic patients with phakia became more myopic or less hyperopic, whereas aphakic eyes showed a slight hyperopic change. The definite difference in the eyes with or without a lens indicates that the change in refraction associated with a change in blood glucose level is primarily related to the lens.

However, there is a possibility that changes of intraocular refractive components, including the lens, may cause hyperopia. The eye has two blood-ocular barriers serving to protect against environmental changes: the blood-aqueous barrier, which consists of the iris, vascular endothelial cells, and the ciliary non-pigmented epithelial cells, and the blood-retinal barrier, which consists of the retinal pigment epithelium and the retinal vascular endothelium. If there is an abrupt plasma glucose reduction, a transient difference in osmotic pressure will develop inside and outside of the eye because of the close proximity of the blood-ocular barriers to the eye, and may alter the composition of
Refractive Changes in Diabetic Patients during Intensive Glycemic Control in General Hospital, Lahore.

In the present study, patients who had a higher plasma glucose concentration and higher HbA1c on admission, had a larger maximum hyperopic change. There was a definite positive correlation between the maximum hyperopic change and the daily rate of plasma glucose reduction over the first 7 days after the day of admission. However, there was no significant correlation among the maximum hyperopic change of an eye and each of sex, age, duration of disease, and type of hypoglycaemic therapy. These results indicate that the degree of hyperopia is highly dependent on the magnitude of the change in plasma glucose concentration.

Our study revealed that there was a significant correlation between the maximum hyperopic change in an eye and the daily rate of plasma glucose reduction over the first 7 days of treatment, but not with the daily rate of plasma glucose reduction over the first 3 days. This time lag could be attributed to the presence of the blood-ocular barriers. An explanation for the finding that more myopic eyes at baseline had a larger maximum hyperopic change is that myopic eyes have a larger volume with elongated axial length and dysfunctional blood-ocular barrier, and the changes in the composition of the intraocular fluid and the differences in osmotic pressure would be greater in myopic eyes than in eyes having hyperopia as a baseline refractive error. To prove this hypothesis, however, it would be necessary to investigate exactly the change of each optical component such as cornea, anterior chamber depth, lens, and vitreous. Since each of these intraocular tissues is in contact with various adjacent tissues affecting ocular refraction, accurate biometric measurements would be difficult. A study using an animal model may provide useful information.

CONCLUSION:

The degree of transient hyperopia associated with rapid correction of hyperglycaemia is highly dependent on the rate of reduction of the plasma glucose level. A reduction of refractive index in intraocular tissues, especially in lens, appears to be responsible for this hyperoptic change.

REFERENCES:
A Comparison of Cycloplegic, Non Cycloplegic & Retinoscopy Refraction on Automated Refractometer in Children aging 5-12 Years

Asma Altaf MBBS¹. Sadia Yousaf MBBS² Madiha Khalid MBBS³

ABSTRACT:
Aims: To get to know about the comparison of cycloplegic refraction, non cycloplegic refraction and retinoscopy refraction on automated refractometer in children.

Methods: A cross sectional study was done in Fatima Memorial Hospital, Lahore in which 185 children aged 5 to 12 years were included. All children had their refractive status measured with the RMA-3000 autor-efractometer (non-cycloplegic autorefraction [AR]). Subsequently all children underwent cyclogia and the refractive status was estimated again with the autorefractometer (cycloplegic autorefration [ARC]) and traditional retinoscopy (RC) by examiners who were unaware of the results from the other techniques.

Results: From 80 left eyes with negative sphere the spherical power was 0.75 D in AR than in ARC (P = 0.001) and RC (P = 0.001). From the 105 normal and hyperopic right eyes we observed that the sphere power was significantly lower (more than 0.75 dioplers) in AR than in ARC (P= 0.0001) and RC (P= 0.0001)

Conclusion: The use of the autorefractometer in children without cyclogia may underestimate the actual hyperopia and overestimate the actual myopia. hence manual refraction is far better than automated refractometer.

Keywords: refractometer, cycloplegia, retinoscopy, myopia, hyperopia, astigmatism

INTRODUCTION:
Refraction is a process that is used to measure your refractive error or visual problem. A refractive error is an optical defect that does not allow light to be brought into sharp focus on your retina, resulting in blurred or distorted vision. Examples of refractive error are myopia, hyperopia, and astigmatism. During a comprehensive eye examination, your doctor uses refraction to determine how much power is needed to bring your eyes to normal, perfectly focused vision. 

A cycloplegic refraction is a procedure used to determine a person’s complete refractive error by temporarily paralyzing the muscles that aid in focusing the eye. Cycloplegic eye drops are used to temporarily paralyze or relax the ciliary body, or focusing muscle, of the eyes. When a cycloplegic refraction is performed, the doctor is trying to find out what the full refractive error is without any influence of the person being tested. For example, when a doctor performs a regular refraction without cycloplegic eye drops, there could potentially be an influence on the readings. Sometimes the patient may be subconsciously over-focusing. This may actually make someone appear more nearsighted or less farsighted than they are.

Ten percent of children aged 3 to 15 years old were screen positive for refractive anomalies (myopia, hyperopia and astigmatism) in the United States. Detection and correction of refractive errors in infants and children is very important for two reasons: to prevent irreversible vision loss secondary to suppression of a blurred or unfocused retinal image (amblyopia), and to eliminate any visual impairment detrimental to the child’s normal functioning in daily life.

However, even for an experienced refractionist’s assessment of refractive error in the pediatric population can be challenging. Automatic refractors have become more important in recent years because of the busy clinical schedule of ophthalmologists and increasing faith of patients in sophisticated mechanical devices. Many such refractometers, subjective and objective, are now available, with steadily improving designs and greater claims to accuracy. Sometimes automated refraction may cause error in refractive status depend upon many factors like excessive accommodation used by patients through squeezing eyes during examination, zero error in machine.

In retinoscopy chances of error is less than automated refractometer. Error depend upon practitioner skills. if practitioner is enough skillful it does not happen. Objective of this topic is to get to know about the difference between cycloplegic and non cycloplegic refraction and retinoscopy in children.

The use of the auto-refractometer in children without cyclogia may underestimate the actual hyperopia and overestimate the actual myopia. hence manual refraction is far better than the automated refractometer.
MATERIAL AND METHOD:

A Cross sectional study was done at January 2016 to march 2016. A nonprobability convenient based sampling was done and 185 children were included in this study. The RMA-3000 auto-refractor was used in this study. It completes its objective measurement in 1 to 5 seconds, with a final measurement in only 0 to 5 further seconds. The time taken for automatic fogging is 0.5 to 1 seconds with the patients seeing the fixation target, while the patient’s accommodation is purportedly thoroughly relaxed by the in-built automatic fogging system. The machine can measure a sphere of up to ±20 diopters and a cylinder of ±6 diopters.

All subjects in this study were randomly and consecutively attended the outpatient department of our hospital in Fatima Memorial Hospital. Their ages ranged from 5 to 12 years. Determination of the refractive error in all the eyes was done clinically as well as on the autorefractometer using a standardized protocol, but never by the same examiner. Three consecutive autorefractor measurements were performed and the average value was used for analysis. All patients underwent noncycloplegic (AR) and cycloplegic autorefraction (ARC) followed by retinoscopy (RC). The cycloplegia was achieved using cyclopentolate 1% twice (10-minute interval) and retinoscopy was performed 20 minutes after the last use of cyclopentolate 1%.

RESULTS:

Total 185 children of age 5-12 year were included in this study. In which 27 were age group of age 5-7 year. 87 children were age group of 7-9 year. 78 children were age group of 9-12 years. In which 105 were male and 80 were female. Children mean weight was 35.93 kg. Mean birth weight was 3.0 kg. Mean birth height was (cm) 128.

Table 1: Reasons for patients attending the Ophthalmology Department (N = 185)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>25 (17.5%)</td>
</tr>
<tr>
<td>Photophobia</td>
<td>30 (20.1%)</td>
</tr>
<tr>
<td>Foggy sight</td>
<td>6 (4.2%)</td>
</tr>
<tr>
<td>Other symptoms</td>
<td>11 (7.7%)</td>
</tr>
<tr>
<td>Routine check</td>
<td>66 (46.5%)</td>
</tr>
</tbody>
</table>

80 patients with left eyes had negative spherical equivalent (refractions were in negative cylinder form, sphere was negative in all these patients). The sphere power in the AR group was significantly higher than in the ARC group (−2.00 ± 2.75 D vs −1.50 ± 2.60 D, P = 0.0001). Also sphere in the AR group was significantly higher than in the RC group (−2.00 ± 2.75 D vs −1.75 ± 2.65 D, P = 0.0001). The negative sphere was statistically significantly different between the ARC and RC groups (−1.50 ± 2.60 D vs −2.00 ± 2.60 D, P = 0.01), but the difference was clinically insignificant (<0.2 D). 105 left eyes had positive spherical equivalent (refractions were in positive cylinder form, sphere was positive in all these patients). The sphere power in the AR group was significantly lower than in the ARC group (1.50 ± 2.25 D vs 2.25 ± 2.00 D, P = 0.0001). Also sphere in the AR group was significantly lower than in the RC group (1.70 ± 1.80D vs 2.30 ± 2.10 D, P = 0.0001).

DISCUSSION

The result shows that from 80 left eyes with negative sphere, the spherical power was 0.75 D in AR, in ARC (P = 0.001) and RC (P = 0.001). From the 105 normal and hyperopic right eyes we observed that the sphere power was significantly lower (more than 0.75 diopters) in AR than in ARC (P= 0.0001) and RC (P= 0.0001). A study was conducted in Europe by Rotosos. L according to this from 69 right eyes with negative sphere we observed that the sphere power was significantly higher (more than 0.5 diopters) in AR than in ARC (P=0.0001) and RC (P=0.0001). From the 73 normal and hyperopic right eyes we observed that the sphere power was significantly lower (more than 0.5 diopters) in AR than in ARC (P=0.0001) and RC (P=0.0001).[12]

Another study was conducted in Norway by Neil. S in which 46 eyes were used to compare results of different methods of objective refraction, namely automated refraction with the Nidek AR-1000 auto-refractometer and retinoscopy in cycloplegia. We found that automated refraction in cyclopentolate cycloplegia gave results that differed little from results of retinoscopy in atropine cycloplegia, both with respect to sphere and cylinder. Axis determination was even better with automated refraction. Dry automated refraction gave inaccurate results for the spherical component presumably because of suboptimal control of accommodation in this group of young patients. We recommend automated refraction in cyclopentolate cycloplegia as an easy, rapid, accurate and convenient method for obtaining an objective refraction where accommodative disorders are suspected.[13]

We strongly suggest that automatic refractors like the RMA-3000 should be used with great caution when determining manifest refractions, especially in younger patients in whom accommodation is more active than in older patients, because significant instrument myopia may be induced by the device or the real hyperopia may be unrevealed. A cycloplegic refraction in these eyes would afford acceptably accurate baseline refractive data as a guideline for clinical prescription. If there are any doubts about the refractive status of the patient, manual retinoscopy can provide all the information needed.[14]
Another study was done in India by Shuk-sinder. W in which total 30 children were examined at a mean age of 8.4 years (range, 3.8 to 13 years). The mean cycloplegic spherical equivalent for the 30 subjects was +0.62 (range, -3.0 to +6.10). The mean difference in the spherical equivalent between the Retinomax K-Plus 3 and the Plusoptix S04 was 0.004 D (p=0.79) while there was a -0.87 D difference between the Retinomax K-Plus 3 and manual cycloplegic retinoscopy (p<0.001), and -0.87 D difference between the Plusoptix S04 and manual cycloplegic retinoscopy (p=0.002).

In another study, conducted in Zekai Tahir Burak Women’s Health Education and Research Hospital by Qzdamir.Q, 2015 The mean age was 28.8±18.5moths (range 12-72moths). The differences in spherical equivalent, spherical power and cylindrical power measured by the three methods were found statistically significant (P<0.05). The spherical equivalent and spherical power measured by cycloplegic photo-refraction were statistically higher than the measurements of the other methods (P<0.05). The cylindrical power measured by cycloplegic refraction was statistically lower than the measurements of the photo-refraction methods (P<0.05). There was no significant difference in cylindrical axis measurements between three methods (P>0.05).

Young Francis A., conducted a study on eskimos by Leary, George A, 2005 A cycloplegic and non-cycloplegic refraction was obtained on 946 eyes of 213 male subjects and 291 female Eskimos between 6 and 88 years old. When the results obtained are compared with those obtained on white subjects by Bannon, good agreement is found between the two studies in the case of the hypermetropic subjects but relatively poor agreement was found for the myopic subjects. Bannon found approximately 38% of his myopic cases showing less myopia under cycloplegia whereas the present study found 75% of the myopic subjects showing less myopia under cycloplegia.

The Barrow population shows an exceptionally high proportion of myopes in the age group between 11 and 26 with approximately 60% being myopic with a high degree of myopia. It is possible that these Eskimo subjects are in such a strong spasm of accommodation that it is not possible to reduce the spasm by means of any type of fogging technique. Thus, when the subjects are put under cycloplegia, there will be a considerable decrease in the amount of myopia resulting from a reduction of the spasm.

CONCLUSION:

The use of the autorefractometer in children without cycloplegia may underestimate the actual hyperopia and overestimate the actual myopia. hence manual refraction is far better that automated refractometer.

REFERENCES:

Visual Acuity of 100 Patients after Manual Small Incision Cataract Surgery (MSICS), in Mardan Medical Complex, Mardan. KPK

Muhammad Tariq FCPS¹, Muhammad Bilal FCPS ², Hira Ali BVS³, Shafqat Ali Shah BVS ⁴, Haleema Zafar FCPS⁵

ABSTRACT
Objective: To determine visual outcome of MSICS with PCIOL.
Material and Methods: This study was conducted in MMC from March 2017 – July 2017, 100 patients of age group 50 to 75 years underwent MSICS with IOL surgeries. All patients were suffering age related cataract in which 55% were male and 45% were female. Informed consent were obtained. VA was checked on first postoperative day, first week and best correct VA on sixth week.
Results: On first postoperative day 62% patients have VA of 6/6 -6/12, 20% patients have 6/18 to 6/36 and 6% patient have VA of 6/36-6/60 while 4% have VA of less than 6/ 60. At sixth week 90% patient have best corrected VA of 6/6-6/12 and 10% patient have 6/18 to 6/24.
Conclusion: Due to effectiveness, affordability and less time consumption MSICS is the surgery of choice in many developing countries with good visual outcome.
Key Words: Manual small incision cataract surgery (MSICS), intra ocular lens (IOL), Best corrected visual acuity (BCVA), Visual Acuity (VA), Phaco emulsification

INTRODUCTION
Visual impairment is a world health problem.¹ Age related cataract is responsible for 48% of world blindness which represents about 18 million people². Cataract is defined as congenital or acquired opacity in the lens capsule or cortex irrespective of its effect on vision³. Cataract surgery has been in evolutionary phase from couching in ancient times to reaching at the recent advanced technique of phacoemulsification. Couching and intra capsular cataract extraction has become the history,⁴ whereas extra capsular extraction and phacoemulsification are the procedures widely practice today for the treatment of cataract in many parts of the world⁵. Although phacoemulsification technology is the important innovation in the cataract management. Fordable IOL are cost prohibitive for poor people. It has difficult learning curve. Moreover phaco is not applicable in brunescent hard cataract and hyper mature cataract which is the most probably presenting cataract of poor and unaware population.

In view of equally good result, affordability and less time in consumption Manual of Small Incision Cataract Surgery (MSICS) is the surgery of choice in many developing countries with good visual outcome.

Alternative method to phaco is suture less manual small incision cataract surgery (SMICS) which needs low technology, low cost and sig-
significant success in rehabilitation of visual acuity after cataract surgery. There are many centers of excellence for MSICS who carry out this technique routinely and the results recorded by these centers are comparable with phaco. The purpose of this study is to find out postoperative visual acuity in cataract surgery using MSICS technique. Some studies have shown that MSICS is more cost effective than the alternative procedure. We have conducted this study to determine the visual outcome of MSICS+IOL in our setup Mardan Medical Complex, where most of the people are poor and cannot afford the Phaco procedure. All surgeries were done under peribulbar local anesthesia. Visual acuity (VA) was recorded in first postoperative day, after one week and best corrected visual acuity on sixth week.

METHODOLOGY:
This study was conducted at Mardan Medical Complex Mardan from May 2017 to July 2017 to evaluate visual outcome in small incision cataract surgery. The study design was observational analytical. 100 patients were randomly selected from outpatient department. Patient having senile cataract age 50-75 years, normal tear film, clear cornea, patient in whom preoperative keratometry did not show more than 1-D WTR/ATR astigmatism, and patients have regular postoperative follow up were included in the study. Patients with traumatic, pre senile, secondary or complicated cataract, patients with any ocular pathology, extreme age, systemic illness, and patients with postoperative complications from previous surgery were excluded from this study. Patient fulfilling the inclusion criteria were recruited for the study after written consent. Data was recorded on special design pro forma. Surgery was done by an experienced surgeon under same circumstances. Small incision cataract surgery was done under local anesthesia using 2ml Bupivacaine and 3ml lignocaine solution. Conjunctiva was undermined at fornix base and bipolar wet cautery was gently applied to secure bleeding. Curvilinear incision was given 2mm behind the limbus. Tunnel was made with crescent knife extending 1mm into the clear cornea. Side port was made and viscoelastic was injected into the anterior chamber. Capsulotomy was done and AC was interted with 3.2 Keratome. The size of the tunnel was increased according to the size of the nucleus. Nucleus was delivered by hydro expression with Simco cannula. Cortical material was aspirated through tunnel and side port. Anterior chamber was formed with visco-elastic and PC IOL was implanted. Conjunctiva was closed with Bipolar cautery. Antibiotic + steroid drops and ointment were instilled into the eye and pad was applied and eye was examined on the next day. The patients were followed up for visual acuity on first post op day, first week, 6th week. On each visit visual acuity was checked using Snellen’s chart and slit lamp examination was.

RESULT:
Total of 100 cases were included in the study. Out of 100 cases 60% were male and 40% were female with the age range of 50-75 years. First postoperative day 62% patient have VA of 6/6—6/12. 22% patients have VA of 6/18—6/24. 6% patients have VA 6/36—6/60 while 4% have VA less than 6/60. After one week 72% patient have VA 6/6—6/12. 18% patient have VA 6/18—6/24 and 10% patient have VA 6/36—6/60. At sixth week 90% patient have best corrected VA of 6/6—6/12 and 10% have 6/18—6/24.

Table: 6 week postoperative best corrected visual acuity.

<table>
<thead>
<tr>
<th>Visual acuity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6-6/12</td>
<td>90%</td>
</tr>
<tr>
<td>6/18-6/24</td>
<td>10%</td>
</tr>
<tr>
<td>6/36—6/60</td>
<td>0%</td>
</tr>
<tr>
<td>&lt;6/60</td>
<td>0%</td>
</tr>
</tbody>
</table>

DISCUSSION:
MSICS or tunnel surgery has contributed a lot in accelerating wound healing, early rehabilitation and short hospital stay. In this study the surgeon tried to review the VA of patients suffering from age related cataract by MSICS procedure which is an acceptable technique in developing countries for all type of cataract. In developing countries where cataract backlog is still a socio economic public health problem and many patients cannot afford the expensive and cost effective technique of phaco emulsification. In such situation MSICS is an alternative and valuable in this issue. MICS is applicable in all type of cataracts, like hard nucleus, brunescent cataract and this edge over the phaco that cannot be exercised in hard dense cataract.

WHO defined visual impairment as vision worse than 6/18, with use of this technique our
study has shown remarkable results. Study conducted by Sanduk Ruit MD, Geoffery, Tabin MD, et al has shown no significant difference in VA in both the technique of MSICS and Phaco. This study has shown that MSICS is faster, less expensive and less technology dependent than phaco.

Study of Singh SK, Winter I, Surin L. Demonstrates first postoperative VA 6/6-6/18 in 77.7% Patients in MSICS. Only immature cataracts over included in the above mentioned study while all type of cataracts were included in our study. Study of Dr. Akand has shown best correct VA of 6/6-6/18 in 98% of patients operated by MSICS. Rengara J Venkatesh MD et al has reported that VA after six week was 6/6 to 6/18 in 82% in MSICS. Gogate PM, Kulkarni Krishnaiah et al study demonstrated VA 6/18 in 71.1% patients. Due to effectiveness, affordability and less time consumption MSICS is the surgery of choice in many developing countries with good visual outcome.

Another study conducted by Dr. Zaman M et al demonstrated VA of 6/6 to 6/18 in MSICS in 93.4% of patients. Study of Henning and coauthor, have reported visual acuity of 6/6 to 6/18 in 96.2% patients. From these date it is evident that our study is comparable with national and international studies. Our results are in comparison with the study of Portab which shows VA 6/6 to 6/18 in 80% patients by MSICS. According to study by Khan MT, VA of 6/18 are better was achieved in 86.8% of patients. Our study shows postoperative hyphema in 8% patients which is in comparison to study by Zaman M, Iqbal S, Khan YM, et al which found hyphema in 11.6% patients.

CONCLUSION:

Due to effectiveness, affordability and less time consumption MSICS is the surgery of choice in many developing countries with good visual outcome.

REFERENCES:
Visual Acuity Outcome in Traumatic Cataract Extraction with Intraocular Lens Implantation: (A study of 46 Cases)

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ABSTRACT:
Objective: To evaluate the Visual Acuity (V.A) outcome in traumatic cataract extraction with Intraocular lens (I.O.L) implantation.
Materials and Methods: This observational study was conducted in department of Ophthalmology K.D.A Teaching Hospital Kohat from January, 2015 to December, 2016 on patients who had been admitted for traumatic cataract extraction with I.O.L implantation. 46 patients with age range from 5 years and above who had traumatic cataract were included in the study. Out of 46 patients 32(69.56%) were male and 14(30.43%) were female. Preoperative V.A of 6/24-6/60 was present in 2 (4.34%) patients, counting finger in 11(23.91%), hand movement in 26(56.52%) and V.A of perception of light (PL+) was present in 7(15.21%) patients. Biometry was done. All the record was documented on proper proforma. Cataract extraction with primary IOL implantation was done in 28 patients while as secondary procedure in 18 patients. 27 patients were operated on general anesthesia and 19 patients on local anesthesia.
Result: Extracapsular cataract extraction with Posterior Chamber I.O.L (ECCE with PC I.O.L) implantation was done in 26(56.52%) patients ECCE with Anterior Chamber I.O.L (AC I.O.L) was done in 9(19.56%) patients. Suture-less Manual Small incision cataract surgery (SMSICS) with PC I.O.L was done in 7(15.21%) patients and SMSICS with AC I.O.L was done in 4(8.69%) patients. stitches were removed after two months and best corrected visual acuity (BCVA) was recorded. After two months, 6(13.04%) patients had BCVA of 6/6-6/12, 29(63.04%) patients had BCVA of 6/18-6/24, 5(10.86%) patients had BCVA of 6/36-6/60 while 6(13.04%) patients had BCVA of less than 6/60.
Conclusion: Traumatic cataract patients have good visual acuity outcome if treated properly and well in time. V.A is mostly affected with other co-ocular morbidities in addition to cataract by itself.

INTRODUCTION:
Ocular Trauma whether blunt or penetrating can induce traumatic cataract and in addition cause other ocular damages.¹²³⁴ Therefore, the visual acuity outcome after cataract surgery is different in different patients because the co-ocular morbidities among patients are not identical. The international classification of ocular trauma requires re-evaluation and should be more clarified in terms of predicting the visual outcome of open globe injury⁵. Birmingham Eye Trauma Terminology system (BETTS) has introduced a standardized ocular trauma documentation. Based on this, visual outcome can be predicted and investigated with reference to BETTS criteria.⁶⁷ The time of traumatic cataract surgery and IOL implantation is continuously debatable issue and many issues regarding management need to be resolved.

Trumatic cataract is common in pediatric age and the visual outcome is different in different patients due to various types of trauma and co-ocular morbidities. With proper management good vision can be restored.

The high risk of amblyopia and intraocular inflammation in the pediatric group require management on different principles. Children and young adults especially boys are more exposed to trauma. They have high incidence of traumatic cataract.⁸ The timing of surgery is important for visual rehabilitation particularly in children as exposed to high risk of amblyopia due to media opacities. Many studies have recommended that early cataract extraction with IOL implantation in traumatic cataract results in good vision.⁹¹⁰ The
surgery of traumatic cataract can be either primary or secondly with its own merits and demerits. 

Primary cataract extraction is recommended if the lens is swollen, fragmented or if there is pupillary block. In this case the surgery allows to examine posterior segment otherwise blocked by lens opacities. Secondary intervention for traumatic cataract removal has the advantages of improved visibility, IOL calculation and minimum chances of postoperative inflammation. Traumatic cataract is the common sequelae of eye injuries in pediatric population in developing countries. Incidence of ocular trauma varies globally. In India incidence is 20.53% while in Pakistan its incidence is 12.9%. Ocular trauma is considered as second main cause of blindness after cataract in Nepal. The objective of this study was to evaluate the visual outcome in traumatic cataract extraction with IOL implantation.

MATERIAL & METHODS:
This study was conducted in department of Ophthalmology KDA Teaching Hospital Kohat from January, 2015 to December, 2016. This study was carried out on patients who had traumatic cataract. All the patients were admitted in ward. Informed consent either from the patients or their relatives were obtained. Proper profoma was designed for documentation of the patients. Total 46 patients were included in the study. Out of 46 patients 32(69.56%) were male and 14(30.43%) were female (Table I). Age range of the patients was from 5 years and above (Table-II). In 46 patients 15(32.60%) patients had blunt trauma while 31(67.39%) patients had penetrating trauma. (Table-III). Causes of trauma has been shown in Table-IV

Preoperative VA was assessed in which 2(4.34%) patients had VA of 6/24-6/60, 11(23.91%) patients had VA of CF, 26(56.52%) had VA of HM+ while 7(15.21%) patients had VA of PL+. (Table-V). Slit lamp examination was done and with biometry IOL power was calculated. Out of 46 patients, 27 patients were operated on general anesthesia while 19 patients were operated on local anesthesia. ECCE with PC IOL was done in 26(56.52%) patients, ECCE with AC IOL was done in 9(19.56%) patients. Three stitches with 10/0 nylon were given in each patient. SMSICS with PC IOL was done in 7(15.21%) of patients while SMSICS with AC IOL was done in 4(8.69%) patients (Table-VI). All the patients were put on steroid + anti-biotic combination topically for 3 weeks. Stitches were removed after 2 months and best corrected VA was recorded. After 2 months, VA of 6/6-6/12 was achieved in 6(13.03%) patients, 6/18 – 6/2 in 29(63.04%) patients, 6/36 – 6/60 in 5(10.86%) and VA of less than 6/60 was recorded in 6(13.04%) patients. (Table – VII).
Visual Acuity Outcome in Traumatic Cataract Extraction with Intraocular Lens Implantation: (A study of 46 Cases)

<table>
<thead>
<tr>
<th>Visual Acuity</th>
<th>No of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6---6/12</td>
<td>6</td>
<td>13.04</td>
</tr>
<tr>
<td>6/18---6/24</td>
<td>29</td>
<td>63.04</td>
</tr>
<tr>
<td>6/36---6/60</td>
<td>5</td>
<td>10.86</td>
</tr>
<tr>
<td>&lt; 6/60</td>
<td>6</td>
<td>13.04</td>
</tr>
</tbody>
</table>

**DISCUSSION:**

Ocular trauma has been neglected public health problem in our population. Males are more prone for ocular trauma as compared to female because male are likely to be involved in hazardous sports occupation and fight. Our study demonstrates male involvement of 69.54% as compared to female (30.43%). Usually ocular trauma occur in children and early adulthood, however no age group is immune. For traumatic cataract surgical intervention is mainstay of management. However, visual acuity outcome in patients are not identical because every patient has different type of trauma, momentum of assaults and different intensity of ocular damage.

Our study shows that majority of the patients had post operative best corrected VA of 6/6 – 6/24 while 5(10.86%) patients have VA of 6/36 – 6/60 and 6(13.04%) has VA of < 6/60. Our results are comparable to study of Ahmad N, Aziz T, Akram S whose results revealed that majority of patients had post operated VA 6/6 – 6/24. Study of Serivasata U, Lalramhluni R, Rawat P et al has shown final visual outcome in management of traumatic cataract. They have reported VA of 6/6 – 6/24 while 5(10.86%) patients 6/24 – 6/60 in 31% and 26% patients hard less than 6/60. In some patients this results are similar to our study. Singh S, Shah H, Keyal A, study reported that trauma was more in male and age group was 5 years and above like in our study. In their study, final VA of 6/6 – 6/60 was achieved in 91% patients which is comparable to our study. Moreover, duration between injury and surgery had no effect on final visual outcome reported by them.

Our study shows that most of the trauma was penetrating in contradiction of study by Desi P, Mac Ewentet al and Zagalbaum BM, Tostanoski JR. Zaman M et al reported that majority of traumatic cataract is in age range of 5 – 15 years and mostly penetrating. Thompson has observed in study that mostly trauma was penetrating as in our study. Zia S, Khan Q A, Iqbal Y has reported visual outcome in penetrating traumatic cataract. They have shown that VA 20/40 was achieved in 45% of the patients.

Ozar et al has reported poor visual acuity in traumatic cataract and mostly were legally blind. This poor results do not reflect poor surgical intervention but more due to pattern of trauma and poor patients follow up. Akashay T, Bhandri, Shobhana has carried out study on traumatic cataract. They reported male preponderance as in our study. However, their reported visual acuity are more fruitful and good as compared to our study. The cause of poor visual acuity was mainly due to corneal opacity and posterior capsular opacification.

**CONCLUSION.**

Traumatic cataract is more common in pediatric age. However no age is immune. Visual outcome is different in different patients due to various types of trauma and co-ocular morbidity. With proper management good vision can be restored.

**REFERENCES:**

14. Khan MD, Kundi N, Muhammad Z, Nazeer A F. 6.5 years survey
Visual Acuity Outcome in Traumatic Cataract Extraction with Intraocular Lens Implantation: (A study of 46 Cases)


THELAZIA GULOSA – A PARASITIC INFESTATION OF EYE. U.S. Centers for Disease Control and Prevention have reported in the American Journal of Tropical Medicine and Hygiene about a translucent parasitic worms of the species Thelazia gulosa. It is 1.27 centimetres long, extracted from the 26-year-old American woman who has become the first person worldwide known to have had an eye infestation by this worm which is seen only in cattle and spread by flies to human eye, had never been reported in humans. If this worms remain in a person’s eye for a prolonged time, they can cause corneal scarring and even blindness, according to the researchers. (Curtesy: NEJM-UK)
Prevalence of Refractive Errors in Madrassa Students of Lahore

Asma Altaf

ABSTRACT:
Background: Visual impairment due to refractive errors is one of the most common problems among school-age children and is the second leading cause of treatable blindness. The Right to Sight, a global initiative launched by a coalition of non-government organizations and the World Health Organization (WHO), aims to eliminate avoidable visual impairment and blindness at a global level. In order to achieve this goal it is important to know the prevalence of different refractive errors in a community.

Objective: To get to know about the prevalence of refractive error in Madrassa students Lahore

Material and Method: A cross-sectional study was done with 200 students between ages of 9-19 years in Madrassas of Lahore. The students were screened for refractive errors and the types of the errors were noted. After screening for refractive errors the glasses were prescribed to the students.

Results: 65% students had myopia which was the most frequent refractive error in students, followed by hyperopia 23% and astigmatism 12%.

Conclusion: This study showed that myopia is an important problem in madrassa population. Females and males are almost equally affected. Spectacle correction of refractive errors is the cheapest and easiest solution of this problem.

Keywords: refractive error, Myopia, Hyperopia, Astigmatism, Refractive Errors

INTRODUCTION:
Refractive Errors is defined as a condition in which the optical system of non-accommodating eye fails to bring parallel rays of light to focus on the retina. (1) Visual impairment due to refractive errors is one of the most common problems in school children and second leading cause of treatable blindness. (2) To the best of our knowledge not much work is done in the Madrassa Students and very little is known about the prevalence of refractive errors in these institutes (3).

The reasons in selecting this group is that, they are routinely checked up at intervals and be corrected to prolonged close up, memorization and should be neglected both by the government and the voluntary sectors. The students living in these madrassas are not provided with balance diet which is necessary to cope with the heavy work load related to academics. Our study will help in recognizing the refractive error of such students. (4) Most common issue found in this situation is myopia. Myopia is a multifactorial disorder with a mean age of onset of about 17 years (5).

The genesis of myopia is still poorly understood; both genetic and environmental factors such as near work and outdoor activity influence its incidence and progression.

Myopia is the most common refractive error found in Madrassa students, almost equally present in males and females. The age group having peak frequency of refractive errors was 9-15 years. Madrassa students are significantly suffering from refractive errors due to prolonged close up, memorization and should be routinely checked up at intervals and be corrected.

Emmetropization is the active phenomenon in ocular development which matches the focal plane of the image with the retina. It seems to be a vision dependent process reducing myopia or hyperopia. (6) Changes in optical components of the eye, even artificially, during development of the eye could lead to changes in axial length resulting in the development of myopia or hyperopia. (7) Smith et al studied monkeys and found that imposed myopia or hyperopia could lead to shorter or longer axial length.

Children and teenagers are the most susceptible groups to be affected by refractive errors. So, this population needs to be screened for different types of refractive errors. (8) The purpose of this study is to get to know about the refractive status of madrassa students.

MATERIAL AND METHOD:
A cross-sectional study was done in madrassas students of Lahore district. Executive District Of-
ficer provided the list of Madrassas. The permission for this study was sought from the education department of district and the heads of madrassas were requested to allow the screening. The madrassas were stratified into girls and boys and then 3 madrasas were randomly selected from each strata, i.e., 3 from each boys and girls madrassas. All the students between the ages 9-19 years in the six selected madrassas of different areas of Lahore were the sample population of this study. Students having any adnexal, anterior segment or posterior segment pathology, any systemic disease, ocular trauma or history of ophthalmic surgery were excluded from the study. 200 hundred students meeting the study criteria were screened and evaluated for the type of refractive errors. Data was collected on a performa. Distant direct ophthalmoscopy was done in order to test the red reflex. In case of any opacity the student were referred to DHQ hospital Lahore. Visual acuity of all students was taken with the help of Snellen’s acuity chart at 6 meters distance. Pinhole acuity test was performed to distinguish between different visual defects, when improves are caused by refractive errors and; in case it is not are caused by other eye problems. Cycloplegic refraction was done with streak retinoscope in the children ages 9-19 years. 0.5% cyclopentolate eye drops was used to find the total refractive error objectively and latter subjectively verified by post-mydriatic test. Subjective refraction was done in the students aged 15 and above, and was confirmed by +1.00DS Blur Test and Jakson’s cross cylinder. The operational definition of myopia was taken as refractive error ≥ -0.50DS. Hyperopia was defined as refractive error ≥ +0.50DS. Astigmatism was taken as refractive error ≥ 0.25D. SPSS version 20 was used to analyze this data.

RESULTS:

Total 200 students were included in this study in which 125 (63%) were male and 75 (37%) were female. In between these 130 (65%) had problem of refractive error while remaining were emmetropic. In between these 44% males and 69% females had refractive error. Age ranged from 6-15 year. Myopia was present in 109 students (54%), hyperopia was present in 60 students (30%) and astigmatism was found in 31 students (16%) as shown in table 1.

Table 1.

<table>
<thead>
<tr>
<th>Refractive error</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myopia</td>
<td>109</td>
<td>54</td>
</tr>
<tr>
<td>Hypermetropia</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Astigmatism</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

Graph 1.

Figure-1: Showing distribution of refractive errors in male and female students of madrassas

Graph shows that the percentage of female having myopia is higher as compare to male, but the percentage of hypermetropia in male students was high as compare to female as well as percentage of astigmatism in female was high as compare to male. The result shows that percentage of female having myopia is higher as compare to male, (P=0.01) which shows that there was a strong relation of refractive error with gender. Percentage of male having hypermetropia was 44% and percentage of female had hypermetropia was 56% the level of significance was (p=0.14) which means there was no relationship of gender with hypermetropia. Similarly, there was no significant relationship of astigmatism with gender as (p=0.24).

DISCUSSION:

The result shows that 54% students had myopia which was the most frequent refractive error in students, followed by hyperopia 30% and astigmatism 16%. A similar study conducted in China by Goh, PP showed the prevalence of myopia in high schools in China as 77.3% and in college more than 80%. In some countries, such as China, India and Malaysia, up to 41% of the adult population is having myopia of about -1.00 diopters and 80% up to -0.5 diopter. With regards to age, myopia shows peak frequency in the age group 11-15 years. The probable cause of high frequency of myopia in this age group is the burden of the near work since early childhood, as these students are admitted to madrassas at the age of 5 years. Education level could be considered a surrogate of factors.

Another study was conducted in Malaysia by Khaw W., 2007 study showed that females (52%) were suffering with refractive errors more than males (48%). Another study, however, did not show any significant difference in refractive errors between males and females. Similar study was conducted in Haripur by Zoia, Atta, 2012 in which Myopia being 52.6% was the most frequent refractive error in students, followed by hyperopia 28.4% and astigmatism 19%. This study showed that myopia is an important problem in madrassa population. Females and males are almost equally affected. Spectacle correction of refractive errors is...
the cheapest and easiest solution of this problem.\(^{[14]}\)

A study was conducted in Iran by Hassan Hashemi, 2017 that showed that in children, the EPP of myopia, hyperopia, and astigmatism was 11.7% (95% CI: 10.5–13.0), 4.6% (95% CI: 3.9–5.2), and 14.9% (95% CI: 12.7–17.1), respectively. The EPP of myopia ranged from 4.9% (95% CI: 1.6–8.1) in South-East Asia to 18.2% (95% CI: 10.9–25.5) in the Western Pacific region, the EPP of hyperopia ranged from 2.2% (95% CI: 1.2–3.3) in South-East Asia to 14.3% (95% CI: 13.4–15.2) in the Americans, and the EPP of astigmatism ranged from 9.8% in South-East Asia to 27.2% in the Americas. In adults, the EPP of myopia, hyperopia, and astigmatism was 26.5% (95% CI: 23.4–29.6), 30.9% (95% CI: 26.2–35.6), and 40.4% (95% CI: 34.3–46.6), respectively.

The EPP of myopia ranged from 16.2% (95% CI: 15.6–16.8) in the Americans to 32.9% (95% CI: 25.1–40.7) in South-East Asia, the EPP of hyperopia ranged from 23.1% (95% CI: 6.1–40.2%) in Europe to 38.6% (95% CI: 22.4–54.8) in Africa and 37.2% (95% CI: 25.3–49) in the Americans, and the EPP of astigmatism ranged from 11.4% (95% CI: 2.1–20.7) in Africa to 45.6% (95% CI: 44.1–47.1) in the Americas and 44.8% (95% CI: 36.6–53.1) in South-East Asia. The results of meta-regression showed that the prevalence of myopia increased from 1993 (10.4%) to 2016 (34.2%) \((P = 0.097)\).\(^{[15]}\)

The identification of close reading distance and continuous reading as possible risk factors for myopia may have important public health significance. These students do have very prolonged reading hours (about 10 hours a day) in contrast to others students (1–2 hours). Given the widespread emphasis on reading and conscientious study habits in childhood, health promotion messages could encourage children to read with the book at a further distance, and to take breaks between periods of continuous reading. Whether these reading habits in children precede the development of myopia or whether they are a consequence of myopia are critical issues. Moreover as these students have fewer chances of outdoor activities, this can lead to more chances for the development of myopia. As these findings are limited to only a few studies, we recommend that further exploration of the role of such modifiable risk factors be conducted in other populations as well.\(^{[17]}\)

**CONCLUSION:**

The result concluded that Myopia was the most common refractive error found in this study. It is evident that refractive errors were present almost equally in males and females. The age group having peak frequency of refractive errors was 9-15 years. Madrassa students are significantly suffering from refractive errors and need to be diagnosed for refractive errors and should be given refractive correction.

**REFERENCES:**


INTRODUCTION

Endonasal approach was first introduced by Caldwell in 1893 before the external approach introduced by Toti in 1904. At that time, endonasal techniques were limited due to lack of proper instruments needed to access the surgical site. During 1990s, endonasal techniques gained popularity for both primary and failed revision nasolacrimal duct obstruction. The main advantages of endonasal approach include avoiding external approach problems such as skin scarring, infection, ecchymosis, and medial canthal tendon disruption. Other advantages include good visualization, better localization and estimation of the rhinostomy site and size. Good visualization helps prevent the disruption of angular vessels, periorbital hemorrhage, epistaxis, disruption of medial canthal tendon, tear pump dysfunction and CSF leakage. With more and more expertise it was found result of End DCR and external DCR are comparable.

DCR surgery when done as a multidisciplinary approach with careful selection of patient gives better results. The ophthalmologist and ENT surgeon feel more comfortable utilizing this approach, and the results of surgery whether external or endoscopic are also comparable.

Major causes of DCR surgery failure are canalicular obstruction and closed osteotomy but other causes are, anomalies of middle turbinate (concha bullosa, paradoxical middle turbinate), anomalies of agar nasi cells, ostium problems (closed, small or high osteotomies), mucosal abnormalities (intranasal adhesions, contact granuloma, scar formation, rhinosinusitis, and pouch formation known as sump syndrome), nasal wall abnormalities (preceding maxillofacial trauma, ipsilateral

ABSTRACT

Objective of study was to evaluate the results of external Dacryocystorhinostomy (Ext DCR) with endoscopic endonasal dacryocystorhinostomy (End DCR), through multidisciplinary team (Eye and ENT Surgeon). The study was done in POF Hospital, Wah Cantt between 1st May 2007 and 1st May 2017.

Method: It was a purposive multidisciplinary approach combining Eye surgeons and ENT Surgeon applied, to decide whether patient require external DCR or Endo nasal DCR. Patient with nasal pathology or nasal anomaly and cosmetic concern were selected for End DCR while others had Ext DCR. Failure or success of surgery depended on free flow of saline from both upper and lower puncta and relief of major symptom that was epiphora after 3 months and 6 months follow-up, after 3 months and 6 months follow-up.

Results: Results were analyzed using SPSS. 80 patients had external DCR while 175 had endoscopic endonasal DCR. 3/80 (3.75%) patients with external DCR had a failure of surgery depicted by difficulty in free flow of saline on irrigation and epiphora. In endoscopic DCR 9/175 (5.14) had failure of surgery. Overall success rate of external versus endonasal endoscopic DCR was 96.25% to 94.85% respectively. In External DCR series, cause of failure was deviated nasal septum (DNS) in 2 cases and 1 case had stenosis of ostium. In End DCR series 6 cases failed due to stenosis of ostium while 3 failed because of technical fault as ostium was made in the lower part of nasolacrimal duct.

Conclusion: DCR surgery when done as a multidisciplinary approach with careful selection of patient gives better results. In our study ophthalmologist and ENT surgeon was more comfortable utilizing this approach, the results of surgery whether external or endoscopic was also comparable.

Key word: Endoscopic dacryocystorhinostomy, nasolacrimal duct obstruction, Ext. DCR

External Dacryocystorhinostomy or Endoscopic Endonasal Dacryocystorhinostomy, Results of Surgery with Multi-disciplinary Team Approach

M. Usman Ahmed FCPS 1., M. Akmal Khan FCPS 2 Humayun Agha FCPS 3., Amna Usman (USA Board Certified) 4

POF Hospital & Wah Medical College, Wah Cantt

INTRODUCTION

Usman Ahmed
External Dacryocystorhinostomy or Endoscopic Endonasal Dacryocystorhinostomy, Results of Surgery with Multi-disciplinary Team Approach

s attempts at diagnosis and treatment. External DCR was performed by eye surgeon and Endonasal endoscopic DCR was performed by ENT surgeon. All cases were done under hypotensive general anesthesia (110/70) to reduce the amount of bleeding and to have a clear view of nose. External DCR was done in conventional way, sac was identified and elevated, flap was made and sutured to nasal mucosa, silicone DCR tube passed in all cases. Both puncta were irrigated and free flow of saline was confirmed.

In End DCR, after nasal preparation with Xylometazoline. Hypotensive general anesthesia given. Position of patient was within 30 degree Trendelenberg position. High definition endoscopic camera using 30 degree and zero degree Karlstorz endoscope used in all surgeries. First Xylometazoline spray was used again to decongest the nose, followed by packing with 1% adrenaline. Mucosa covering lacrimal bone, and agar nasi, anterior to uncinate process and area anterior to middle turbinate was infiltrated with 1.800 adrenaline combined with 2% xyloca ine. First part of surgery was to correct the nasal pathology like DNS, concha bullosa or agar nasi overlapping lacrimal bone or middle turbinate anomalies (concha bullosa. lateralized middle turbinate)

U shaped flap was elevated using Killians and Oto logical microscopic knife. Nasolacrimal sac was identified by passing Endolite (Carl storz). Overlying bone was drilled or by passing kierions punches into frontal process and nibbling the bone until whole of sac uncovered. Sharp sickle knife was used to open the sac until common canaliculus visualized. When sac was cleared silicon DCR Stents passed from both upper and lower puncta. It was best tried to create ostium in front of common canaliculus or at least upper part of nasolacrimal duct. Newly created ostium was touched with 5Flourouracil. Flap was returned having wide ostium. Free flow of saline ensured at the end of procedure. flap was cut into two inferior and superior part to cover the nude bone tucked back in place using gel form. When flap was satisfactorily placed finally nose was packed using merocel nasal packing. This study was description of results for Ex DCR and End DCR. Result of surgery endorsed as successful or failed. SPSS 17 version was used to evaluate the results. Failure or success of surgery depended on free flow of saline from both upper and lower puncta and relief of major symptom that was epiphora after 3 months and 6 months. This study was description of results for Ex DCR and End DCR. Failure or success of surgery depended on free flow of saline from both upper and lower puncta and relief of major symptom that was epiphora after 3 months and 6 months. Result of surgery endorsed as successful or failed. SPSS 17 version was used to evaluate the results.

RESULTS:

80 patients had external DCR while 175 had endoscopic DCR. 3/80 (3.75%) patients with external DCR had a failure as there was tearing and difficulty...
in free flow of saline on irrigation. In endoscopic endonasal DCR surgery, 9/175 (5.14%) had failure. Overall success rate of external versus endonasal endoscopic DCR was 96.25% to 94.85% respectively. In external DCR surgery, out of those 3 cases which failed, 2 had DNS which was overlooked on CT Scan and one had stenosis of ostium which was later revised endoscopically.

6/9 failed cases of End DCR; it was stoma stenosis secondary to mucosa overgrowth and polypoid overgrowth of mucosa which was corrected in outpatient department, while 3 had anatomical failure.

Whenever DCR surgery is failed nasal pathology is considered, because the success of surgery depends upon opening of sac in front of common canaliculus and upper part of sac with adequate space in front of ostium where tears can drain. Anatomical structures that are present in relation to lacrimal sac are frontal process of maxilla, ethmoid bone and bony part of lacrimal bone.

Success of surgery lies in opening nasolacrimal duct and sac widely in nose in the area in front of common canaliculus. In the vicinity of nasolacrimal duct and sac inside medially is lacrimal bone, anterior ethmoids, agar nasi cells, uncinate process, and frontal process of maxilla and sometime deviated nasal septum. Regarding nasal pathologies nasal polyps, nasal allergies and chronic sinusitis all have impact on DCR Surgeries. If there is nasal septum deviation on that side which has to be operated first has to be corrected, similarly if there is overlapping agar nasi cells on lacrimal bone, deformed middle turbinate (concha bullosa or lateralized middle turbinate which does not allow free flow of lacrimal secretion need to be corrected for successful surgery. Here comes the work of ENT surgeon who has to evaluate beforehand and if those problems has to be corrected should be corrected before DCR surgery or in combination with DCR. Best results can be achieved if orbital and ENT surgeons work together.

Hence nasal pathologies, Deviated nasal septum, nasal polyps, ethmoidal air cells variations, overlapping agar nasi and even inflammation secondary to infections and allergies influence results of lacrimal sac surgery. Success of End DCR in our study was 94.8%. Study done by ErfanianSalim R, Mohammadi S had success rate of 95.3%. Most common cause of selection for End DCR in that study was septal deviation, sinusitis, close proximity of the aggernasi to the lacrimal bone, and concha bullosa; moreover, 15.5% of patients selected End-DCR for cosmetic reasons. In our series again DNS was most common cause of selection of patients for End DCR followed by overlapping agar nasi and concha bullosa and cosmetic concern.

DNS is very common anomaly; Deviation of nasal septum varies in different population ranges from Indian 13 percent to 27 percent aborigines Australians. In DCR surgery it is also important to predict whether this deviated septum will affect the efficacy of drainage or not? In our series DNS was the main cause of failure in Ext DCR. Despite the fact that multidisciplinary team evaluated all patients, DNS was underestimated. We thoroughly examined those failed cases, CT scan showed DNS but overlooked by radiologist and even ENT surgeon. In fact in those cases septum was central on head light examination but on thorough examination after spraying nose with Xylometazoline (decongestant) with zero and 30 degree endoscopes, found deviation superiorly which was pressing the ostium and flow. Yarmohammadi ME et al has found

<table>
<thead>
<tr>
<th>Deviated Nasal Septum</th>
<th>75</th>
<th>42.85%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overlapping Agar Nasi</td>
<td>36</td>
<td>20.57%</td>
</tr>
<tr>
<td>Concha bullosa</td>
<td>25</td>
<td>14.28%</td>
</tr>
<tr>
<td>Cosmetic</td>
<td>39</td>
<td>22.28%</td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Indications in which Endoscopic DCR Selected

<table>
<thead>
<tr>
<th>Deviated Nasal Septum</th>
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<td>22.28%</td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td></td>
</tr>
</tbody>
</table>

Table 2

DISCUSSION
most common causes of failure in nasolacrimal sac revision syndrome (6%). Pathologic and clinical findings showed that chronic inflammation had a significant association with scar tissue and septal synechia (P = 0.001 and 0.008, respectively).

Failure of nasolacrimal sac surgery is mainly due to false diagnosis and nasal anatomical and nasal pathological diseases. External DCR is a gold standard16 because it gives excellent view of nasolacrimal sac, although having problems of scar and damaging canthal tendon, problems of nasal anatomy and anomalies superseded and advocate End DCR.

Causes of failure in External DCR surgery is either faulty diagnosis, technical faults in surgical procedure and nasal diseases and variable anatomical abnormalities inside the nose. Orbital surgeons are better trained in diagnosing dacryocystitis but are not better trained in understanding nasal problems. Hence there is a consensus that all cases which needs surgery by eye or ENT has to be evaluated by nasal and eye surgeons. Nasal surgeons have to examine nose followed by CT scan paranasal sinuses in coronal and axial planes without contrast to look for nasal anatomical variation and pathologies.

Chronic sinusitis is a debatable issue whether DCR surgery should be performed in its presence or not17? Chronicis sinusitis can be infectious and non-infectious. Many a time chronic sinusitis is a continuation of acute sinusitis. Allergies, vasomotor rhinitis, nasal polyps, drugs (aspirin), and congenital diseases as cartageneries, ciliary dysfuction syndromes and cystic fibrosis, immune deficiencies causes chronic sinusitis18. Sometime anatomical variations also lead to chronic sinusitis. Hence before DCR surgery if patient is having chronic sinusitis it should be dealt first follow by DCR. For endoscopic DCR some of these can be dealt in a single stage surgery and takes a lead over external DCR18.

Concha bullosa occurs when the middle turbinate becomes pneumatized. As noted, this condition is a very common anatomical variation. This pneumatization results when ethmoid air cells migrate to the middle concha. Zinreich et al.19 used coronal CT to evaluate 320 patients for sinus disease, and found that 34% exhibited concha bullosa on at least one side. In our series concha bullosa was the second most common for which endonasal DCR was done. As this anomaly is very easy to detect on CT Scan hence very little chance of missing it.

CONCLUSION:

DCR surgery when done as a multidisciplinary approach with careful selection of patient gives better results. In our study ophthalmologist and ENT surgeons were more comfortable utilizing this approach and with the results of surgery when performed as a team.

(Endnotes)

REFERENCES

Surgical Outcome of Primary Trabeculectomy Augmented with Mitomycin C in Primary Congenital Glaucoma

Nazli Gul FCPS¹, Muhammad Naeem Khan FCPS², Hina Khan FCPS³, Tahir Ali FCPS⁴, Afzal Qadir FCPS⁵

ABSTRACT:
Objective: To evaluate the surgical outcome of primary trabeculectomy with mitomycin C (MMC) in primary congenital glaucoma (PCG).
Method: This descriptive case series was conducted at Khyber Institute of Ophthalmic Medical Sciences (KIMS), Hayatabad Medical Complex (HMC), Peshawar from February, 2015 to November, 2016. 53 consecutive pediatric patients with PCG were included in the study. Primary trabeculectomy with MMC was performed in all patients under general anesthesia. Pre-operative and post operative intraocular pressure (IOP) using Perkin tonometer, corneal clarity, corneal diameter, cup to disc ratio (CD ratio) and retinoscopy where possible were performed under general anesthesia.
Results: This study included 53 eyes of 53 patients. In case of bilateral disease only one eye with advanced glaucoma was included in our study. Thirty four patients (64.2 %) were male and 19 (35.8%) were female. Mean age at presentation was 12.36 months (SD±6.31). Mean pre operative IOP was 42.17 mmHg (SD±8.40). Pre operative mean corneal diameter was 13.45mm (SD±0.70). Significant corneal edema / scarring obscuring iris details were present in 22 eyes (41.5%). All eyes underwent primary trabeculectomy with MMC. Examination under general inhalational anesthesia was performed in all patients at 1 week, 6 weeks and 3 months postoperatively. Final surgical outcome was assessed at 3 months post operatively. The criteria for surgical success were average IOP of 21 mmHg with or without topical antiglaucoma medications. SPSS version 16 was used for data analysis. Post operative mean corneal diameter was 13.58mm (SD±0.85). Mean post operative IOP was 18.87 mmHg (SD±.6.63) which is statistically significant. Successful cases had an IOP of 21mmHg or less was achieved in 40 eyes (75.5%) with resolution of corneal edema and no progression of corneal diameters or CD ratio at final follow up. Thirteen eyes (24.5%) have failed surgeries with uncontrolled IOP, enlargement of corneal diameters/ progression of CDR. There was no major intra operative complications, blebitis or endophthalmitis.
Conclusion: Primary trabeculectomy with MMC is an effective procedure with good surgical outcome for the management of PCG.
Key Words: primary congenital glaucoma, trabeculectomy, mitomycin C.

INTRODUCTION:
Primary congenital glaucoma (PCG) is the commonest glaucoma in infancy.¹ It is a potentially blinding disease which is refractive to medical treatment. Early diagnosis and prompt surgery is the mainstay of treatment.²⁻⁴ Best surgical approach for PCG is debatable. Angle surgery such as goniotomy and trabeculectomy are considered as the primary surgical choice in PCG.³ Trabeculectomy is done if goniotomy and trabeculectomy fails.¹

Primary trabeculectomy with MMC is an effective procedure with good surgical outcome for the management of Primary Congenital Glaucoma (PCG).

Trabeculectomy in children is especially challenging and is less successful when compared with outcomes in adults because of a vigorous healing response. This necessitated the use of adjunctive antifibrinolytic agents such as Mitomycin C.⁶ But there is increased risk of potentially serious complications such as hypotony and blebitis with its use in Trabeculectomy.⁷ Trabeculectomy augmented with antimetabolites such as MMC is used mostly in cases where there is abnormality of the angle which is there in PCG.⁸¹¹ There is a paucity of contemporary clinical data regarding surgical outcome of trabeculectomy with MMC for PCG in our part of the world? Here problems in the management of PCG...
include delayed acquisition of treatment and poor follow-up. Many patients do not seek treatment until their condition is worse, and thus they face reduced surgical options. As most of our patients presented in advanced stage of the disease, where angle procedures were not possible or very difficult, we performed primary trabeculectomy with MMC in all patients. The purpose of this study was to evaluate surgical outcome of primary trabeculectomy with MMC in PCG in our population.

We included only 53 patients as all the patients did not fulfill our inclusion criteria. We see even more patients of congenital glaucoma especially patients with advanced glaucoma who came to our hospital from different parts of KPK as well as from FATA and adjoining areas of Afghanistan where there are no Pediatric Ophthalmology facilities. Ours is the only tertiary care hospital, which caters patients from these areas.

MATERIAL AND METHODS:

It is a descriptive case series which was conducted at Khyber Institute of Ophthalmic Medical Sciences, Hayatabad Medical Complex Peshawar. This 21 months study was conducted from February 2015 to November 2016 after approval from ethical board of the hospital. It included 53 consecutive patients with PCG. Only one eye with advanced glaucoma was included in the study in case of bilateral disease. Written informed consent was taken from parents/ legal guardian of all patients. Data analysis was done with SPSS version 16.

Complete ophthalmological examination including intraocular pressure (IOP), corneal clarity, corneal diameter, cup to disc ratio (C/D ratio) and retinoscopy (where possible) was performed under general anesthesia preoperatively as well as postoperatively at each follow up visit. Surgical success was defined as a postoperative IOP ≤ 21 mmHg with or without topical antiglaucoma medications, with no evidence of progression or enlargement of the C/D ratio or corneal diameter. All cases with PCG with no prior history of any ocular surgery were included in the study. Cases of secondary glaucoma or eyes that have undergone previous ocular surgery were excluded. The purpose and benefits of the study were explained to all the parents. The surgical procedure involved the creation of a suprachoroidal space, a sclerostomy and lamellar scleral flap. The conjunctiva was applied at concentration 0.2 mg/ml for 3 minutes. MMC-soaked microsurgical sponge. MMC was closed with 8-0 vicryl suture. Bleb was formed and checked at the end of surgery for any leak. Topical antibiotic drops and subconjunctival steroid injection was given. All eyes were patched overnight. After surgery, all patients received daily intensive antibiotic and steroid drops every 2 hours for 1 month and then 6 times a day for 2 months and antibiotic steroid combination ointment at night for 2 weeks. Follow ups were done at 1 week, 6 weeks and 3 months postoperative.

RESULTS:

Fifty three eyes of 53 pediatric patients underwent MMC-augmented trabeculectomy under general anesthesia within the designated study period. Minimum age was 3 months and maximum age was 28 months. Demographic data of our study cases is given in (Table-I). Standard surgical procedure was performed in all cases. All the patients were followed for 3 months. Examination under general anesthesia was performed at all follow up visits. Mean pre operative IOP was 42.17 mmHg (SD±8.40) and mean post operative IOP was 18.87 mmHg (SD±6.63) with a p value of <0.05 which is statistically significant. Mean corneal diameter preoperatively was 13.45mm (SD±0.70) and mean post operative corneal diameter was 13.58mm (SD±0.85).Thirteen eyes (24.5%) showed increase in corneal diameter. In these patients CD ratio, could not be assessed because of significant corneal scarring. An IOP ≤ 21mmHg was achieved in 40 (75.5%) eyes at final follow up. Five (9.4%) eyes required topical antiglaucoma medications. These 40 eyes had successful surgery. Eight out of 13 eyes (61.5%) that failed were of those patients who were younger than 1 year of age.

<table>
<thead>
<tr>
<th>Table 1: Demographic data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of patients (n)</td>
</tr>
<tr>
<td>Total no. of eyes (n)</td>
</tr>
<tr>
<td>Mean age (months)</td>
</tr>
<tr>
<td>Male versus Female</td>
</tr>
<tr>
<td>Laterality at initial presentation (%)</td>
</tr>
<tr>
<td>Mean preoperative corneal diameter (mm)</td>
</tr>
<tr>
<td>Significant corneal edema ±scarring (eyes)</td>
</tr>
<tr>
<td>Mean preoperative IOP (mmHg)</td>
</tr>
</tbody>
</table>

n= number, mm=millimeter, IOP= intraocular pressure, mmHg=millimeter of mercury

DISCUSSION:

Management of children with glaucoma is difficult. It poses a major problem and there is no concept of routine ocular examination in our society. Also we have got poor referral system. Complete ocular examination without general anesthesia is not possible in most of children. Even the examination findings may be subtle and therefore diagnosis is delayed. Medication for medical control may not be reliably administered.
All these factors led to presentation in advanced stage of the disease. Lack of awareness regarding congenital glaucoma also leads to detrimental consequences of glaucoma. The main goals of treatment are to control IOP and to preserve vision. Even the optimal surgical procedure is controversial.\(^3\),\(^14\)

Goniotomy is the first procedure which is performed if cornea is clear but it requires a separate approach that is not familiar to most ophthalmologists.\(^4\)\(^5\) Trabeculectomy is well studied and is currently the most common antiglaucoma procedure.\(^6\)\(^7\) However, the technique requires previous experience and good anatomical landmarks to achieve predictable results. Furthermore, Schlemm’s canal may be difficult to canulize because of hypoplasia or abnormal anatomy.\(^8\)\(^9\)\(^10\)\(^11\)\(^12\)\(^13\)

Reported success rates of trabeculectomy is 51% following 24 months of follow up.\(^16\) Trabeculectomy is another option in the treatment of PCG.\(^13\)\(^14\) Several studies have found that the success of primary trabeculectomy in congenital glaucoma is at least equal to that of goniotomy and trabeculotomy.\(^5\)\(^15\) A study reported a surgical success rate of 87% after a single procedure of trabeculectomy, which is higher than that for goniotomy and trabeculotomy.\(^16\)\(^17\) However, Beauchamp and Parks reported a success rate of only 50% with trabeculectomy.\(^20\)

Success of MMC augmented trabeculectomy in pediatric patients has been reported to be 59% to 95% (IOP <21 mmHg) with a short follow-up of 2 years or less.\(^7\) Our success of primary trabeculectomy with MMC is 75.5% at final follow up. Although our patients presented late but our results are promising. This may be due to a number of factors. Firstly our patients are mainly from North and South part of the country which includes mainly one race. Secondly we included no patient with aphakia / pseudophakia or previous surgery involving the conjunctiva which is significant risk factors for trabeculectomy failure. Younger age is considered to be a risk factor for trabeculectomy failure in congenital glaucoma.\(^21\) Outcomes of trabeculectomy in infants younger than 1 year varies between 15% to 43% in international studies.

We also found younger age less than 1 year to be a significant risk factor for failure. Eight out of 13 eyes (61.53%) who failed were younger than 1 year of age. Susaana et al had a success rate of 59.5% in young children.\(^22\) However, Ehrlich et al found no significant difference in outcome by patient’s age. We encountered no intra or post operative complications such as hyphaema, flat AC, bleb leak, endophthalmitis, or retinal detachment in this series of patients. Limitations of our study are smaller sample size, shorter follow up and mainly one race pediatric patients.

CONCLUSION.

our study demonstrated that trabeculectomy augmented with MMC is an effective option in the management of PCG within the first 3 years of life as shown by success rate and no complication in our case series. But close post operative monitoring requiring examination under general anesthesia in most of pediatric patients. If failure does occur in the course of the disease, the opportunity for Glaucoma Drainage Devices (GDDs) still exists. GDDs are alternatives to trabeculectomy. But only limited data is available on its performance in infants. Success rate of GDDs are reported to be 73.8% to 87.0% at 1 year. They are associated with significantly more postoperative complications requiring a return to the operating room (45.7% eyes) compared with trabeculectomy with MMC (12.5% eyes). By doing primary trabeculectomy, the potential complications of GDDs will be delayed at least beyond the more critical period of visual maturation.

REFERENCES:

Syphilis

A young woman with a 10-year history of intermittent episodes of redness and photophobia in both eyes. On examination, the visual acuity was 20/30 and 20/25. Slit-lamp examination revealed conjunctival hyperemia and peripheral corneal opacification, with inflammation and crystalline deposits on the corneal stroma consistent with interstitial keratitis. Six months later, the patient reported having vertigo, tinnitus, and hearing loss. Differential diagnosis: Syphilis, Systemic lupus erythematosus, High lead exposure, Cogan’s syndrome, Lymphoma. (Curtesy: NEJM-UK)
ABSTRACT

Introduction: The widespread use of mobile phones has been observed over the past decade. They are now an essential part of business and the society at large. The use of mobile phones can cause many health problems.

Aim: The aim of the present study is to identify visual problems (shortsightedness, fatigue, eye strain, headache and disturbed sleep cycle) in smart phone users among the students of Isra University, Islamabad.

Methods: This study was conducted in the Department Vision Sciences, Isra University Islamabad. In the present study 150 students (77 females and 71 males) were participated they have been using smart phones as a routine. A questionnaire was distributed regarding detailed history and association of smart phone with visual problems.

Results: The results of the present study showed a positive association between of vision problems. The overall mean percentage for these clinical findings in all students were disturbed sleep cycle was of (62.7%), shortsightedness 40.7%, 22% had symptoms with family history of headache (31.8%).

Conclusions: Based on the results of the present study, we concluded that the use of mobile phones is a risk factor for vision problems and suggest that long term or excessive use of mobile phones should be avoided by the health professionals in group discussions, public presentations and through electronic and print media.

INTRODUCTION

Mobile phone was introduced in 1973 by Dr. Martin Cooper of Motorola researchers and introduced the first mobile telephone usage. The prototype handheld phone was used by Dr. Cooper weighed 1.1 kg and measured 23 cm long, 13 cm deep and 4.45 cm wide.[1] The first smart phone was developed by IBM and Bell South, which came out to the public usage in 1993. The difference between then and now is that early smart phones were primarily used as enterprise devices and were expensive. Today’s standards “Simon” had a touch screen that was capable of accessing email and sending faxes.[2] The life without a smart phone is almost unimaginable whether we realize it or not, we’ve become more dependable (or addicted) on smart phones than ever before. The latest technology cell phones use blue light which is very harmful for the human eye. Symptoms commonly associated with over exposure to Digital Devices (mobile devices) are eye strain, 32.8%, neck/shoulder/back pain, 32.6%, headache, 24%, blurred vision, 23.3% and dry eyes, 22.8%.[3]

There are visual problems in smart phone users. Long term or excessive use of mobile phones should be avoided especially in group discussions, public presentations, through electronic and print media.

In October 2014, Gen Xers, and Millennials: a report from the Vision Council discussed digital device usage by adults 90% spend for hours per day, 60% spend more than 5 hours per day, 30% spend more than 9 hours per day. Of this group, more than 60% report symptoms of digital eyestrain including redness, burning, itchiness, blurred vision, fatigue and headaches.[4] Dr. Matt Gardiner, an ophthalmologist at Mass. Eye and Ear said in a report that most of the time people blink about 15 times per minute. But when using smart phones, that rate drops by half, causing dry eyes.[5] Additionally, Gardiner says that people’s shoulder and neck muscles are tense, face muscles contract, and headaches set in as they stare at tiny screens for a prolonged time.[6]

Playing with hand-held devices constitute near work, which has been shown to be associated with my-
opía (commonly known as short-sightedness),” says Dr. Lim besides myopia, there are also less common other eye conditions that may arise after a prolonged period of near work. [7] Phone and tablet screens display light in a predominantly blue hue, and it’s now thought that the blue light emitted by these screens actually tricks our brain into waking up, when it really needs to fall asleep. [8]

Smart phones don’t just affect your health on a day-to-day basis, they may also cause long term, incurable side effects like occipital neuralgia – a neurological condition where the nerves that run from the top of the spinal cord through the scalp become compressed or get inflamed. This condition causes symptoms similar to those you’d experience with a severe headache or migraine. Unfortunately, there is no cure for occipital neuralgia, only treatments to manage the pain which include steroid and numbing injections, yoga, massage and laying off the smartphone usage. [9]

Smartphone screens emit bright blue light so you can see them even in the brightness of day. But at night, your brain gets confused by that light, as it mimics the brightness of the sun. This causes the brain to stop producing melatonin, a hormone that gives your body the “time to sleep”. Because of this, smartphone light can disrupt your sleep cycle, making it harder to fall and stay awakened. [10]

**METHODOLOGY**

This chapter defines the research methodology to collect and evaluate the primary data from respondents. In the completion of this research quantitative data was gathered in order to complete this research. It includes a questionnaires descriptive cross-sectional using both quantitative and qualitative methods. The target population in this research was the students of Isra University Islamabad campus using gadget and mobile phone using at that time. The sampling technique used for this study is convenient totaling 150 respondents who were selected to fill the questionnaire.

Questionnaire was designed according to Linkert scale to collect the data from respondents. A closed-ended question is a format that limits respondents with a list of answer choices from which they must choose an answer. Commonly these types of questions are in the form of multiple choices, either with one answer or with check-all-that-apply, but also can be in scale format, where respondent should decide to rate the situation along the scale continuum, similar to Likert questions. In this research Likert scale was used to develop questions. Likert scale is easy to respond for researcher and to analyze. The quantitative data was analyzed at SPSS (22.0) and at Microsoft Excel.

**RESULTS**

**Table 1.** Use of smart phone in the darkness

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>120</td>
</tr>
<tr>
<td>No</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
</tr>
</tbody>
</table>

**Table 2. Clinical Test**

<table>
<thead>
<tr>
<th>Clinical test</th>
<th>Normal frequency</th>
<th>Abnormal frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Acuity</td>
<td>95</td>
<td>55</td>
</tr>
<tr>
<td>Contrast Sensitivity</td>
<td>146</td>
<td>4</td>
</tr>
<tr>
<td>Convergence insufficiency</td>
<td>97</td>
<td>53</td>
</tr>
<tr>
<td>Color vision</td>
<td>149</td>
<td>1</td>
</tr>
</tbody>
</table>

Table shows the frequency of Normal Visual acuity, frequency of contrast sensitivity, frequency of convergence insufficiency and color vision problem.

**DISCUSSION**

The sample size of our study was 150 students through which 79 were the female and 71 were the male. Each subject was given the validated performa in the age of 18-24 years, few of them from 25-33 years. Most of the students are using mobile phones and the most common mobile phones are android, few of them are using iPhone and some other mobile phone. The students more than four hours and they spend their time in using social networking 54.1%, for playing games 2% using cell phone, 4.1% use cell phone for surfing internet surfing internet means to use cell phone to search something informative and for the research purposes.

Many people do not know that cell phone emit harmful radiations I also ask this question to the participants and 82% know about the emission of harmful radiations but still 16% students don’t know about these harmful radiations with different levels of brightness especially when you use low brightness level in sunlight or in a brighter area your eyes will need more accommodation which cause eye strain same in the case if you use high brightness level in dark it also cause fatigue and headache when we...
Vision Problems in Smart Phone Users amongst the Students of Isra University.

asked this question to the participants from which 39% are using low brightness level and 46% of them were using high brightness level and they use medium font size and LED screens.

23% face some blurry vision as smart phones are the major cause of refractive error in people who are using for a prolonged period of time, but refractive error has also affiliated with hereditary disorder to 40% through which 77% are having positive family history while rest of 23% do not have any family history. Now the time to find out that how many students know that smartphone is the cause of decreased eye sight 40% students thought the at smart phone is cause of decreased eye sight. Smart phone cause redness in eyes, may also cause gritty and sandy sensation some time people also complain about headache while or after using smartphone, the response is 24.3%, 27% and 31.8% respectively.

Blue light that emits from the latest technology LED screens of smartphone do cause of a disturbed sleep cycle in 62%-79% people, 37.2% students who had decreased visual acuity. For contrast sensitivity we used low contrast chart there were 2.7% were having problem of contrast. By doing some work in it effects accommodation and convergence for identifying convergence insufficiency we did use RAF rule and 36.1% students were having a low convergence power. There was only 1 student who had color vision defect. The whole discussion conveys that excessive use of smart phone can cause many visual problems.

CONCLUSION
The whole study comprises to identify the visual problems in smart phone users. Based on the results of the present study, we conclude that the use of mobile phones is a risk factor for visual problems and suggest that long term or excessive use of mobile phones should be avoided by health promotion activities such as group discussions, public presentations and through electronic and print media sources.

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7. Skaler T, Bowens A. OPTOMETRIC VISION THERAPY IN REHABILITATION OF COGNITIVE DEFICIT SECONDARY TO TRAUMATIC BRAIN INJURY.
Computer Vision Syndrome: A Study of the Knowledge, Attitude & Practices in University of Lahore

Muhammad Asif MBBS1 Muhammad Kashif MBBS2 Hafiz Muhammad Latif MBBS3

ABSTRACT:

Aim: To investigate the prevalence of computer vision syndrome in University of Lahore.

Material and Method: A cross sectional study was done in 200 students of University of Lahore. Convenient based sampling was done at May-August 2017. Students were divided into two groups Group A who were computer user and Group B who were not computer user.

Results: All the students who responded were aware of CVS. The chief presenting symptoms were eyestrain (92%), headache (80%), tiredness and burning sensation (77%), watering (88%) and redness (63.2%). Students using computers reported that focusing from distance to near and vice versa (P=0.00, χ² test), blurred vision at a distance (P=0.006, χ² test) and blepharospasm (P=0.03, χ² test) formed part of the syndrome. The main mode of treatment used was tear substitutes and half of students (50.7%) were not using any spectacles and. They did not have any liking for glasses (65%) or spectral filters. Computer-users were more likely to use sedatives/anxiolytics (P=0.04, χ² test), spectacles (P=0.02, χ² test) and were conscious frequent blinking (P=0.003, χ² test) than the non-computer-users.

Conclusion: Almost all students were aware of Computer vision syndrome. Confusion regarding treatment guidelines was observed in both groups. Computer-user were more informed of symptoms and diagnostic signs but were misinformed about treatment modalities.

Keywords: Dry eye, refractive errors, blepharospasm, sedatives, spectacles, blinking

INTRODUCTION:

Dry eye syndrome has been increasing among students as the computer use is growing because of the rapid advance of information technology. Intel estimates that we are close to one billion Internet-connected personal computers throughout the world [1]. People regularly using a computer have demonstrated a higher incidence of musculoskeletal disorders, eyestrain, and dry eyes [2], [3]. Dry eye has shown a marked increase due to computer use, and has become a significant health issue affecting the quality of life in industrialized countries [4]. Dry eye syndrome is a disturbance in tear film physiology that leads to various abnormalities of ocular surface disorders, though it is not a major problem. [4], [7]

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The tear film covering the cornea and conjunctiva consists of lipid, aqueous and mucin layers [8]. Each component of the tear film is essential for maintaining a properly controlled lubrication for the ocular surface. There are two main causes of dry eye syndrome: Tear-deficient and evaporative dry eye [9]. Tear-deficient dry eye is characterized primarily by a lack of tear secretion by the lacrimal glands. Evaporative dry eye is characterized by excessive evaporative loss of tears from the ocular surface that leads to tear film instability with normal tear secretion. Excess evaporation of tear fluid due to reduced blinking while focusing has been considered to be a major causative factor in VDT-associated dry eye [10], [11]. However, there has been no proposed mechanism that accounts for progressive worsening of dry eye in VDT users, which remains an
important unexplored quality of life issue.

The mechanism for this has yet to be fully understood due to the lack of information obtained from a large-scale epidemiological study of computer users and an appropriate animal model for dry eye. Animal models have not been developed because the etiology of computer work associated with health problems is complicated. Furthermore, no way has been found to reduce the blink frequency of animals, because animals do not use computers. To mimic computer use which is characterized by lack of blinking, low humidity occupational environment, and sustained static postures during repetitive tasks, we have created a novel rat model. The procedure based on the concept that gazing is not necessarily only observed in the concentrated tasks such as computer use, but also can be observed in the spatial orientation that is required for the maintenance of posture, similar to that seen in tightrope walkers [12]. Using our novel procedure, we were able to simulate the stressful conditions of computer use. The objective of this study is to get to know about side effect of excessive computer use and its effects on eye.

MATERIAL AND METHOD:

A cross sectional study was done among students of university of Lahore. 200 sample size was taken from random sampling. In which 20 classes were selected and 10 students from each class. Data was collected using questionnaire which contain main questions: Awareness about Dry eye sign, symptoms and treatment modalities

The participants were surveyed using pre-tested structured questionnaire to get to know the knowledge and attitude towards CVS, which included the basic demographic profile, hours of computer use per day, frequency of break while working on computers. The eye symptoms were redness, burning sensation of eye, headache, blurred vision, dry eyes and neck and shoulder pain. Those who were absent on the day of the study and those who did not consent to participate in the study were excluded. The institutional ethical review board approved the study. They were asked to mark whether they had experienced none, mild (transient symptoms which persist for few minutes to hours), moderate (persist for few hours and subsides after rest or sleep) or severe (needs medical consultation), visual problems during or after computer use. SPSS version 20.00 was used for analysis. The results were evaluated using t-test and X2 tests. The responding students were divided into two Group. In A: All the students who were using computers. Group B: All the students who were not using computers.

In group A students who used computer in the month preceding the date of study were included in this study. The outcome variable in this study was CVS, defined as “the complex of eye and vision problems related to near work, which are experienced during or related to computer use.

RESULTS:

The results shows that 200 students were included in this study in which 115 were male and 85 were female. All the students who responded were aware of CVS. The chief presenting symptoms were eyestrain (92%), headache (80%), tiredness and burning sensation (77%), watering (88%) and redness (63.2%). Responding students were divided into two groups: A: All the students who were using computers. B: All the students who were not using computers. In which 190 were in Group A. While 10 were in Group B. All students were asked about symptoms associated with computer vision syndrome. As shown in table 1:

Table 1: Symptoms associated with Computer vision syndromes Group A v/s group B

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redness</td>
<td>77</td>
<td>63.2</td>
</tr>
<tr>
<td>Burning sensation of eye</td>
<td>88</td>
<td>88</td>
</tr>
<tr>
<td>Headache</td>
<td>92</td>
<td>80</td>
</tr>
<tr>
<td>Tiredness</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>Burning sensation</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Dry eyes</td>
<td>23</td>
<td>38</td>
</tr>
<tr>
<td>Neck and shoulder pain</td>
<td>19</td>
<td>9</td>
</tr>
</tbody>
</table>

Interpretation: 45 students from group B said that dry eye is responsible in focusing and it cause blurring of vision which was highest prevalence among all. Students using computers reported that focusing from distance to near and vice versa (P =0.00, χ2 test), blurred vision at a distance (P =0.006, χ2 test) and blepharospasm (P =0.03, χ2 test) formed part of the syndrome.

Table 2: Treatment modalities of CVS

<table>
<thead>
<tr>
<th>Treatment modalities of CVS</th>
<th>yes</th>
<th>NO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artificial tear</td>
<td>131</td>
<td>3</td>
<td>134</td>
</tr>
<tr>
<td>Steroids</td>
<td>13</td>
<td>121</td>
<td>134</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>0</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>Blinking more often or consciously</td>
<td>122</td>
<td>12</td>
<td>134</td>
</tr>
<tr>
<td>Taking breaks while work</td>
<td>114</td>
<td>20</td>
<td>134</td>
</tr>
<tr>
<td>Exercise for this</td>
<td>22</td>
<td>112</td>
<td>134</td>
</tr>
</tbody>
</table>

Interpretation: Table 2 shows that 134 students gave answer about treatment modalities rest of others told
that they do not know about treatment modalities. In between those who gave answer in yes or no almost all (134) knew that we do not use topical antibiotics in this situation which was highest prevalent among all. 131 were knew that we use artificial tear in this condition.

**Table: 3 Spectacle prescription in computer vision syndrome**

<table>
<thead>
<tr>
<th>Spectacles being prescribed</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>107</td>
<td>53%</td>
</tr>
<tr>
<td>Yes, correction as per refraction for distance</td>
<td>56</td>
<td>28%</td>
</tr>
<tr>
<td>Bifocal</td>
<td>17</td>
<td>8.5%</td>
</tr>
<tr>
<td>Trifocal</td>
<td>12</td>
<td>7%</td>
</tr>
<tr>
<td>Progressive aid</td>
<td>18</td>
<td>8.6%</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td><strong>200</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Interpretation:** The result shows that 53% knew that we do not use spectacle in this situation which was highest prevalence among all.

**DISCUSSION:**

All the students who responded were aware of CVS. The chief presenting symptoms were eye strain (92%), headache (80%), tiredness and burning sensation (77%), watering (88%) and redness (63.2%). Students using computers reported that focusing from distance to near and vice versa (\( P = 0.00, \chi^2 \text{test} \)), blurred vision at a distance (\( P = 0.006, \chi^2 \text{test} \)) and blepharospasm (\( P = 0.03, \chi^2 \text{test} \)) formed part of the syndrome. The main mode of treatment used was tear substitutes. Half of students (50.7%) were not using any spectacles and. They did not have any preference for any special type of glasses (65%) or spectral filters. Computer-users were more likely to prescribe sedatives/ anxiolytics (\( P = 0.04, \chi^2 \text{test} \)), spectacles (\( P = 0.02, \chi^2 \text{test} \)) and conscious frequent blinking (\( P = 0.003, \chi^2 \text{test} \)) than the non-computer-users.

A study was conducted in India on ophthalmologist by Jatinger. B according to that All the ophthalmologist who responded were aware of CVS. The chief presenting symptoms were eye strain (98%), headache (92%), tiredness and burning sensation (70%), watering (82%) and redness (63.2%). Students using computers reported that focusing from distance to near and vice versa (\( P = 0.00, \chi^2 \text{test} \)), blurred vision at a distance (\( P = 0.000, \chi^2 \text{test} \)) and blepharospasm (\( P = 0.00, \chi^2 \text{test} \)) formed part of the syndrome. The main mode of treatment used was tear substitutes.

Another study was conducted in Channai in 2014 by Lograj, according to that among engineering students, the prevalence of CVS was found to be 81.9% (176/215) while among medical students; it was found to be 78.6% (158/201). A significantly higher proportion of engineering students 40.9% (88/215) used computers for 4-6 h/day as compared to medical students 10% (20/201) (\( P < 0.001 \)). The reported symptoms of CVS were higher among engineering students compared with medical students. Students who used computer for 4-6 h were at significantly higher risk of developing redness (OR = 1.2, 95% CI = 1.0-3.1, \( P = 0.04 \)), burning sensation (OR = 2.1, 95% CI = 1.3-3.1, \( P < 0.01 \)) and dry eyes (OR = 1.8, 95% CI = 1.1-2.9, \( P = 0.02 \)) compared to those who used computer for less than 4 h. Significant correlation was found between increased hours of computer use and the symptoms redness, burning sensation, blurred vision and dry eyes.[18]

A study on same topic was conducted in Saudi Arabia by Ranasige.P. In which Sample size was 2210 (response rate—88.4 %). Mean age was 30.8 ± 8.1 years (range 18–60 years) and 50.8 % of the sample were males. A majority (48.1 %) of the study population belonged to the age category 20–29 years with 46.5 % males and 49.6 % females being in this age group. Seventy five percent of the study population had worked between 1 and 5 years in their current position. Of the male participants, 45.6 % worked 6–9 h per day with a computer, compared to 42.8 % of the female participants and 44.3 % of the entire study population. Pre-existing eye diseases, which included presence of cataract, glaucoma, presbyopia, myopia and oculomotor abnormalities, were present in 25 % (n = 552).[20]

**CONCLUSION:**

Almost all students were aware of Computer vision syndrome. Confusion regarding treatment guide-

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lines was observed in both groups. Computer-user were more informed of symptoms and diagnostic signs but were misinformation about treatment modalities.

REFERENCES:
Prevalence of Eye Diseases in Children aging 5-15 Years in Malakand Tehsil of KPK

ABSTRACT:
Aim: To find the prevalence of eye diseases in children of age 5-15 year in Malakand Tehsil of KPK.
Material and Method: A cross sectional study was done and 200 sample size was taken through convenient based sampling. Teachers from each of three primary schools in Malakand Tehsil was taken on tested visual acuity using a Snellen’s E chart. 200 pupil underwent a full eye examination by our team.
Results: the result shows that 21% children had allergic conjunctivitis which was most prevalent, second one was bacterial conjunctivitis. The result also shows that most of the children (91%) did not have any visual impairment.
Conclusion: The prevalence of significant refractive errors was not high enough to justify a school eye screening program solely for this purpose. The most prevalent infections were conjunctiva related. Further research is needed to validate the frequent reports of eye diseases in children and to establish the public health importance of vitamin A deficiency in this age group.
Key words : Trachoma, refractive error, Bitots’ spot, specificity, night blindness

INTRODUCTION:
Screening of school children is mainly directed towards identifying children with amblyopia, strabismus, and refractive errors. Majority of children in developing countries hardly had an eye examination [2]. As a result, about 500,000 children become blind each year worldwide, and 70% die in the first years of life due to other diseases causing visual impairment. Population-based studies show that the prevalence of childhood blindness is lower in developed than in developing countries, very few data are available on the prevalence of eye diseases in primary school children in Pakistan. In Pakistan every 10th child get blind from eye diseases in his early age. In 1972, Yasser and colleagues examined 1550 school children in Rwanda aged between 10 and 18 years for amblyopia and found a prevalence of 1.2% in them had visual deficit is a risk factor not only for altered Visio-sensory development, but also for overall socioeconomic status throughout life. Early detection provides the best opportunity for effective treatment of eye and visual problems in children. Therefore, timely screening is vital to avoid lifelong visual impairment. [4]

Late diagnosis leads to poor school performance and socialization, which can damage a child’s career prospects. The condition can also represent an economic burden for society, warranting initiatives for early diagnosis and treatment. In developed nations, newborn infants undergo routine eye examination due to the existence of policies promoting eye health; in contrast, developing nations often lack the resources to undertake preventive programs. In Brazil, eye examination is still not performed routinely in children, with visual disorders often being diagnosed only at school age 5.6.

This study is effective because if we treat children timely we can prevent most of our population from blindness and this the objective of this study.

Prevalence of significant refractive errors in Malakand Tehsil of KPK was not high enough to justify a school eye screening program solely for this purpose except conjunctival infections. Further research is needed to establish the public health importance of vitamin A deficiency in this age group.

MATERIAL AND METHOD:
A cross sectional study was done in between July-September 2017 and 200 sample size was taken through convenient based sampling. Teachers from each of three primary schools in Malakand Tehsil was taken on tested visual acuity using a Snellen’s E chart.
PREVALENCE OF EYE DISEASES IN CHILDREN AGING 5-15 YEARS IN MALAKAND TEHSIL OF KPK

The sample included medical records from outpatient and emergency visits. Data collection included socio-demographic data (age and gender) and the following data from ophthalmic examination: external and pupil examination, eye movements, corrected and uncorrected visual acuity, slit lamp biomicroscopy, type of refractive error, fundus examination, and suggested diagnosis. Some patients had more than one diagnosis. The degree of visual impairment was determined based on WHO criteria, as in Table 1.

**RESULTS:**

The result shows that total 200 students were included in this study. In which 104 were female and 96 were male. In between these most prevalent infection was allergic conjunctivitis. While uveitis, glaucoma and eye trauma were least prevalent problems in children of age group 5-15 year.

Table 1 Distribution of eye disorders diagnosed in outpatient and emergency visits.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornea and conjunctiva</td>
<td>135</td>
<td>68.0%</td>
</tr>
<tr>
<td>Infectious conjunctivitis</td>
<td>38</td>
<td>19.0%</td>
</tr>
<tr>
<td>Allergic conjunctivitis</td>
<td>41</td>
<td>21.0%</td>
</tr>
<tr>
<td>Dry eye</td>
<td>10</td>
<td>5.0%</td>
</tr>
<tr>
<td>Keratitis</td>
<td>24</td>
<td>11.0%</td>
</tr>
<tr>
<td>Conjunctival tumour</td>
<td>9</td>
<td>4.5%</td>
</tr>
<tr>
<td>Pterygium</td>
<td>6</td>
<td>3.0%</td>
</tr>
<tr>
<td>Leukoma</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Eyelids and lacrimal system</td>
<td>42</td>
<td>21.0%</td>
</tr>
<tr>
<td>Blepharitis</td>
<td>13</td>
<td>6.5%</td>
</tr>
<tr>
<td>Chalazion</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Disorders of the lacrimal pathways</td>
<td>9</td>
<td>4.5%</td>
</tr>
<tr>
<td>Ptosis</td>
<td>9</td>
<td>4.5%</td>
</tr>
<tr>
<td>Eyelid and orbital tumours</td>
<td>3</td>
<td>1.5%</td>
</tr>
<tr>
<td>Trichiasis</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Strabism</td>
<td>15</td>
<td>7.5%</td>
</tr>
<tr>
<td>Retina and vitreous</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Cataract and lens</td>
<td>3</td>
<td>1.5%</td>
</tr>
<tr>
<td>Uveitis</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>1</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

**Table 2 Distribution of visual impairment in outpatient visits.**

<table>
<thead>
<tr>
<th>Visual impairment</th>
<th>Visual acuity* n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>182 (91%)</td>
</tr>
<tr>
<td>Myopia</td>
<td>14(8.5%)</td>
</tr>
<tr>
<td>Blindness</td>
<td>4(2.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>200 (100%)</td>
</tr>
</tbody>
</table>

**Interpretation:** The result shows that most children did not have any issue in vision.

**DISCUSSION:**

School screening is important as far as public and educational health is concerned, as many children reach school age without having undergone eye examination. Eye health studies have reported that around 15% of first-grade children have some visual disturbance, and only 20% undergo medical follow-up. Ideally, every child should be examined by an ophthalmologist before starting school and should undergo preventive eye examination in the first year of life. In recent years there is increasing awareness for such preventive measures, with campaigns targeted at newborn and school children being used to screen children with eye disorders. Ideally, awareness-raising campaigns on are mandatory through all types of media.

In this study the result shows that 21% children had allergic conjunctivitis which was most prevalent as compared to bacterial conjunctivitis. The result also shows that most of the children (91%) did not have any visual impairment.

A study was conducted in Brazil by Maria. N according to the observation a total of 2408 patient charts, and 2128 (88.4%) of elective care and 280 (11.6%) of care in the emergency department CEROF. Predominated in the age group 6-10 years (44.2%), followed by 11-14 years (29.6%). The examination was normal in 12.9% (n=274) of elective care and 6.8 (n=19) of emergency visits. The disease most commonly found in children were infectious conjunctivitis (248 cases, 26.4%) and allergic (204 cases, 21.7%), blepharitis (69 cases, 7.3%), chalazion (34 cases, 3.6%), strabismus (133 cases, 12.06%), diseases of retina and vitreous (24 cases, 2.6%), cataract and lens changes (20 cases, 2.1%). Ametryopia frequently observed were hyperopia (46.9%) and
astigmatism (42.2%) and systemic diseases were more informed prematurity (30 cases) and diabetes mellitus (26 cases).\textsuperscript{[14]}

A study on similar topic was conducted in southern Nigeria by Okov, A seen accordingly 2092 children, 1081 (51.7%) males, with a male to female ratio of 1.07\textsuperscript{1}. Ocular disorders were found in 127 (6.1\%) of the population. The most common ocular disorders in this community were vernal conjunctivitis 61 (2.9\%) followed by refractive error 14 (0.7\%). Amblyopia, was the most common cause of visual impairment.\textsuperscript{[15]}

A study was conducted in India by A. Panda accordingly eye problems were looked in 4398 school children aged 5–14 yr., trachoma (20.9\%) followed by refractive error (13.2\%). The stress is laid on the responsibility of the teachers and parents for the early detection of eye diseases.\textsuperscript{[16]} A study was conducted in southern India by Vasuda, A., accordingly the prevalence of ocular morbidity 2.66\% (95\% confidence interval, CI, 2.46–2.87\%) , Bitot spots (1\%) followed by refractive error (0.6\%). In total, 18 children were partially blind and the best-corrected visual acuity <3/60 was 0.08\% (95\% CI 0.04–0.11\%); 8 (44.4\%) had retinal pathology, 5 (27.7\%) had lens-related blindness, 2 (11.1\%) had bilateral microphthalmos, 1 (5.6\%) was blind due to anterior staphyloma in one eye and anophthalmos in the other eye, 1 (5.6\%) was the poor vision had bilateral uveal coloboma and 1 (5.6\%) had cortical visual impairment.\textsuperscript{[20]}

CONCLUSION:

The prevalence of significant refractive errors was not high enough to justifies a regular school eye screening program solely for this purpose. The most prevalent infections were conjunctiva related. Further research is needed to validate the frequent reports of eye diseases in children and to establish the public health importance of vitamin A deficiency in this age group.

REFERENCES:
ABSTRACT

Background: Chalazion is a frequently presenting eyelid pathology which merits further refinement in treatment protocols.

Objective: To compare an injection of intralesional triamcinolone acetonide and incision & curettage in terms of frequency of regression of the lesion.

Subjects and Methods: This randomized controlled trial was done in Al-Shifa Trust Eye Hospital, Rawalpindi during seven months. One hundred and eighty (n=180) patients aged between 14-50 years irrespective of gender who had a palpable chalazion on any eyelid for > 4 weeks with normal eyelid anatomy were studied. Patients were equally divided into two groups. Group A were treated with intralesional TA and Group B treated with I&C. Frequency of regression was measured at 4 weeks after intervention in both groups and compared using Chi-Square test.

Results: In group A, 77.8% (n=70) of lesions were regressed while in group B the percentage was 82.2% (n=74). Regression rate was not found to be significantly different among both groups (\(P > 0.05\)). Gender, age groups and different location of the lesions wise stratification showed no difference in both groups (\(P > 0.05\)).

Conclusion: The results suggest that a single transconjunctival 0.2 mL injection of 10 mg/mL of TA has efficacy comparable with I&C in the treatment of chalazian with less patient’s inconvenience.

Key Words: Chalazion, Eye lid lesions, intralesional triamcinolone acetonide, incision & curettage

INTRODUCTION

Chalazion (meibomian cyst) is a chronic, focal, sterile, granulomatous inflammatory lesion of the eyelid resulting from the obstruction of sebaceous glands. Histopathology reveals lipogranulomatous inflammation surrounded by giant and inflammatory cells. Risk factors associated with chalazia include blepharitis, rosacea, gastritis, anxiety, irritable bowel syndrome and smoking. In recurrent lesions sebaceous gland carcinoma (SGC) should be excluded by a histopathology. Chalazion is self-limiting in about 25-50% of the cases. Patients are initially advised to apply hot compresses (H/C) which results in resolution in 25-50% of cases. Failing this, they are treated surgically by incision and curettage (I&C) under a local anesthetic (LA) injection. Recent studies have shown that intralesional injection of triamcinolone acetonide (TA) in primary and recurrent chalazion is a simple and efficacious therapeutic option for chalazion. The most serious but uncommon complication of intralesional injection of corticosteroid is vascular occlusion. Inadvertent corneal penetration, traumatic cataract, skin depigmentation and raised IOP are other possible complications.

A single transconjunctival 0.2 mL injection of 10 mg/mL of triamcinolone acetonide (TA) has efficacy comparable with I&C in the treatment of chalazion with less patient’s inconvenience.

Original Article

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mary chalazion have been undertaken. Chalazion is a frequently presenting eyelid pathology which merits further refinement in treatment protocols. Intralosomal TA is less painful, technically less demanding and induces lesser trauma to surrounding tissues. If it regresses chalazia as affectively as I&C, this treatment modality can be introduced as an alternative to I&C or offered to the patient prior to it.

METHODS

This randomized clinical trial was conducted after approval by the hospital ethical committee. The authors declare no financial or proprietary interest. Patients were explained about treatment protocols and an informed consent for treatment was taken. Patients were divided in two groups by using random number tables. A total of one hundred and eighty (n=180) patients were recruited in this study. Group A comprised of 90 patients who were treated with intralosomal TA and Group B comprised of 90 patients who were treated with incision and curretage (I&C). A brief systemic examination and thorough ophthalmic assessment was done in all patients. Chalazion was diagnosed by clinical examination on slit lamp biomicroscopy.

All patients aged 14-50 years irrespective of gender that had a palpable chalazion on any eyelid; present for more than 4 weeks with normal eyelid anatomy (enabling lid eversion and transconjunctival injection) were included in the study. Patients with chalazion which had atypical features (a recurring chalazion, abnormal surrounding lid tissue, associated loss of lashes) that may be indicative of malignancy, patients allergic to any of the agents being used (lignocaine, triamcinolone acetonide, proparacaine), patients with concurrent eyelid infection (cellulitis or conjunctivitis) and patients with multiple chalazian were excluded. The patient were followed after 4 weeks of the initial treatment in both groups and evaluated for regression of the lesion.

In Group A, I&C was done under local anesthesia (2% lignocaine) that involved; clamping the lesion with a self-retaining chalazion clamp and evverting the eyelid, incising vertically through the tarsus and scooping out the contents with a curette. Aseptic dressing was applied after the procedure. In Group B, 0.2 mL of 10 mg/mL TA (Kenacort) was injected transconjunctivally with a 29 gauge needle under topical anaesthesia (proparacaine 0.5%). I&C and intralosomal TA was injected. Antibiotic steroid combination eye drops (tobramycin + dexamethasone) four times daily for 2 weeks were prescribed to both groups.

All the information was entered and analyzed in Statistical Package for Social Sciences (SPSS) version 19.0. Chi square test was applied to determine the difference in the two groups in terms of regression of the lesion. Effect modifiers like age, gender and location were controlled by stratification. Post stratification chi square test was applied. A p value ≤ 0.05 was considered as statistically significant.

RESULTS

In group A, 53.3% (n=48) patients were males with the mean age of 30.9 years ± 11.8 and 46.7% (n=42) were females with mean age of 35.8 years ± 13.2. Cumulative mean age of group A was 33.2 years ± 12.6. In group B, 54.4% (n=49) patients were males with the mean age of 34.5 years ± 12.9 and 32.1% (n=41) were females with mean age of 32.1 years ± 12.5. Cumulative mean age of group B was 33.4 years ± 12.7. In group A, 36.7% (n=33) of the lesions were found on right upper lid, 33.3% (n=30) on right lower lid, 15.6% (n=14) on left upper lid and 14.4% (n=13) lesions were found on left lower eye lid. In group B the percentages were 38.9% (n=35), 27.8% (n=25), 22.2% (n=20) and 11.1% (n=10) respectively.

In group A after four weeks of treatment 77.8% (n=70) of lesions regressed, while in group B (I&C) the percentage was 82.2% (n=74). P = 0.456, implying no significant difference between regression rates among both the treatment groups (Table 1). In age group 14-30 years regression was present in 82.5% (n=33) patients in Group A, while the percentage was 90.2% (n=37) in Group B (P = 0.309). In age group 31-50 years, regression was present in 74.0% (n=37) patients in Group A, while the percentage was 75.5% (n=37) in Group B patients (P = 0.863) (Table 2). In males, regression was present in 79.2% (n=38) patients in Group A, while the percentage was 81.6% (n=40) in Group B patients. (P = 0.803). In females, regression was present in 76.2% (n=32) patients in Group A, while the percentage was 82.9% (n=34) in Group B (P = 0.588).

In right upper eyelid lesion, regression was present in 84.8% (n=28) patients in Group A, while the percentage was 91.4% (n=32) in Group B patients (P = 0.471). In right lower eyelid lesions, regression was present in 73.3% (n=22) patients in Group A, while the percentage was 64.0% (n=16) in Group B patients (P = 0.562). In left upper eyelid lesion, regression was present in 42.0% (n=12) patients in Group A, while the percentage was 100% (n=20) in Group B patients (P = 0.162). In left lower eyelid lesions, regression was present in 34.6% (n=8) patients in Group A, while the percentage was 27.4% (n=6) in Group B patients (P = 1.0) (Table 3).

In either group no significant adverse effects were noted. In I&C group most patient complained of pain for a couple of days. Three out of 90 patients that underwent intralosomal TA injection had mild depigmentation.
Comparison of Intra-lesional Triamcinolone Acetonide Injection With Incision & Curettage in the Treatment of Primary Chalazion

Table 1: Efficacy of treatment in both groups

<table>
<thead>
<tr>
<th>REGRESSION GROUPS</th>
<th>GROUP A (INTRALESIONAL TA)</th>
<th>GROUP B (I &amp; C)</th>
<th>P-VALUE CHI-SQUARE</th>
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<tbody>
<tr>
<td>PRESENT</td>
<td>70</td>
<td>74</td>
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Table 2: Age-based stratification

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<th>REGRESSION GROUPS</th>
<th>GROUP A (INTRALESIONAL TA)</th>
<th>GROUP B (I &amp; C)</th>
<th>P-VALUE (CHI-SQUARE)</th>
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</thead>
<tbody>
<tr>
<td>14-30</td>
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<td>9.8%</td>
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Table 3: Location-based stratification

<table>
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<th>GROUP B (I &amp; C)</th>
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<tbody>
<tr>
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</table>
Comparison of Intra-lesional Triamcinolone Acetonide Injection With Incision & Curettage in the Treatment of Primary Chalazion

<table>
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<tr>
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<td>27.4%</td>
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<td></td>
<td>5</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>65.4%</td>
<td>72.6%</td>
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<tr>
<td>TOTAL</td>
<td>13</td>
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<td>100.0%</td>
<td>100.0%</td>
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DISCUSSION

In this study we intended to gather evidence about efficacy of intralesional TA injection in comparison with I&C in the management of chalazion in order to devise guidelines compatible with global trends. We found that in group A, 77.8% (n=70) of lesions regressed while in group B the percentage was 82.2% (n=74). Regression rate was not found to be statistically significantly amongst both groups (p > 0.05). The results suggest that a single transconjunctival 0.2 ml injection of 10 mg/ml of TA has efficacy comparable with I&C in the treatment of chalazion with less pain and patient inconvenience. I&C of chalazion is one of the most common minor surgical procedure performed and is often done on the patient’s first OPD visit. In practice we found that many patients were not prepared to undergo a surgical procedure the same day and have their eye padded afterwards. Furthermore, chalazion tend to occur in younger age groups who more often than not have considerable psychological distaste to surgery, especially women. A survey suggested that chalazion surgery should not be played down and must be treated with the same revere as any other ocular surgery.

Chung found that subcutaneous extraloseral TA injection was more effective than conservative treatment for chalazion. We decided to inject TA directly into the lesion through the conjunctiva as it is safer, avoids localized skin depigmentation or inadvertent penetration of the globe and acts directly to reduce the lipogranulomatous inflammation. Ho documented that two out of the 48 patients that underwent subcutaneous intralesional TA injection were affected by localized skin depigmentation whereas in our study three out of 90 patients that underwent this procedure had mild depigmentation. Our cohort consisted of patients with a variety of skin pigmentation but a majority had a darker skin tone. This study supports the view that the transconjunctival route of TA injection minimizes the risk of localized skin depigmentation. Possible explanation for depigmentation is deposition of minute TA precipitates beneath the skin layers. A study found that intralesional corticosteroid injection appears to be effective in managing chalazion in black African patients. However, they recommended that this treatment can be used when curettage is contraindicated.

Most studies opted for intralesional injection of TA via skin and not through the conjunctivitis. Subcutaneous route probably allows for an easier access and better anatomy for injections. Pavicić-Astalos aimed to evaluate the efficacy of intralesional TA injection in primary and recurrent chalazion. Resolution of the lesion was found in 35/37 cases after one or two injections, with a mean time to resolution of 15.27 ± 6.12 days. The authors concluded that subcutaneous injection of the TA in primary and recurrent chalazion appears to be a simple and efficacious therapeutic option. Ho in their prospective consecutive case series concluded similar results. Further studies comparing subcutaneous and transconjunctival route need to be undertaken to establish superiority.

Previous studies have used varying concentrations of the drug. Simon et al used a dilution of 40 mg/ml; Ho used TA concentration of 10 mg/ml. We opted to use a lower concentration of TA; by using the minimal therapeutic concentration of TA, we minimized the risk of localized skin depigmentation in a cohort of local darker skin population. Even lower concentration TA (5 mg/ml) has been reported as being efficacious in a previous smaller study. Further studies investigating how the efficacy of intralesional TA varies with different concentrations need to be undertaken.

Goawalla in their study compared three methods of treating chalazion: intralesional TA injections (0.2 mL of 10 mg/mL), I&C and application of hot compresses to the affected eyelid on 136 patients. They found that at the 3-week follow up, the resolution rates in the TA injection and surgical treatment groups were not significantly different from each other at 84% (47/56) and 87% (39/45), respectively (P < 0.001), but was significantly lower in the conservative treatment group at 46% (16/35) (P < 0.001). They concluded that that a single TA injection followed by lid massage is almost as effective as I&C in the treatment of chalazion and with similar patient satisfaction, less pain and patient inconvenience.

Simon in their retrospective study evaluated the safety and efficacy of intralesional TA injection in primary and recurrent chalazion. Patients received an intralesional injection of 0.1 to 0.2 ml TA (40 mg/ml). Their results showed that most of the patients received 1 injection (60%) or 2 injections (20%) with resolution of the lesion with an average time to resolution of 2.5 weeks. Patients who did not respond to 2 injections were more likely to fail treatment (minimal or no regression) and are more likely to benefit from surgical
In a later prospective RCT, Simon compared the treatment outcomes of intraleisional TA injection with I&C for primary chalazion. Complete resolution was achieved in 79% of patients in I&C group and in 81% of patients in the TA group (P=0.8, chi-square analysis). The average time to resolution in the TA group was 5 days, with most patients, 92% having received a single injection and 8% patients having received 2 injections. TA precipitates were detected in 11.5% of patients and resolved spontaneously. The results are comparable to ours; in the TA group after four weeks of treatment 77.8% of lesions regressed, while in I&C group the percentage was 82.2%, $P = 0.456$. 14 Ahmad concluded similar results and added that intraleisional TA resolution rates were comparable to surgical treatment especially after the second injection. 15

We found that in the younger cohort (14-30 yrs), regression was present in 82.5% in intraleisional TA and 90.2% in I&C patients, ($P$-value 0.309). These are comparable to results in the older cohort (Table 2). TA for the treatment of primary chalazion is equally effective in children and adults, without any significant complications. 16 Mustafa in their prospective study compared 3 methods of chalazion complications treatment; intraleional TA injection, I&C and combination of I&C plus intraleional TA injection on twenty-six pediatric age patients. They found that in the first group and second group, 75% of the chalazion resolved. In the 3rd group, resolution was found in all patients after 2 weeks with no recurrence. 10

Chalazion mimicking SGC fortunately are extremely rare. Injecting steroid mistakenly into a SGC could possibly mask its presence leading to a delayed or missed diagnosis with devastating clinical results. Therefore, it is crucial that all chalazion being considered for TA injection have no atypical features. A hordeolum can sometimes imitate a chalazion as it is a meibomian gland obstruction with superadded infection, usually by Staphylococcus Aureus. The infective element of the hordeolum mostly resolves in one week with topical antibiotics and may develop into a chalazion later. TA injection shouldn’t be given for hordeolum given its infective nature. Similarly examination for pre-existing follicles in the fornix and fluorescein staining on a slit lamp microscope is essential to rule out previous herpetic infections.

In addition to having a regression rate comparable with conventional I&C, TA injections are less traumatic and avoid excessive bruising of the lid. No eye-pads after treatment are required therefore patients can resume their daily activities following injections. Furthermore injections have economic and practical advantage as its price in time and equipment is a fraction of that for I&C. Thus; in patients where diagnosis is straightforward and no biopsy is required, patients should be given an option of intralesional TA. Further large scale RCTs are needed to establish its definitive role in clinical settings.

**CONCLUSION:**

The results suggest that a single transconjunctival 0.2 mL injection of 10 mg/mL of TA has efficacy comparable with I&C in the treatment of chalazion with less patient inconvenience.

**REFERENCES**

Trabeculectomy Surgery by Glaucoma Trainee Fellows at a Tertiary Care Hospital
(Results of one year study)

Yousaf Jamal Mahsood FCPS.,FRCS1 Mahmood Ali FRCS, FCPS2, Saima Farooq MBBS3., Prof. Farah Akhtar FCPS4

ABSTRACT
Purpose: To determine the outcomes of trabeculectomy surgery performed by a recently trained Fellow in glaucoma. It is a prospective descriptive study.
Methods: This study was conducted at Glaucoma clinic of Al-Shifa Trust Eye Hospital, Rawalpindi after approval of ethics committee from 1st Nov. 2015 to 30th June 2017. Patients booked for trabeculectomy with 5-Flurouracil (5FU), whether primary or repeat, were included. All patients were operated by the glaucoma fellows (GF) under supervision of the faculty. Primary outcome was the success rate of the surgery which was defined as intraocular pressure (IOP) ≤ 18 mmHg & > 5mmHg or IOP reduction ≥ 25% from baseline, with or without additional IOP lowering eye drops. Failure was defined as IOP > 21 mmHg, additional glaucoma surgery, surgical revision/bleb needling (more than twice) after at least two consecutive visits. Secondary outcome of the study was to evaluate the intraoperative, early postoperative (less than six weeks postoperatively) and late postoperative (six weeks or more postoperatively) complications related to the surgery.
Results: A total of 52 eyes of 49 patients were analyzed in the study. Mean follow-up time was 11.31 ± 1.69 months, 65.4% (32) were males and 53.8% (28) were the left eyes. Mean preoperative IOP lowered from 27.33 ± 10.15 to 16.98 ± 3.79 mmHg (p < 0.001) and mean number of IOP lowering medications dropped from 3.4 ± 0.82 to 0.37 ± 0.72 (p < 0.001). Kaplan-Meier analysis showed cumulative success rate of 80.8% at one year follow-up.
Conclusions: Trabeculectomy surgery by GF has good success rate at end of first year and have overall same complications rates as found in the literature.
Keywords: Glaucoma, Trabeculectomy, Fellow, Success.

INTRODUCTION
Glaucoma is the leading cause of irreversible blindness worldwide and it is estimated that about 80 million of world population will be affected with glaucoma by 2020.1 Early manifest glaucoma trial (EMGT) provided the evidence that lowering of intraocular pressure (IOP) is an effective treatment for glaucoma.2,3 Lowering of IOP can be achieved by medicines lasers and filtration surgeries. Trabeculectomy first introduced by Cairns4 and Koryllos5 has undergone modifications since then and is now considered to be the standard procedure for glaucoma.6

Trabeculectomy surgery has been studied extensively and compared with other techniques in literature.6,7 However, all these results are from experienced surgeons and results by a glaucoma expert. Till date, there is no data on the results of trabeculectomy when performed by a trainee glaucoma fellow (GF) during his/her fellowship in this sub-specialty in Pakistan. So, we decided to conduct a study in which we can determine the outcomes of GF performing trabeculectomies during his/her fellowship.

Trabeculectomy surgery by trainees (Glaucoma Fellows) had equally good success rate at end of the first year and had overall same complications rates as found in the literature.
METHODS

This was a prospective descriptive study in which all the patients who were booked for the trabeculectomy were performed by GF for GF were included. GF is a qualified ophthalmologist who were doing one year further training/fellowship in field of glaucoma. All the surgeries were performed by GF as a primary surgeon under supervision of the faculty/trainer. This study was approved by the research ethical committee of Al-Shifa Trust Eye Hospital, Rawalpindi and adhered to the tenets of declaration of Helsinki. The surgeries were performed by a GF from 1st November 2015 till 30th June 2016. The primary outcome was the success rate of trabeculectomy and was defined as: IOP ≤ 18 mmHg & > 5mmHg or IOP reduction ≥25% from baseline with or without additional eye drops. Additional definition of failure was: IOP > 21 mmHg on at least two consecutive visits, additional glaucoma surgery or surgical revision/bleb needling (more than twice). The secondary outcomes were all the intraoperative, early postoperative and late postoperative complications.

All surgeries were undertaken by the GF under supervision of the faculty MA or FA. The type of conjunctival incision i.e. Limbal based conjunctival flap (LBCF) or Fornix based conjunctival flap (FBCF) was left to the discretion of GF. Peribulbar local anesthesia was administered, a 7/0 vicryl corneal traction suture was applied and superior approach was used in all cases. For LBCF, conjunctival incision was given 6-8mm posterior to the limbus and underlying sclera was exposed with blunt dissection up to limbus. For FBCF, incision was given at the limbus and extended for 4-5mm and blunt dissection was carried out with Westcott scissors posteriorly for 8-10mm. A rectangular half thickness scleral flap 3x3mm was made in all cases and then 5 pledges of uniform size soaked with 5-Flurouracil (5FU) 50mg/ml were applied under conjunctiva and above and below the scleral flap. After 5 minutes of 5FU application, the pledges were removed and the area was washed with 30 ml of Balanced Electrolyte Solution (BES).

A sclerostomy was made with 15 degree sharp knife, peripheral iridectomy (PI) was performed and scleral flap was sutured with four 10/0 nylon (2 interrupted fixed and 2 with sliding knots) in all cases. Conjunctiva was closed in two layers for LBCF and in single layer for FBCF. Anterior chamber (AC) was formed with BES through paracentesis incision at the completion of surgery and any leakage or shallowing of AC was noted. During surgery a record of all intraoperative complications was made like corneal traction related, conjunctival, scleral flap, sclerostomy, PI or any leakage and the faculty was around to deal all these complications on table. Patients were seen on first postoperative day, 10th day, 1st month, 3rd month, 6th month and 12th month. The patients’ IOP, Visual acuity, anterior & posterior segment examination were recorded at each visit and early (less than 6 weeks) as well as late (6 weeks or more) postoperative complications were recorded and the action taken was documented. The frequency of postoperative visits was tailored according to the IOP of every patient, in some cases the patients had to come more frequently for IOP check. Six monthly standard automated perimetry and optical coherence tomography (OCT) for nerve fiber analysis were also carried out in these patients.

Statistical analysis was done by using IBM SPSS Statistics version 24. Kaplan-Meier survival analysis was used to calculate the survival rates at one year. Log rank survival analysis was used to compare the survival rates of LBCF versus FBCF. Differences between IOP as well as number of IOP lowering medications preoperatively versus IOP and number of IOP lowering medications at final visit were analyzed using paired t test and a p < 0.05 was considered significant. Frequencies of all surgical complications, indications of surgery and diagnoses were also calculated.

RESULTS

A total of 53 eyes of 50 patients were included but one patient lost to follow-up and couldn’t be contacted, leaving 52 eyes of 49 patients for the analysis. Table I & II show the demographics of the patients. Male, left eye, primary open angle glaucoma (POAG) and LBCF were the most common findings. Mean age of patients were 54.42 ± 12.94 years and mean follow-up was 11.31 ± 11.69 months. Average duration of surgery was 45 ± 9 minutes and mean number of intraoperative complications were 0.65 ± 0.81 (Table II). Mean preoperative IOP lowered from 27.33 ± 10.15 to 16.98 ± 3.79 mmHg (p < 0.001) and mean number of IOP lowering medications dropped from 3.4 ± 0.82 to 0.37 ± 0.72 (p < 0.001) as shown in table III. Uncontrolled IOP was the most common indication for the surgery (figure 1). Table IV is the intraoperative complications encountered by the GF which shows that conjunctival buttonhole and hyphema were the most common complications 13.5% (7). Table V represents the early and late postoperative complications during the follow-up of the patients which shows that hyphema 17.3% and cataract 7.7% were the commonest early and late postoperative complications respectively.

Kaplan-Meier survival analysis (figure 2) showed overall cumulative success rate of 80.8% at one year follow-up. Log Rank (Mantel-Cox) survival analysis (figure 3) was used to compare the survival rates of LBCF (84.4%) versus FBCF (75%) which was statistically significant.
### Table I: Demographics of the patients.

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<tr>
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<th>Frequency (n)</th>
<th>Percent</th>
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\( n = \) number of patients

### Table II: Characteristics of patients

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<td>3.40</td>
<td>0.82</td>
</tr>
<tr>
<td><strong>Final medications</strong></td>
<td>0</td>
<td>3</td>
<td>0.37</td>
<td>0.71</td>
</tr>
</tbody>
</table>

IOP= Intraocular Pressure, S.D. = Standard deviation.

### Table III: Difference between preoperative and final visit IOP & medications

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>S.D.</th>
<th>Mean</th>
<th>S.D.</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preoperative IOP</strong></td>
<td>27.33</td>
<td>10.153</td>
<td>Final IOP</td>
<td>16.98</td>
<td>3.79</td>
</tr>
<tr>
<td><strong>Preoperative medications</strong></td>
<td>3.40</td>
<td>0.823</td>
<td>Final medications</td>
<td>0.37</td>
<td>0.71</td>
</tr>
</tbody>
</table>

IOP= Intraocular pressure, S.D. = Standard Deviation

Paired t test was used.
Figure 1: Indications for trabeculectomy in our group.

Table IV: Intraoperative Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Frequency (n)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornea Cheese wiring</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td>Conjunctiva Buttonhole</td>
<td>7</td>
<td>13.5</td>
</tr>
<tr>
<td>Conjunctiva Bleeding</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Scleral Flap Irregular Flap</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Scleral Flap Flap Avulsion</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Scleral Flap Premature Entry</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Scleral Flap Irregular</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Anterior Chamber Hyphema</td>
<td>7</td>
<td>13.5</td>
</tr>
<tr>
<td>Peripheral Iridectomy Broad Iridectomy</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Peripheral Iridectomy Irregular</td>
<td>3</td>
<td>5.8</td>
</tr>
</tbody>
</table>

n= Number of cases

Table V: Early and Late Postoperative Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Frequency (n)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Hyphema</td>
<td>9</td>
<td>17.3</td>
</tr>
<tr>
<td>Early Shallow AC</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>Early Malignant Glaucoma</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Early Hypotony Maculopathy</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Early Choroidal Detachment</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Early Iris Incarceration</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Early DM folds</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>Early Tenon Cyst</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Early Bleb Leak</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Late Hypotony</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Late Cataract</td>
<td>4</td>
<td>7.7</td>
</tr>
</tbody>
</table>

n= Number of cases, AC= Anterior Chamber  significant (p = 0.382).
DISCUSSION

In this study we have demonstrated results of trabeculectomy with 5FU performed by a glaucoma fellow (GF) in training. There are few studies found in literature which describes the outcomes of trabeculectomy by residents but these studies were done in United States and United Kingdom. This study is unique in a way that it is the first one which describes one year results of trabeculectomy performed by a GF in Pakistan. This study also allows us to compare the results with the well-known established results of experienced surgeons performing the same surgery.

We achieved 80.8% success at first year which is similar to results found in literature. Chan et al reported a success rate of 84% by residents performed trabeculectomy in their study, however their liberal definition of success of final IOP < 21 mmHg and > 5 mmHg may have resulted in higher success rate. Although in our study, LBCF appeared to have higher success rate as compared to FBCF but that was statistically not significant. Our mean final IOP, 16.98 ± 3.79 mmHg, was little on higher side while other studies in literature have mean IOP in range of 10.5 – 15 mmHg. One reason for this difference could be that these studies have used Mitomycin C (MMC) instead of 5FU which is weaker antifibrotic agent. Other reason can be laser suture lysis in early postoperative period while we used sliding knots during scleral flap suturing.

The most common intraocular complications were conjunctival buttonhole 13.5% and hyphema 13.5%. Collaborative initial glaucoma treatment study (CIGTS) and tube versus trabeculectomy study (TVT) have reported 1% and 3% conjunctival buttonhole during trabeculectomy respectively. CIGTS also showed rate of intraoperative hyphema in 8% of their cases, which were lower than our findings. As dealing with conjunctiva, it was the most delicate step of this surgery and everybody has to pass through this learning curve, and so does our GF too. However, all the buttonholes were secured on the table and no leakage was noted at the completion of surgery. Hyphema 17.3% was the most common early postoperative complication which is same as previously reported by Chan et al.

Cataract requiring surgery within the study period was 7.7% in our case which is reported to be 43% by Gedde et al in five years after trabeculectomy. The vision threatening complications like hypotony maculopathy 3.8% and choroidal detachment 1.9% were rare in our series as compared to the published data. These eyes resolved completely with conservative management without any long-term effects. Bleb failure (specifically tenon cyst) was 9.6% in our study while reporting rates were 0% - 29% in literature. We did needling with 5FU in these 5 cases, 2 received needling twice and 3 only once. We got only 1.9% of bleb leak while it is reported from 0% - 24% in literature, this case required conjunctival auto-grafting from the same eye and there was no leakage at the final visit. One of our case got rebound uveitis after stopping steroids which was managed conservatively. We had no cases of blebitis or endophthalmitis in our study, these complications usually occur late and our shorter follow-up may be the limiting factor.

Our study adds to the existing knowledge about the results of trabeculectomy surgery when performed by a GF as a primary surgeon. It also highlights that conjunctival buttonhole formation can be encountered more frequently during early learning curve of the surgery. Fellows learning the surgery should handle the conjunctival dissection with great care and hence avoid these complications. The limitations of our study are of shorter duration of follow-up and no direct comparison with experienced surgeons. In future we recommend planning a study which can compare the results of fellows with the experienced surgeons.

CONCLUSION

Trabeculectomy surgery by glaucoma fellows in training under supervision is safe with encouraging results.

REFERENCES

11. Mutsch YA, Grehn F. Success criteria and success rates in trabeculectomy with and without intraoperative antimetabolites using intensified postoperative care (IPC). Graefe’s archive for clinical
Trabeculectomy Surgery by GlaucomaTrainee Fellows at a Tertiary Care Hospital (Results of one year study)


********************************************************CATS SMALL POX VIRUS INFECTION*********************************************************

An 11-year-old girl presented an ulcerated lesion on her cheek for 3-week, unresponsive to a course of antibiotics. PCR testing of a swab specimen from the lesion was positive for orthopoxvirus DNA and cowpox virus-specific oligonucleotides. Exposure to animal like cows, sheep, chickens, rabbits ad cats is the likely route of transmission. Cowpox virus infection in cats is a rare zoonotic disease that can infect cats and can transmit to humans. While there is no specific treatment, healing of this patient’s lesion which was facilitated by surgical removal of the necrotic lesion. (Curtsey: NEJM-UK)
To compare Oral Tranexamic Acid with Conventional Treatment and Prevention of Secondary Hemorrhage in Traumatic Hyphema.

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Department of Clinical Ophthalmology, Khyber Institute of Ophthalmic Medical Sciences;
Post Graduate Medical Institute, Hayatabad Medical Complex, Peshawar

ABSTRACT.
Background: Trauma to the eye may result in various injuries including presence of blood in the anterior chamber without perforation of the eye. Closed-globe traumatic hyphema may cause diverse complications including associated traumatic uveitis which generally accompanies the initiating trauma, secondary hemorrhage, corneal blood staining, synechiae formation, and ocular hypertension /secondary glaucoma. Over 90% of injuries occurred in the home setting, with the most common mechanisms of injury being general play, projectiles from guns, and sports injuries occurring during games or practice. Traumatic hyphema is commonly associated with damage to the anterior chamber angle, and the pathological changes seen have been linked with the development of chronic secondary glaucoma.

Objective: To compare oral tranexamic acid with conventional treatment in prevention of secondary hemorrhage in traumatic hyphema.

Materials and Methods: The study was conducted at the Department of Clinical Ophthalmology, Khyber Institute of Ophthalmic Medical Sciences; Post Graduate Medical Institute, Hayatabad Medical Complex, Peshawar from 25/02/2015 to 28/02/2016. It was a randomized controlled study.

Results: Efficacy among two groups was analyzed in terms of secondary hemorrhage as conventional treatment in Group A and conventional treatment plus oral tranexamic acid in Group B. In Group A, it was effective (no secondary hemorrhage) in 72 (74.22%) patients and was not effective (secondary hemorrhage) in 25 (25.77%) patients. Whereas in Group B where conventional treatment plus oral tranexamic acid was used, it was effective (no secondary hemorrhage) in 88 (90.72%) patients and was not effective (secondary hemorrhage) in 9 (9.27%) patients.

Conclusions: Our study concludes that oral tranexamic acid is more effective as compared to conventional treatment in prevention of secondary hemorrhage in traumatic hyphema.

Keywords: Traumatic hyphema, Secondary hemorrhage, tranexamic acid

INTRODUCTION
Hyphema is defined as a collection of blood in the anterior chamber. The severity of hyphema can vary from diffuse red blood cells circulating in the aqueous humor to a hemorrhage that fills the entire anterior chamber. Most often hyphema is caused by trauma or intraocular surgery, but may also occur spontaneously in patients with ruberosis iridis, vascular tufts at the pupillary margin, juvenile xanthogranuloma, iris melanoma, myotonic dystrophy, keratouveitis, leukemia, hemophilia, thrombocytopenia or Von Willebrand disease. Hyphema may also be associated with drugs that alter platelet or thrombin function, such as aspirin or warfarin. The mean annual incidence of hyphema from all causes is approximately 17 per 100,000. The majority of hyphemas occur more in males (75%-78%) with a median age of 15.5 to 18.2 years.

A study of 238 patients with traumatic hyphema showed that the leading cause of trauma was projectile stones, and the majority of the trauma occurred as a result of street violence (43%) and accidents in the home (33%). In children, siblings and friends were responsible for most of the trauma, and in adults the main cause of trauma was accidents.

Oral tranexamic acid is more effective as compared to conventional treatment in prevention of secondary hemorrhage in traumatic hyphema.

Another significant source of injury is sports, which accounted for 60% of traumatic hyphemas in a different study. High-risk sports in which the ball hits the eye include baseball, softball, basketball, soccer and paintball. The stick or racquet is more likely to be the source of injury in other high risk sports such as hockey, racquet ball and squash.

Traumatic hyphema is more common condition especially in pediatric age group, who are least
Concerned about their vision. It can lead to dreadful complications like secondary glaucoma which can lead to optic atrophy and corneal staining which takes years to get cleared and meanwhile amblyopia can also occur. These all complications speed up in the presence of secondary hemorrhage. Ulagantheran et al observed during the hospital stay that secondary haemorrhage was in 3.4% of patients. If we prevent secondary hemorrhage then we can stop these complications and the only easily available modality in our country is oral tranexamic acid.

Although evidence is limited, it appears that patients with traumatic hyphema who receive aminocaproic acid or tranexamic acid are less likely to experience secondary hemorrhage. However, hyphema in patients on aminocaproic acid takes longer to clear. Other than the possible benefits of antifibrinolytic usage to reduce the rate of secondary hemorrhage, the decision to use corticosteroids, cycloplegics, or non-drug interventions (such as binocular patching, bed rest, or head elevation) should remain individualized because no solid scientific evidence supports a benefit.

According to Jack J. Kanski, systemic antifibrinolytics (aminocaproic acid or tranexamic acid) is rarely given; topical aminocaproic acid shows promising results but both remain investigational at present and requires clinical trials. Different studies have been done on traumatic hyphema but they only involve complications related to that. This study intends to evaluate the efficacy of oral tranexamic acid in prevention of secondary bleed by comparing it with conventional treatment, so that we have an overview of secondary bleed in patients taking oral tranexamic acid. Patient presenting with decreased vision (due to primary hemorrhage) following blunt trauma and having blood in the anterior chamber of the eye appearing as red colored pool of blood anterior to the iris on slit lamp examination. Patients with sudden deterioration of vision after improvement due to appearance of fresh blood (secondary hemorrhage) in the eye after the initial trauma observed as increase in the level of hyphema in millimeters compared to the level at the baseline (time of presentation) on slit lamp examination. Hypothesis: The occurrence of secondary hemorrhage is less common in patients taking oral tranexamic acid than in those using the conventional treatment.

Materials and Methods:

The study was conducted at the Department of Clinical Ophthalmology, Khyber Institute of Ophthalmic Medical Sciences, Post Graduate Medical Institute, Hayatabad Medical Complex, Peshawar from 25/02/2015 to 28/02/2016. It was a randomized controlled trial as non-probability consecutive sampling, using WHO calculator, proportion of secondary hemorrhage in conventional treatment group - 26%, proportion of secondary hemorrhage in oral tranexamic acid group - 10%, power of test - 90% and keeping level of significance 5%, the sample size was 97 patients in each group. Total sample size was 194. Inclusion criteria: All those patients having hyphema secondary to blunt trauma presenting within first 24 hours. Patients of both gender and age 18-60 years. Exclusion criteria: Patients having open globe injury (penetrating or perforating). Patient having blood coagulopathies and bleeding disorders, and with complicated close globe injury (iridodialysis, cataract, eyelids edema and conjunctival chemosis etc.). Patrion already on anticoagulants for any co-morbid condition and cerebrovascular diseases. The above mentioned conditions act as confounders and if included will introduce bias in the study results.

Approval was obtained from hospital ethical committee before starting the study. All patients meeting the inclusion criteria were included in the study through OPD and emergency and were admitted in the eye unit for further evaluation. The diagnosis of hyphema was made and then measured in millimeters on slit lamp examination. Two groups were made.

Group A - patients given the conventional treatment. Group B = patients given the conventional treatment plus oral tranexamic acid. First patient was randomly allocated to a group by lottery method and subsequent patients were alternatively assigned to groups by systematic sampling. The conventional treatment for traumatic hyphema was strict bed rest, upright posture, cycloplegics like cyclopenturate eye drops, mild analgesics like acetaminophen, topical steroids like Maxidex eye drops, and pressure lowering drugs if needed.

The group B was given the conventional treatment plus oral tranexamic acid 25 mg/kg body weight in 3 divided doses up to maximum of 1500 mg/day for 5 days. The secondary hemorrhage was diagnosed on the presence of any increase in the level of hyphema in millimeters on slit lamp examination compared to the reading at the time of presentation. All the patients were followed up daily for 4 days and then on 8th and 14th day. The purpose and benefits of the study was explained to the patients and a written informed consent was obtained. All the patients were worked up with complete history, clinical examination including detailed ophthalmological examination followed by routine investigations to rule out confounders and bias in the study results.

Data was analyzed using SPSS version 20. Frequency and percentages were calculated for categorical variables like sex, secondary hemorrhage. Mean ± S.D. was calculated for continuous variables like age. Chi-squared test was applied to compare one variable (sec-
To compare Oral Tranexamic Acid with Conventional Treatment and Prevention of Secondary Hemorrhage in Traumatic Hyphema.

Secondary hemorrhage) between the two groups which are Group A (conventional treatment) and Group B (conventional plus oral tranexamic acid). Secondary hemorrhage was stratified among sex, age to see the effect modifiers. Results were presented as tables and charts/graphs.

TABLE: Efficacy (N=194)

<table>
<thead>
<tr>
<th>Secondary hemorrhage</th>
<th>GROUP A N=97</th>
<th>GROUP B N=97</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (Effective)</td>
<td>72 (74.22 % )</td>
<td>88 (90.72% )</td>
</tr>
<tr>
<td>Yes (Not Effective)</td>
<td>25 (25.77%)</td>
<td>09 (9.27%)</td>
</tr>
<tr>
<td>Total</td>
<td>97 (100%)</td>
<td>97 (100%)</td>
</tr>
</tbody>
</table>

Group A: Patients given the conventional treatment.
Group B: Patients given the conventional treatment plus oral tranexamic acid.

Comparative assessment secondary hemorrhage between group A and group B (n=194)

Group A: Patients given the conventional treatment.
Group B: Patients given the conventional treatment plus oral tranexamic acid.

RESULTS

This study was conducted at Department of Clinical Ophthalmology, Khyber Institute of Ophthalmic Medical Sciences, Hayatabad Medical Complex, Peshawar in which a total of 194 patients were observed by dividing them in two equal groups; Group A = patients given the conventional treatment and Group B = patients given the conventional treatment plus oral tranexamic acid to compare effectiveness of oral tranexamic acid with conventional treatment in prevention of secondary hemorrhage in traumatic hyphema and the results were analyzed as:

Age distribution among two groups was analyzed as in Group A (conventional treatment) 52 (53.60%) patients were in age range 18-30 years, 24 (24.74%) patients were in age range 31-40 years, 11 (11.34%) patients were in age range 41-50 years and 10 (10.30%) patients were in age range 51-60. Mean ±SD for age in Group A was 35.12±9.25. Whereas in Group B (conventional plus oral tranexamic acid), 52 (53.60%) patients were in age range 18-30 years, 24 (24.74%) patients were in age range 31-40 years, 11 (11.34%) patients were in age range 41-50 years and 10 (10.30%) patients were in age range 51-60. Mean ±SD for age was 34.27±9.88.

Gender distribution among two groups was analyzed as in Group A, 79 (80.41%) patients were male and 18 (18.55%) patients were female. Whereas in Group B, 78 (81.44%) patients were male and 19 (19.58%) patients were female. Efficacy among two groups was analyzed in terms of secondary hemorrhage as conventional treatment in Group A and conventional treatment plus oral tranexamic acid in Group B. In Group A, it was effective (No Secondary Hemorrhage) in 72 (74.22 %) patients and was not effective (Secondary Hemorrhage) in 25 (25.77%) patients. Whereas in Group B where conventional treatment plus oral tranexamic acid was used, it was effective (no secondary hemorrhage) in 88 (90.72%) patients and was not effective (secondary hemorrhage) in 09 (9.27%) patients.

DISCUSSION

Trauma to the eye may result in various injuries including presence of blood in the anterior chamber without perforation of the eye. Closed-globe traumatic hyphema may cause diverse complications including associated traumatic uveitis which generally accompanies the initiating trauma, secondary hemorrhage, corneal blood staining, synechiae formation, and ocular hypertension/secondary glaucoma. Over 90% of injuries occurred in the home setting, with the most common mechanisms of injury being general play, projectiles from guns, and sports injuries occurring during games or practice. Traumatic hyphaema is commonly associated with damage to the anterior chamber angle, and the pathological changes seen have been linked with the development of chronic secondary glaucoma.

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To compare Oral Tranexamic Acid with Conventional Treatment and Prevention of Secondary Hemorrhage in Traumatic Hyphema.

Peshawar. In which a total of 194 patients were observed by dividing them in two equal groups Group A = patients given the conventional treatment. Group B = patients given the conventional treatment plus oral tranexamic acid to compare effectiveness of oral tranexamic acid with conventional treatment in prevention of secondary hemorrhage in traumatic hyphema and the results were analyzed as:

In our study, age distribution among two groups was analyzed as in Group A (conventional treatment) 52 (53.60%) patients were in age range 18-30 years, 24 (24.74%) patients were in age range 31-40 years, 11 (11.34%) patients were in age range 41-50 years and 10 (10.30%) patients were in age range 51-60. Mean ±SD for age in Group A was 35.12±9.25. Whereas in Group B (conventional plus oral tranexamic acid), 52 (53.60%) patients were in age range 18-30 years, 24 (24.74%) patients were in age range 31-40 years, 11 (11.34%) patients were in age range 41-50 years and 10 (10.30%) patients were in age range 51-60. Mean ±SD for age was 34.27±9.88.

Gender distribution among two groups was analyzed as in Group A, 79 (80.41 %) patients were male and 18 (18.55 %) patients were female. Whereas in Group B, 78 (81.44 %) patients were male and 19 (19.58 %) patients were female, which is comparable to the study done by Rahmani B et al.

Efficacy among two groups was analyzed as conventional treatment in Group A was effective in 72 (74.22 %) patients and was not effective in 25 (25.77 %) patients. Whereas in Group B where conventional treatment plus oral tranexamic acid was used, it was effective in 88 (90.72 %) patients and was not effective in 09 (9.27 %) patients.

Gharaibeh et al also found that tranexamic acid had a significant effect in reducing the rate of secondary hemorrhage, as did aminomethylbenzoic acid. Our results are comparable to that of Jahadi Hussaini et al where they studied three groups and compared them, one was given placebo, second was given topical tranexamic acid and the third was given oral tranexamic acid. There was 26% secondary hemorrhage in the placebo group (efficacy 74%), 3.3% in the topical tranexamic acid group (efficacy 96.7%) and 10% in the oral tranexamic acid group (efficacy 90%). The difference between the placebo and topical tranexamic acid group was statistically significant (P=0.008) but there was no statistically significant difference between topical and oral tranexamic acid (P=0.25).

CONCLUSION

Our study concludes that oral tranexamic acid is more effective as compared to conventional treatment in prevention of secondary hemorrhage in traumatic hyphema.

REFERENCES

The Impact of Assisting Devices Used in Disability & Anxiety States Amongst Older Adults

Ali Hassan Raza MBBS1, Muhammad Shahzeb MBBS2 Waqas Ali MBBS3

ABSTRACT:
Aims: To get to know about assisting low vision devices and its impact on adults’ mental health.
Methods: A cross sectional study was done. We interviewed older adults (n = 200) with a recent vision impairment devices applying for visual rehabilitation both pre and post-services at the 6-months follow-up. In order to identify their direct effects, we entered optical and assisting devices use into the final step, preceded by Time 1 criterion scores, demographics, baseline disability or depression (depending on criterion), and total rehabilitation service hours. While time 2 is follow up after assisting devices use.
Results: Optical, but not assisting devices used was significantly associated with declines in functional disability and depression over time. Among 200 participants 74.5% suffered from depression while using optical devices.
Conclusion: We concluded that these differential effects result from the fact that optical devices optimize residual vision and thus allow for greater continuity in the way tasks are accomplished (i.e., reading still performed visually), whereas use of assisting aids (e.g., talking books) involves learning new methods in order to compensate for lost functions and this is not as desirable either functionally or psychologically.
Keywords: Disability, Depression, Optical devices, assisting devices, functional disability

INTRODUCTION:
Low vision is a condition caused by eye diseases, in which visual acuity is 20/70 or poorer in the better-seeing eye and cannot be corrected or improved with regular eyeglasses. [1]
Visual impairment, typically resulting from age-related eye disease (e.g., macular degeneration) is one of the most common disabilities of later life. It affects approximately 15% to 20% of adults aged 65 and older and more than one fourth of those aged 75 and older [2]. Most of these older people are not totally blind but retain partially sighted or low vision, defined as a permanent vision impairment that is not correctable by refraction or medical–surgical interventions [3]. A growing body of evidence points to vision impairment as a major cause of functional disability and future decline among older adults [4]. Age-related vision loss is also a major risk factor for depression [5] and approximately one third of them experience significant depressive symptoms [6].

Despite the prevalence of age-related vision loss and its negative consequences, research on assisting technology for older adults has paid little attention to such devices helping functional and psychological outcomes which may be useful to assist with normal activities of daily living. (ADLs). [8]

A computer mouse is an example of an optical device that uses optical technology. It uses a light-emitting diode and photodiodes to determine the direction a mouse is moving across a surface. Optical storage devices use optical technology to save and retrieve data on discs, like a Blu-ray, CD, DVD. [9] Assisting technology helps students who are visually impaired (with and without additional disabilities) increase their access to improve their academic performance. It is important to consider what devices, tools and technologies will be appropriate to meet the student’s individual and necessary learning needs provide them with the independence. [10] The objective of this study is to produce impact on mental health.

Differential effects resulting from optical devices, optimize residual vision and allowing greater accessibility to accomplish their task (i.e., reading skills etc.) whereas use of adaptive aids (e.g., talking books) involves learning new methods to compensate for lost functions will not help functionally or psychologically.

MATERIAL AND METHOD:
A retrospective study was conducted and sampling was collected through convenient based sampling. 200 participants were included in this study. Data was collected between 16 July 2016-12 April’ 2017. We recruited participants of aged 70 and older (n = 200).
Additional eligibility criteria included: functional onset of the vision problem within the past 10 years; English speaking; sufficiently hearing and cognitively intact to participate in a 2-hour, in-person interview without any vision rehabilitation services.

The latter criterion ensured that the devices used at the 6-month follow-up have received training as part of the rehabilitation program. Participants read and signed an informed consent that had been approved by the organization’s Institutional Review Board. We collected data at baseline prior to service utilization and 6 months following baseline. Interviews were conducted in participants’ homes and took approximately 2 hours to complete. SPSS version 20 was used to analyze this data.

**RESULTS:**

200 participants were included in this study. In which almost all participants (89%) were using at least one optical device at the 6-month follow-up, with a range of 0–4 devices and a mean of 1.2 devices per individual. The present study used a longitudinal design that used multivariate analysis in order to examine the relationships between Time 1 (baseline) and Time 2 (follow-up) independent covariates and Time 2 dependent variables. We conducted descriptive analysis on the number and type of optical devices and assisting aids used at Time 2.

**Table1.** Number and types of Optical and assisting devices use

<table>
<thead>
<tr>
<th>Aid</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical aid</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use at least one optical device</td>
<td>155</td>
<td>78</td>
</tr>
<tr>
<td>Magnifier</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Telescope</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>Special sunglasses</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Other optical aids</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td><strong>Assisting aid</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use at least one optical device</td>
<td>122</td>
<td>61</td>
</tr>
<tr>
<td>Telephone aid</td>
<td>76</td>
<td>38</td>
</tr>
<tr>
<td>Handwriting aid</td>
<td>47</td>
<td>22</td>
</tr>
</tbody>
</table>

**Table 2 Relationship of baseline optical and assisting devices use (TIME 1) and follow up after use of optical and assisting devices (TIME 2)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>Δ Δ R²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td>.679</td>
</tr>
<tr>
<td>Time 1 disability</td>
<td>.731</td>
<td>.035</td>
<td>.793</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td>.022</td>
<td>.032</td>
<td>.018</td>
<td></td>
</tr>
<tr>
<td>Gender (female)</td>
<td>.182</td>
<td>.458</td>
<td>.012</td>
<td></td>
</tr>
<tr>
<td>Race (non-Hispanic white)</td>
<td>.459</td>
<td>.701</td>
<td>.018</td>
<td></td>
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<tr>
<td>Education</td>
<td>−.035</td>
<td>.135</td>
<td>−.006</td>
<td></td>
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<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>Time 1 depression</td>
<td>.016</td>
<td>.022</td>
<td>.022</td>
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<tr>
<td><strong>Step 4</strong></td>
<td></td>
<td></td>
<td></td>
<td>.000</td>
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<tr>
<td>Total number of service hours</td>
<td>−.013</td>
<td>.031</td>
<td>−.013</td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation:** A slightly smaller percentage (76.5%) but still a considerable majority were using at least one adaptive device at the 6-month follow-up, with a range of 0–5 devices, and a mean of 1.4 devices per participant.
The Impact of Assisting Devices Used in Disability & Anxiety States Amongst Older Adults

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>Δ R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 2 number of optical aids</td>
<td>-.760</td>
<td>.291</td>
<td>-.079</td>
<td></td>
</tr>
<tr>
<td>Time 2 number of assisting aids</td>
<td>.137</td>
<td>.164</td>
<td>.026</td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation:** Time 1 disability explained much of the variance in Time 2 disability. After accounting for Time 1 disability, neither socio-demographic variables nor total number of rehabilitation service hours predicted change in disability at the 6-month follow-up. It is especially notable that greater depressive symptoms at baseline was not associated with increased disability over time. However, the use of optical devices was associated with a decline in disability at the 6-month follow-up, whereas adaptive aid was not used. Results were relatively similar when we examined the regression for change in depression. After controlling for baseline depression, socio-demographic and rehabilitation service use variables were not significant predictors of change in depressive symptoms. Again, use of optical devices was associated with a decline in depression over time, but there was no such significant relationship for adaptive devices.

**DISCUSSION:**

The result shows that optical, but not assisting device use was significantly associated with declines in functional disability and depression over time. Among 200 participants 74.5% suffered from depression while using optical devices. A study was conducted in USA by Horovitz, A, 2005 according to this, optical, but not adaptive, device use was significantly associated with declines in functional disability and depressive symptoms over time. We propose that these differential effects result from the fact that optical devices optimize residual vision and thus allow for greater continuity in the way tasks are accomplished (i.e., reading still performed visually), whereas use of adaptive aids (e.g., talking books) involves learning new methods in order to compensate for lost functions and thus are not as desirable either functionally or psychologically.

Another study was conducted in England by Joann, P according to this seven percent of respondents had a major depression, and 26.9% met the criteria for a sub threshold depression. Poorer self-rated health, lower perceived adequacy of social support, decreased feelings of self-efficacy, and a past history of depression increased the odds of both sub threshold and major depression, versus no depression, but greater functional disability and experiencing a negative life event were significant only for a sub threshold depression. Only a history of past depression was significant in increasing the odds of having a major versus a sub threshold depression.
Another study was conducted in Switzerland by Nancy, G observed to that The combined therapy group had a greater increase in rating of mood from pre intervention to post intervention, and the RTP-only group had a greater increase in rating of social participation from pre intervention to follow-up. Both groups had statistically significant improvement in activities of daily living and instrumental activities of daily living scores from pre intervention to post intervention. Both groups reported significant improvement in hand function post intervention and at follow-up, and the magnitude of these changes suggested clinical significance. The combined therapy group had significant improvements in stroke recovery rating post intervention and at follow-up, which appeared clinically significant; this also was true for stroke recovery rating from pre intervention to follow-up in the RTP-only group.

A study was conducted in Colombia by Anabella,C,2011 in which the participants’ profiles revealed moderate limitation and restrictions in participation, measured by the APPM (2.03). Most participants displayed a positive impact from AT; average scores obtained from the P-PIADS subscales were: Self-esteem 0.62, Competency 1.11 and Adaptability 1.10. The P-PIADS total was 0.96, with the powered wheelchair users scoring the highest (1.53) and the walker users scoring the lowest (0.73). All subscales and the P-PIADS total were positively correlated with the activities and participation profile. There was no relation between age and the psychosocial impact of AT or activities and participation profile. These results encourage the authors to follow up with these participants for a lifelong intervention. To accomplish that aim, currently, the protocol is implemented at the AT prescribing centers in Columbia, Portugal in order to assess the impact of AT on participation in society, one of the domains of the Active Ageing Index, a new analytical tool to help policy makers in developing policies for active and healthy ageing

CONCLUSION:
We concluded that these differential effects result from the fact that optical devices optimize residual vision and thus allow for greater continuity in the way tasks are accomplished (i.e., reading still performed visually), whereas use of adaptive aids (e.g., talking books) involves learning new methods in order to compensate for lost functions and thus is not as desirable either functionally or psychologically.

REFERENCES:
ABSTRACT
Background: Pulmonary tuberculosis is a common infection worldwide. People having low socioeconomic status are mostly suffering from this disease.
Objective: To determine the frequency of sputum positive or negative cases of tuberculosis in the hospital.
Methods: A retrospective study was done. In which 200 patients of smear +ve and smear –ve have been included for study from July to September 2015. Frequency of sputum smear positive or negative were diagnosed by acid fast bacilli and direct microscopy in laboratory.
Results: The result showed that out of 200 patients, 70% were diagnosed as positive pulmonary TB cases and 20% diagnosed as extra pulmonary TB. In pulmonary TB 87% cases were presented with productive cough and also out of these cases 79% were positive sputum smear.
Conclusion: Pulmonary cases reported are comparatively high. Most cases that have cough were not in favor of Naso-gastric feeding tube (N/G ) aspiration of AFB smear so the cases were mostly diagnosed radiologically. It also concluded that frequency of positive sputum smear was high in pulmonary cases.

Key Words: Sputum smear, etiology, aspiration, pulmonary TB

INTRODUCTION:
Tuberculosis (TB) is a major cause of illness with approximately 2 billion patients all over the world and two million deaths. In 2010, it was estimated that there were 8.8 million cases of TB all over the world i.e., 128 cases per 100,000 population and approximately 12.0 million are existing cases of TB, that is 178 cases per 100,000 population.
In smear-positive pulmonary tuberculosis, bacteriological study is a superior method in following the response to treatment. Currently, the follow-ups are performed at the end of months 2, 4, and 6 via sputum smear study looking for acid-fast bacilli (AFB).
Since it is a droplet infection it can easily spread through coughing and sneezing of an untreated patient even after treating for 3 months, patient remains a source of cross-infection. In certain patients healing can be delayed due to poor health, extensive tubercular infection with lung cavities, uncontrolled diabetes or older people with poor medication which entails the importance of sputum smear—our main purpose of this study.
Tuberculosis control signifies to limit the spread of the infection and we can prevent it by making early diagnosis and taking preventive measures. So the purpose of this is study is get to know about sputum smear in TB patients.

Pulmonary cases reported are comparatively high, most of the cases have cough and were diagnosed radiologically. Frequency of positive sputum smear is high in pulmonary cases.

MATERIAL AND METHOD:
A retrospective study was conducted among the patients of pulmonary tuberculosis in Gulab Devi Hospital Lahore. Convenient sampling was taken and 200 patients were selected. Patients of smear +ve and –ve were included in this study from July to September 2015, were diagnosed by presence of acid fast bacilli through direct microscopy in lab.
Number of patients of grade 3+, 2+, 1+ and scanty sputum (SC) positivity at baseline, at the end of 1st and 2nd month were taken. Sputum samples were obtained by spontaneous morning expectoration, saline solution induction, tracheal aspiration, or bronchoscopy with BAL.
All patients had a medical chart with a hospital admission note, microbiology results, and chest radiograph interpretation by the radiologist. Physician, nurse, social worker, and medical student notes during the hospitalization were reviewed for complete data on each patient. Patients with a history of TB (pulmonary or extra-pulmonary) or those currently receiving anti-tuberculous therapies were excluded. Control pa-
patients could not have a diagnosis of TB made in the year following their index hospitalization. SPSS version 20 was used to analyze this data.

**RESULTS:**

The result showed that total 200 patients were included in the study. In which 59% were male and 41% were female. 70% patients were diagnosed as pulmonary TB, out of which 64% were male and 36% were female. 20% cases were diagnosed as extra pulmonary TB. In which males were 42% and 58% were female. In pulmonary TB 79% cases were sputum smear positive, 62% were male and 38% were female, and 28% cases were sputum smear negative were.

Cough was the most common symptom in both groups, although it was more frequent in SPPT (75%) than in SNPT (25%). The radiographic patterns typical of TB were the most common in both study groups. Patients with (sputum negative smear in Pul.TB) SNPT showed a pattern typical of TB, less frequently (44%) in comparison with patients with (sputum positive smear in Pul.TB) SPPT (47%). As expected, the median length of hospital stay was higher in SNPT patients (21 days) than in SPPT patients (16 days).

**TABLE 1. Frequency of pulmonary tuberculosis patients**

<table>
<thead>
<tr>
<th>PATIENT RECORD EXTRA PULMONARY TB</th>
<th>PULMONARY TB</th>
<th>CASES WITH SPUTUM</th>
<th>CASES WITHOUT SPUTUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCY OF AFFECTED PATIENTS</td>
<td>43</td>
<td>124</td>
<td>99</td>
</tr>
<tr>
<td>MALE PATIENTS</td>
<td>18</td>
<td>79</td>
<td>62</td>
</tr>
<tr>
<td>FEMALE PATIENTS</td>
<td>25</td>
<td>45</td>
<td>37</td>
</tr>
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</table>

**Table 2: Frequency of sputum smear**

<table>
<thead>
<tr>
<th>FREQUENCY OF AFFECTED PATIENTS</th>
<th>SMAR +VE</th>
<th>SMAR -VE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALE PATIENTS</td>
<td>79</td>
<td>28</td>
</tr>
<tr>
<td>FEMALE PATIENTS</td>
<td>52</td>
<td>18</td>
</tr>
</tbody>
</table>

Number of patients of grade 3+, 2+, 1+ & scanty(SC) sputum positivity at baseline, at the end of 1st and 2nd month

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>At 1st month</th>
<th>At 2nd month</th>
</tr>
</thead>
<tbody>
<tr>
<td>3+</td>
<td>40</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2+</td>
<td>20</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>1+</td>
<td>26</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>SC</td>
<td>11</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

**DISCUSSION:**

The result shows that out of total 200 patients 70% were diagnosed pulmonary TB, 20% diagnosed as extra pulmonary TB. In pulmonary TB, 87% cases were presented with productive cough and 79% were sputum smear positive.

Another study that was conducted in Nepal showed that 21 patients had high bronchial secretions negative. 39 patients had positive smear. Over all sputum smear was negative in pulmonary tuberculosis i.e., 83.33% (50/60). Bronchoscopy was the only diagnostic method in 66% cases (40/60) bronchial washings smear for AFB and histo-pathological evidence of caseating granuloma made immediate diagnosis possible in 48.33% (29/60) patients.

In this study, the presence of numerous bacilli on initial pretreatment sputum smears was also an independent predictor of positive sputum smears. The direct influence of initial bacillary load on the absence of sputum conversion at the end of two months of therapy has been reported by several authors.

One of the study in India shows that the mean age of patients was 45±10 years; 75.5% were male, 74.7% were single, 10.5% married, 7.8% divorced, and 68.1% were smokers. These patients suffered from chronic psychotic disorder at the mean time of 15±7.9 years. In 74 patients (28%) positive PPD test were recorded, but active pulmonary TB was not found in complementary experiments of PPD sample. Based on data analysis, only age and gender showed a significant relationship with the results of the PPD test (P<0.05).

In another study in Uganda total of 1266 individuals’ data were considered. The majority of this sample were male, 704 (55.6%), and lived in rural areas, 690 (54.5%). The overall prevalence rate of smear positive PTB was 21.6%. Age categories between 15–24 and 25–34 years were independent predictors of smear positive PTB with adjusted odds ratio of 2.246 [95% CI (1.098-4.597)] and 2.267 [95% CI (1.107-4.642)], respectively. Mostly males were affected by PTB than females with an adjusted odds ratio of 1.426 [95% CI (1.083-1.879)]. Data was collected through in depth interviews that shows that quality control measures for sputum smear microscopy were used; however, equipment function verification as a quality control measure.
was not accomplished regularly in all of the study in hospital laboratories.\[10\]

A study was conducted in India according to this total of 752 patients were registered as TB patients. Out of 579 (76.99%) were pulmonary and 173 (23%) were extra pulmonary tuberculosis. In pulmonary TB cases, 259 (44.78%) were sputum smear positive of whom 235 (90.73%) were category 1 and 24 (9.24%) were category 2. In 320 (55.26%) sputum smear negative patients, 300 (93.75%) were category 1 and 20 (6.25%) were category 2. All of the extra pulmonary TB cases (100%) were category 1.\[10\]

**CONCLUSION:**

Pulmonary cases of tuberculosis reported are comparatively high. Cases were mostly diagnosed radiologically. It also concluded that frequency of positive sputum smear was high in pulmonary cases.

**REFERENCES:**

10. Fareeda Jamshed 2. Waseem Ahmad Frequency of Category 1 and Category 2 Tuberculosis in District Kotli Azad Kashmir
Early Experience with Ponseti Technique in the Management of Congenital Idiopathic Talipes Equino Varus (CTEV) in Children less than 1 Year of Age

Abbas Ali FCPS¹, M. Ayaz Khan FCPS², Dr. Mian Amjed Ali PhD³, Faaiz Ali FCPS⁴

ABSTRACT
Objective: the objective of this study is to evaluate the early results of Ponseti Technique in the management of congenital idiopathic talipes equino varus.

Methods: This prospective study carried in the Department of Orthopedics and Trauma, Khyber Teaching Hospital, Peshawar from July 2012 to July 2013. Eighty (80) patients both male and female with 130 feet were included in this study. The children age is less than 1 year of age. Severity of foot deformity is determined using Pirani Score.

Results: Mean pirani score is 5.5. Mean numbers of casts are 7. TendoAchillies tenotomy was done in 118 feet. Minimum follow up is upto 10 months. Recurrence occurred in 3 patients, who are again treated with ponseti technique.

Conclusion: Ponseti Technique is the preferred treatment of choice for the management of congenital talipes equinovarus, and should be started as soon as possible after birth.

Key Words: Congenital Talipes equinovarus, Ponseti Technique

INTRODUCTION
CTEV is a complex deformity of the foot, it is one of the most common congenital deformity of the foot²³. The incidence is 1-2 per 1000 live births. It occurs more commonly in males than females. It may be unilateral or bilateral⁴. The deformity has four components, forefoot varus, adduction, cavus and equinus. Each of this deformity needs to be reduced¹. The aim of the treatment is to produce a painless plantigrade foot, which should be cosmetically and functionally acceptable¹⁵⁶.

The initial management of CTEV should be non-operative¹⁴⁵. In 1950, Ponseti devised a method of serial manipulation and casting for the management of CTEV³. The long-term results of patients treated with this technique are good and universally accepted¹. The deformities corrected are in a sequence of Cavus, adduction, varus and equinus. The Objective of this study is to evaluate the early results of CTEV treated with Ponseti method.

METHODS
This prospective study was conducted in the department of Orthopedics and trauma, Khyber Teaching hospital from July 2012- till July 2013. Inclusion criteria: patients from either gender with age less than 1 year, having CTEV without any other congenital anomaly like DDH, Arthrogryphosis etc.

Severity of foot deformity is calculated using Pirani score, on each visit. Above knee casts were applied on weekly basis. Per cutaneous Tendo Achillies tenotomy is done in patients to correct residual equinus. Dennis- Brown splints are applied from 3 months 22-23 hours a day, and then at sleep time. Patients were
followed for a minimum of 10 months.

RESULT

Collected Data was entered and analyzed using SPSS19. Mean age of the patients is 12 weeks (from birth-52 weeks). Out of 80 patients with 130 feet, 35 were bilateral and 45 were unilateral. 80% of children were full term. Males were 46 (57.5%) and females were 34 (42.5%). Mean Pirani score at initial presentation was 5.5 (4.5-6) and mean number of casts were 7(4-9). Per cutaneous TA tenotomy is done in 118 (91%) feet. After the last cast, Dennis-Brown splints were advised for 22-23 hours a day for 3 months and thereafter at sleep times for next 2 yrs. Minimum follow-up of the patients was 10 months. Recurrence occurred in 10(11%) patients, 9 were successfully treated with ponseti casting and required surgical procedures.

DISCUSSION

The goal of treatment of CTEV was to obtain a painless planti-grade foot with good mobility1,4,5,6. Previously, various techniques including both surgical and non-surgical treatment were advocated3, but now there was a general agreement that the initial management of CTEV should be non-operative1,4,7. The treatment should be started as soon as possible after birth. The ponseti technique is considered as the treatment of choice these days1,3.

In our Study the males were affected more than females, which has been shown by other studies as well1,4. The mean Pirani score is 5.5(4.5-6), which was consistent with other studies as well1,4,8. The mean number of casts needed to fully correct the deformity is 7(5-9), which is almost the same as other studies4. In our study TA tenotomy is required in 118 feet (91% cases), tenotomy was needed in 95% of Gupta’s9 patients and 91% of Dobb’s10 Patients which are almost similar.

Maintenance of bracing protocol is perhaps the most difficult part of Ponseti casting technique. Parent’s education and cooperation especially that of mother is very important in maintaining proper brace protocol. In One study the parents reported that the initial two or three days were very crucial, during which the patients were very restless and tried to remove the splint6. We used proper Dennis-Brown splint for our patients, which were applied after the final cast. The splint maintained 70-degree abduction and 10-15 degree dorsiflexion of the foot. These were applied for 22-23 hours a day for initial 3 months and later on during sleep time for 2 years. No other special shoes were given to the walking children.

Recurrence of the deformity in our study is 11% (10 patients), all of them who presented within 6 months of the last cast. They were treated again with Ponseti technique. 9 patients were successfully treated with Ponseti Technique, although the number of casts needed to correct the deformity was more (mean number of casts=10) as compared to other children (mean number of casts =7), only 5 patients required PMR.

REFERENCES

Frequency of Interictal Epileptiform Discharges (IED) & its Common types in Patients with new onset of Epilepsy

Fawad Jan FCPS(Neurology)1 Muhammad Waqas FCPS(Neurology)2

Gajju Khan Medical College Swabi (KPK)

ABSTRACT

Objective: To determine the frequency of interictal epileptiform discharges and its common types in patient with new onset epilepsy

Place & Duration: Department of Neurology, Lady Reading Hospital, Peshawar from January’2012 to July’2012.

Materials and Methods: A total of 177 patients (64.4% males and 35.6% females), with mean age of 18.61 years (± 13.28 SD) years who were managed in OPD or indoor according to their condition. History, physical examination, routine investigations and EEG were carried out for all patients. Mean and standard deviation of age, frequencies, percentages of gender, time of presentation, IEDs and its common types were calculated using SPSS-20.

Results: The time of presentation was 24-48 hours in 164 (92.7%), 48-72 hours in 9 (5.1%) and 72 hour-1week in 4 (2.3%) of patients. Epileptiform activity was found in 117 (66.1%). The sharp wave was present in 101 (57.1%), spike wave in 42 (23.7%), spike and wave in 29 (16.4%), multiple spike complex in 20 (11.3), and multiple spike and slow wave complex in 19 (10.7%) of patients. The IED and its types were also stratified among age, gender and time of presentation to see the effect modifications.

Conclusion: IEDs are present in 66.1% of epileptic patients. Sharp waves are most common amongst IEDs followed by spike, spike and wave, multiple spike complex, and multiple spikes and slow wave complex.

Key words: Interictal epileptiform discharges: Epilepsy: Electroencephalography

INTRODUCTION

The median incidence of epilepsy was 50.4/100,000/year, while it was 45.0 for high-income countries and 81.7 for low and middle-income countries. Overall prevalence of epilepsy in Pakistan is estimated to be 9.99 per 1000 population. The diagnosis of first seizure or epilepsy may be challenging and misdiagnosis can occur. Studies carried out in various settings have reported misdiagnosis rates of between 4.6% and 30%. A detailed and reliable account of the event by an eyewitness is the most important part of the diagnostic evaluation, but may not be available. Electroencephalography (EEG) should be considered as part of the routine neurodiagnostic evaluation of adults presenting with an apparent unprovoked first seizure (level B). It can provide support for the diagnosis of epilepsy and also assists in classifying the underlying epileptic syndrome.

Different EEG findings are variably associated with epilepsy. In the setting of potential epilepsy, it is useful to classify EEG abnormalities as epileptiform and nonepileptiform. Examples of epileptiform activity include interictal epileptiform discharges (IEDs), periodic lateralized epileptiform discharges (PLEDs), and generalized periodic epileptiform discharges (GPEDs). Acute symptomatic seizures can occur in PLEDs and GPEDs but they have weak relationship with epilepsy.

Interictal Epileptiform Discharges are present in 66.1% of epileptic patients. Sharp waves are most common amongst IEDs, followed by slow wave spikes of decreasing frequencies, more common in patients presenting early after a seizure episode. These are more common in youngsters as compared to elderly patients. EEG is very useful in diagnosis of epilepsy.

IEDs are present in 66.1% of epileptic patients. Sharp waves are most common amongst IEDs followed by spike, spike and wave, multiple spike complex, and multiple spikes and slow wave complex.
ogy in 20.66%. Of one Class - and ten Class -II articles reviewed (with a total of 1,766 patients) 13-24 assessing the yield of EEG, EEGs were reported as abnormal in 12% to 73% (average yield 51%) and reported as significantly abnormal in 8% to 50% (average 29%). For adults presenting with a first seizure, a routine EEG revealed epileptiform abnormalities (IEDs) in approximately 23% of patients, and these were predictive of seizure recurrence.4 In a study in children interictal epileptiform discharges (IEDs) were found in 40%,8

The rationale of present study will be that data regarding the frequency of abnormal EEG in the form of interictal epileptiform discharges (IEDs) varies over a wide range as mentioned above, in most of previous studies this frequency was determined after a single unprovoked seizure and we shall determine it after two unprovoked seizures which are 24 hours apart, this will be more specific for epilepsy. The proportion of different interictal epileptiform discharges were not given in most of previous studies. There is no local data available on this topic as well. So we in our study shall determine how many patients have interictal epileptiform discharges (IEDs) and what are proportion of its different types in patients with new onset epilepsy, which will test the diagnostic value of this investigation in epilepsy and this will help us in future in diagnosing this condition which is a difficult and an important disease to diagnose. This study results will also help the neurologist what to expect most common and least common type of interictal epileptiform discharges while interpreting EEG of a patient with new onset epilepsy.

METHODOLOGY.

This cross sectional study was carried out in Department of Neurology, PGMI, Lady Reading Hospital Peshawar for 6 months from January, 2012 to July, 2012 after approval from hospital ethical committee. Patients from both genders above six years of age with new onset epilepsy were included. New onset epilepsy was defined as two or more unprovoked seizures 24 hours apart but less than 7 days. Patients with imitators of epilepsy, provoked seizures and past history were excluded from study. All patients were subjected to detailed history, physical examination and routine investigations were carried out in all patients. EEG was done in all patients to determine frequency of interictal epileptiform discharges and its common types. Other specific necessary investigations were carried out accordingly to exclude causes of provoked seizure like CT scan or MRI brain to rule out structural causes, lumbar puncture for central nervous system infection, serum electrolytes, liver function test, renal function test and serum calcium for metabolic causes.

The EEG was performed by 10-20 electrode method with EEG machine. The EEG was recorded digitally for a minimum of 25 minutes under supervision of an expert neurologist with a standard protocol using activation methods like hyperventilation, photic stimulation, sleep to increase the yield. The EEG was interpreted by same expert neurologist. All the data was stored and analyzed in SPSS version 20. Descriptive statistics were used to calculate mean ± SD for numerical variables like age. Frequencies and percentages were calculated for categorical variables like gender, interictal epileptiform discharges and its common types (spike, sharp, spike-and-slow wave complex, multiple spike complex and multiple spike-and-slow wave complexes). IED and its different types were stratified among age, gender and time of presentation to see the effect modifications. All results were presented in the form of tables.

RESULTS

There were 177 patients in our study. Mean age of the whole sample was 18.61 years ± 13.28 with age range from 6 years to 60 years. Distribution among age ranges were 108 (61.0%) were between 6 and 15 years of age, 62 (35%) were between 16 to 50 years and 7 (4%) were between 51 and 60 years of age respectively. There were 114 (64.4%) male and 63 (35.6%) were female patients with male to female ratio of 1.8:1. The time of presentation was 24-48 hours in 164 (92.7%) of patients, 48-72 hours in 9 (5.1%) of patients and 72 hour-1 week in 4 (2.3%) of patients.

Epileptiform activity was found in 117 (66.1%) and EEG was normal in other 60 (33.9%) of patients. The sharp wave was present in 101 (57.1%), spike wave in 42 (23.7%), spike and wave in 29 (16.4%), multiple spike complex in 20 (11.3), and multiple spike and slow wave complex in 19 (10.7%) of patients. The IED and its types were also stratified among age, gender and time of presentation to see the effect modifications as shown.

TABLE 1: Distribution of patients by age range, gender and time of presentation

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Frequency</th>
<th>Epileptiform Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-15 years</td>
<td>108 (61)</td>
<td>76 (70.4%)</td>
</tr>
<tr>
<td>16-50 years</td>
<td>62 (35)</td>
<td>38 (61.3%)</td>
</tr>
</tbody>
</table>

TABLE NO: 2 Distribution according to epileptiform...
Frequency of Interictal Epileptiform Discharges (IED) & its Common types in Patients with new onset of Epilepsy

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>PERCENT</th>
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<tr>
<td>Yes</td>
<td>117</td>
</tr>
<tr>
<td>No</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
</tr>
</tbody>
</table>

TABLE NO: 3 Distribution according to types of ieds (n=177)

<table>
<thead>
<tr>
<th>TYPE OF IED</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharp</td>
<td>101 (57.1%)</td>
<td>76 (42.9%)</td>
</tr>
<tr>
<td>Spike</td>
<td>42 (23.7%)</td>
<td>135 (76.3%)</td>
</tr>
<tr>
<td>Spike and wave</td>
<td>29 (16.4%)</td>
<td>148 (83.6%)</td>
</tr>
<tr>
<td>Multiple spike complex</td>
<td>20 (11.3%)</td>
<td>157 (88.7%)</td>
</tr>
<tr>
<td>Multiple spike and slow wave complex</td>
<td>19 (10.7%)</td>
<td>158 (89.3%)</td>
</tr>
</tbody>
</table>

DISCUSSION

Epilepsy is a common neurological disease with significant morbidity and mortality. Early diagnosis and prompt management leads to better quality of life in such patients. In our study, there were 177 patients of which 64.4% were male and 35.6% were female. Epileptiform activity was found in 117 (66.1%) and EEG was normal in other 60 (33.9%) of patients. These above findings were supported by a cross sectional study carried out in the electrophysiology laboratory of Dhaka Medical College Hospital by Chowdhury RN et al. which included 767 patients, overall sensitivity of EEG in yielding abnormal interictal epileptiform discharges was 62.7%. In another international study data was reviewed from 1,201 EEGs on 429 adult patients, most with definite epilepsy presenting in adulthood, interictal epileptiform activity on EEG was present in 50% on the first record, in 84% by the third EEG, and in 92% by the fourth. There is relatively little yield to serial EEGs beyond this point.

In one study by Edward B Bromfield the sensitivity of a single EEG has been estimated to be in the range of 50%, though estimates have ranged from as low as 10% to as high as 77%. Similarly in a study by Wirrell et al. EEGs performed for new-onset seizures show epileptiform discharge in approximately 18% to 56% of children and 12% to 50% of adults. An EEG after sleep deprivation improves detection of epileptiform abnormalities, showing discharge in 13% to 35% of patients whose standard EEG findings were normal.

In our study IEDs were found in 66.1% which is significantly high. The reason behind this was selection of patients because in all above studies EEG was done after single unprovoked seizure and we have chosen those patients in which it was done after two unprovoked seizure which increases likelihood of finding IEDs in our patients. In our study the sharp wave was present in 101 (57.1%) spike wave in 42 (23.7%), spike and wave in 29 (16.4%), multiple spike complex in 20 (11.3), and multiple spike and slow wave complex in 19 (10.7%) of patients.

This is supported by a study in children which was conducted in Children Hospital Taif, Kingdom of Saudi Arabia. In this study interictal epileptiform discharges (IEDs) were found in 60% among abnormal EEGs. Among IEDs there are different types and they occur in the following frequency, sharp wave in 53%, spike in 14%, spike-wave in 8%, polyspike-wave in 12.5% and with discharges of more than one morphology in 20.66%. In another study in children conducted in Brazil by Raquel Rego et al. age ranged from 30 days to 16.5 years (mean of 6.4 years and median of 4.1 years), 403 were female (58.2%), wave occurred in 77 cases (41.6%), spike in 21 (11.4%), polyspike in 14 (7.6%), spike-wave in 17 (9.2%), polyspike-wave in 24 (13.0%) and exams with discharges of more than one morphology in 32 (17.3%).

The IED and its types were also stratified among age, gender and time of presentation to see the effect modifications. In our study in patients who have
IEDs in their EEG record 111 (67.7%) presented in 24-48 hours, 5 (55.6%) in 48-72 hours and 1 (25.0%) in 72 hour to 1 week period. So early presentation after a seizure increases the chance of having IEDs in the EEG record because clinical seizures are temporally associated with more frequent IEDs. 

Our results were supported by a study who have reported an increased incidence of IED when an EEG study is performed within two days or within seven days of a recent seizure.14 In another study by King et al. an EEG performed within 24 h after a first seizure detected epileptiform abnormalities in 51%, compared with only 34% of the patients with a later EEG.15 In another case series, early performance of an EEG (within 24 hours of a seizure) appeared to have a similar yield of epileptiform abnormalities as did a later-performed sleep-deprived study.16

In our study the IEDs were 76 (70.4%) in 6 to 15 years of age, 38 (61.3%) in 16 to 50 years and 3 (42.9%) in 51 to 60 years of age. As the results show younger age with new onset epilepsy have a higher chance of an abnormal EEG than old age group. This was supported by a study results in which factors that are variably reported to be associated with the prevalence of IEDs in persons with epilepsy were younger age at the time of EEG, a longer duration of epilepsy, and an earlier age at epilepsy onset.17

CONCLUSION 

From the results of this study it is concluded that: IEDs are present in 66.1% of epileptic patients. Sharp waves are most common amongst IEDs. Sharp waves are followed by following types of IEDs in order of decreasing frequencies: Spike, spike and wave complex, multiple spike complexes, and multiple Spike and slow wave complex. IEDs are more common in patients presenting early after a seizure episode. IEDs are more common in younger as compare to elder patients. IEDs and its different types do not show any significant relationship with gender. 

Therefore, IEDs on EEG are very useful in diagnosis of epilepsy.

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INTRODUCTION

The provision of basic health services is one of the basic needs of every society. Governments make policies for improving health systems and medical education, which is directly connected with the quality of the healthcare system. Improving the quality of training of health personnel is the responsibility of educational institutions and regulatory bodies. In Pakistan, these institutes include medical, dental, nursing schools and medical universities, which are governed and monitored by regulatory bodies like Pakistan Medical and Dental Council and Higher Education Commission of Pakistan. In Pakistan, a lot of development has taken place in medical education in the past few decades, yet a lot more needs to be done. The process of development is continuing at variable pace in over 130 medical and dental colleges in the country.

ABSTRACT

Background: The field of medical education has seen tremendous development over the past few decades and the trend is still continuing. On the curriculum front, traditional medical curricula are being transformed using strategies such as SPICES model. In this rapidly changing scenario of medical education, the role of medical teacher is changing as well.

Aims and Objectives: is to determine the perceptions of medical and dental students about the attributes of a good medical teacher.

Methodology: This cross-sectional study was conducted at University College of Medicine and Dentistry, The University of Lahore from June 2014 to October 2014. Two hundred and seventy eight students completed the questionnaire. Data compilation was done and SPSS 22 was used for analysis.

Results: Among 278 students, 186(66.9%) were MBBS and 92 (23.1%) BDS, 110 (40.6%) were males and 168 (59.4%) were females. Overall students’ responses, ‘knowledge of subject’ was rated highest with value of (4.64±0.52); and minimum weightage (2.17±1.1) was given ‘not encourage students participation in theory lectures. There was no significant difference between the perceptions of senior and junior groups of medical students for most of the attributes.

Conclusion: The students love a medical teacher with sound knowledge, good presentation and communications skills, honest, and ethical, fully motivated, enthusiastic, flexible and updated with new advances in professional knowledge and technology.

Keywords: medical teacher; personal qualities; enthusiastic, teacher attributes

Institutions should keep teachers with sound knowledge of their subject, good presentation skills, morally and ethically honest. He/ she should be fully motivated, enthusiastic, flexible with good communications and to keep him updated with new advances in knowledge, diagnostic methodology and is always ready to accept the new challenges.

Recent advances have brought a lot of changes in teaching and learning methodology, such as simulations, flip classrooms, outcomes based curricula, advances in bed side teaching and ambulatory teaching. Traditional medical curriculum is changing into SPICES model based curriculum with emphasis on student centeredness, problem based learning, integration of the education system at various levels, the increasing value of community based education, and the introduction of elective subjects. The behavior of a teacher is important; the way he teaches and imparts training to his students directly impacts the student’s interest in learning and final outcome. A bad teacher is considered as more serious threat to society than a bad surgeon. It is well said that a poor surgeon hurts one person at a time but a poor teacher hurts 130.

Medical professionals get high value in every society due to their expertise and higher vital role in society. The medical professionals have to maintain their knowledge and clinical skills up-to-date to perform the best possible medical practice in the society. The Pakistan Medical and Dental Council has implement-
Medical teaching is an important aspect of medical profession. The predominant responsibility of development of medical professionals directly lies on the shoulders of medical teachers. Many studies have identified important qualities of good medical teachers\(^5\). In student-teacher relationship, the teacher’s emotional attachment with students makes students responsible and competent, develop self-confidence, he encourages creativity along with fairness, empathy and humor\(^7\). Medical teaching is a complex and demanding job. This is evident that the role of a medical teacher is changing due to changes in medical education. Clinical teaching is a part of everyday life for doctors, yet doctors are rarely taught how to teach\(^7\).

In the classroom, a teacher is expected to have good communication skills, presentation styles and good sense of humor. Teaching is not just delivering lectures. He has to manage routine activities related to teaching as a good planner and he plans his lecture, manages time, selects and organizes material to be presented, controls and involves students in the learning process\(^8\). Good communication is one of the basics of a teacher-student or doctor-patient relationship. The medical teacher who establishes open communication in the learning system is usually able to achieve most of the learning goals. Several useful communication models have been described in literature, like the Pendleton model\(^9\).

Teacher student relationship holds a central position in medical education and is crucial to achieving good learning outcomes\(^10\). Emotional relationship plays important role in students’ retention of knowledge, conceptualization of phenomena, future professional behaviors, learning of curricular content and their choices\(^11\). A good visual presentation with attractive content designs provides greater impact on learners which enhances interest of the students and promotes learning\(^12\). A great teacher makes it easier for his students to understand the lecturer by explaining the difficult words in their native language.

Without sound subject knowledge one cannot teach properly and it is rated at highest level in the list of qualities in any good medical teacher. In a study by Sing et al. knowledge of subject was rated maximum by the faculty\(^13\). Expert teachers have more grasp of their subject knowledge. According to Adediwura and Tayo, there is a high correlation between what teachers know and what they teach\(^14\). A teacher who is excited about the subject being taught and shows it by facial expression, changes in voice, good gesture, and body movement, is more likely to hold the attention of students which promotes student’s learning. Batten et al. connects enthusiasm and sense of humor of the teacher with student’s success\(^15\).

Personal qualities of a medical teacher are professional competence, interpersonal relationship, personality traits, attitude, and teaching skills\(^16\). According to Tang et al., a good medical teacher is a role model who rules the minds and hearts of the students. The nature of such a teacher is polite, empathizing and gentle rather than authoritative, impatient or ill-tempered\(^17\). A good medical teacher should behave like a leader leading the team from the front. There can be some technical interruptions in the form of projector, computer or power blowouts, such situations need to be dealt with in a calm manner like a good leader. Charlotte states that a good teacher should have leadership qualities\(^18\).

Empathy has been identified as one of the main qualities of a medical teacher. It is the ability to understand other peoples’ experiences, emotions, feelings and communicate verbally and non-verbally this understanding to others\(^19\). Students expect that a teacher should understand their feelings as well as social backgrounds. Students love teachers who have some humor in the class room. It creates student-friendly atmosphere in the classroom and enhances learning outcomes. According to McDermott & Rothenberg, students enjoy teachers with a sense of humor and love those teachers who made learning as fun as long as it is not at the cost of any individual\(^20\). A good medical teacher is not stagnant. He values the rapid changes of intellectual and knowledge in his area of interest, with the motivation to teach and the desire to learn useful new teaching and learning approach i.e. small group learning, student centered interactive sessions, case based discussions, role playing and use of patient volunteers, simulations, manikins etc. to facilitate student training\(^21\).

### METHODOLOGY

This was a quantitative cross-sectional study. This study was carried out in October 2014 at University College of Medicine and Dentistry, Lahore. The students of University College of Medicine were divided into two groups, years 1 and 2 as juniors and year 3, 4 and 5 as seniors. BDs students were into two groups, years 1 and 2 as juniors and years 3 and 4 as seniors. Systematic sampling technique was used to collect the data. There were 294 students in years 1 and 2 MBBS (junior) classes and 97 (32%) were selected for study sample.

**Inclusion Criteria:** All Students enrolled in the 1st year to final years MBBS and BDS in the University College of Medicine and Dentistry.

**Exclusion Criteria:** Detained students, children of medical teachers, foreign nationality students

**Data Collection Procedure.** The questionnaire was distributed and collected after completion from the participants in their classes.
RESULTS
The responses from the participants were coded and entered into IBM SPSS. The differences among junior students (Year 1 and 2 BDS and MBBS) and senior students (year 3 and 4 BDS and 3, 4 and 5 MBBS) were analyzed by using the analysis of variance (ANOVA).
All the 278 respondents, selected for the study, 186 (66.9%) were MBBS and 92 (33.1%) were BDS students, while 110 (40.6%) were males and 168 (59.4%) were females as shown in table 1.
Perceptions of students about classroom behavior/instructional delivery were measured through five attributes i.e., good communication skills, good presentation skills, good sense of humor in teaching sessions, innovative use of technology and well organized with excellent time management skills. These attributes were measured through five responses ranging from ‘strongly agree to strongly disagree’ and coded on a scale of 1 to 5 for analysis purpose. Table 2 provides the details of responses from the students. Among all responses, ‘good sense of humor’ was rated as minimum (average score = 4.14±0.86). ‘Good presentation skills’ got maximum score (average score 4.57±0.76). There was no statistically significant difference among the two groups.
Table 1: Demographic information of the students included in the study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>110</td>
<td>40.6</td>
</tr>
<tr>
<td>Female</td>
<td>168</td>
<td>59.4</td>
</tr>
<tr>
<td>Total</td>
<td>278</td>
<td>100</td>
</tr>
<tr>
<td>Programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBBS</td>
<td>186</td>
<td>66.9</td>
</tr>
<tr>
<td>BDS</td>
<td>92</td>
<td>33.1</td>
</tr>
<tr>
<td>Total</td>
<td>278</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2 Comparison of junior and senior students’ responses about teacher’s classroom behavior / instructional delivery

<table>
<thead>
<tr>
<th>Classroom behavior/instructional delivery</th>
<th>Junior students</th>
<th>Senior students</th>
<th>All students</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good communication skill</td>
<td>4.57±0.52</td>
<td>4.35±1.01</td>
<td>4.46±0.80</td>
<td>.022</td>
</tr>
<tr>
<td>Good presentation skill</td>
<td>4.65±0.63</td>
<td>4.48±0.86</td>
<td>4.57±0.76</td>
<td>.053</td>
</tr>
<tr>
<td>Good sense of humor in teaching session</td>
<td>4.23±.73</td>
<td>4.05±0.98</td>
<td>4.14±0.86</td>
<td>.086</td>
</tr>
<tr>
<td>Innovative in using technology in class room</td>
<td>4.24±0.78</td>
<td>4.38±0.81</td>
<td>4.31±0.80</td>
<td>.132</td>
</tr>
<tr>
<td>Well organized &amp; possessed excellent time management skill</td>
<td>4.39±0.76</td>
<td>4.36±1.00</td>
<td>4.37±0.88</td>
<td>.772</td>
</tr>
</tbody>
</table>

Table 3: Comparison of junior and senior students’ responses about teacher’s interaction with students / colleagues

<table>
<thead>
<tr>
<th>Interaction with students / colleagues</th>
<th>Junior students</th>
<th>Senior students</th>
<th>All students</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of student interest and needs</td>
<td>4.17±0.72</td>
<td>4.15±1.07</td>
<td>4.16±0.90</td>
<td>.823</td>
</tr>
<tr>
<td>Easily approachable</td>
<td>4.17±0.66</td>
<td>4.11±0.91</td>
<td>4.14±0.79</td>
<td>.518</td>
</tr>
<tr>
<td>Not encourage students participation during theory lectures</td>
<td>2.27±1.11</td>
<td>2.04±1.30</td>
<td>2.16±1.21</td>
<td>.122</td>
</tr>
<tr>
<td>Work well with students and colleagues</td>
<td>4.18±0.55</td>
<td>4.16±0.85</td>
<td>4.17±0.71</td>
<td>.780</td>
</tr>
<tr>
<td>Use social media face book, pizzas, Blog or Twitter as teaching tool to interact with students</td>
<td>3.19±1.10</td>
<td>3.44±1.19</td>
<td>3.31±1.15</td>
<td>.063</td>
</tr>
<tr>
<td>Very generous in assessing the performance of students in exams</td>
<td>3.88±0.84</td>
<td>3.73±1.08</td>
<td>3.81±0.96</td>
<td>.215</td>
</tr>
<tr>
<td>Offer constructive criticism to students</td>
<td>3.43±1.06</td>
<td>3.66±1.07</td>
<td>3.54±1.07</td>
<td>.077</td>
</tr>
<tr>
<td>Trust and respect the students</td>
<td>4.07±0.63</td>
<td>4.20±0.78</td>
<td>4.13±0.71</td>
<td>.122</td>
</tr>
<tr>
<td>Be caring and show empathy towards students</td>
<td>4.21±0.71</td>
<td>4.13±0.86</td>
<td>4.17±0.78</td>
<td>.432</td>
</tr>
<tr>
<td>Upload his lectures on social media for student assess</td>
<td>3.87±0.86</td>
<td>3.95±1.25</td>
<td>3.91±1.06</td>
<td>.534</td>
</tr>
</tbody>
</table>
Table 4 shows the comparison of junior and senior students. ‘The knowledge of the subject’, ‘honesty, moral and ethics’ and ‘enthusiasm and passion’ were rated as the three most important values by both the groups with no statically significant difference. There was statistically significant difference between the perceptions of students for leadership qualities of the teachers. Senior students rated this quality significantly higher than junior students (P=0.18). This shows that students learn with experience that teachers should be good leaders as well.

Table 4 Comparison of junior and senior students’ responses about teacher’s personal qualities

<table>
<thead>
<tr>
<th>Personal qualities</th>
<th>Junior students</th>
<th>Senior students</th>
<th>All students</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership qualities</td>
<td>3.92±0.84</td>
<td>4.15±0.79</td>
<td>4.03±0.82</td>
<td>.018</td>
</tr>
<tr>
<td>Punctual</td>
<td>4.38±0.67</td>
<td>4.32±0.78</td>
<td>4.35±0.72</td>
<td>.534</td>
</tr>
<tr>
<td>Unbiased</td>
<td>4.19±0.95</td>
<td>4.22±0.93</td>
<td>4.21±0.94</td>
<td>.748</td>
</tr>
<tr>
<td>Knowledge of subject</td>
<td>4.62±0.49</td>
<td>4.67±0.56</td>
<td>4.64±0.52</td>
<td>.394</td>
</tr>
<tr>
<td>Enthusiastic and passion to teach</td>
<td>4.39±0.73</td>
<td>4.51±0.56</td>
<td>4.45±0.65</td>
<td>.132</td>
</tr>
<tr>
<td>Honest, moral and ethical</td>
<td>4.58±0.50</td>
<td>4.54±0.60</td>
<td>4.56±0.55</td>
<td>.630</td>
</tr>
</tbody>
</table>

Table 5 shows the distribution of the perceptions of junior and senior students about professional development of teachers. The responses of the two groups of students did not show any statistically significant difference.

Table 5 Comparison of junior and senior students’ responses about teacher’s professional development

<table>
<thead>
<tr>
<th>Professional development</th>
<th>Junior students</th>
<th>Senior students</th>
<th>All students</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update with recent advances in education technology</td>
<td>4.47±0.54</td>
<td>4.49±0.66</td>
<td>4.48±0.60</td>
<td>.705</td>
</tr>
<tr>
<td>Publications and should active in research</td>
<td>4.12±0.68</td>
<td>4.13±0.67</td>
<td>4.12±0.67</td>
<td>.914</td>
</tr>
<tr>
<td>Willing to learn and open to change (flexible)</td>
<td>4.36±0.56</td>
<td>4.41±0.60</td>
<td>4.38±0.58</td>
<td>.481</td>
</tr>
</tbody>
</table>

Figure 1 provides the distribution of students’ responses about teachers all attributes (24 in total) included in the study. These attributes were divided into five groups. Five color coded columns show the five groups of attributes as discussed above. As evident from the figure, the three most important attributes, the students want to see in a teacher include, ‘knowledge of the subject, good presentation skills and honest, moral and ethical teacher. Five attributes were rated below four (equivalent to agree). The two least important attributes include ‘involving students in active learning and the use of social media to interact with students’. Students rated these two attributes low, probably because the Pakistani education system predominantly promotes passive and rot learning. Spending 13 to 13 years in such system before entering the medical college, students get used to such system.
In our study the attribute of ‘communication skills’ was noted to be another desired trait for a good teacher by all student’s responses (4.46±.80), with no significant different among junior and senior students. This is similar to the study conducted by Young and Shaw where effective communication skills was declared as one of the top seven qualities of good medical teacher27. The ‘leadership quality’ is well documented in literature for a medical teacher28. Contrary to this, in our study, the students perceived it to be least important in personal qualities of a teacher (mean 4.03±.82). There was a significant difference between the perceptions of junior and senior students (mean=3.92±.84 & 4.15±.79 respectively, P=.018).

CONCLUSION

We conclude that institutions should recruit teachers with sound knowledge of their subject, good presentation skills, be honest, morally and ethically practicing medical teachers. The teacher should be fully motivated, enthusiastic in teaching with good communications skills, flexible and keep him updated with new advances in knowledge, new diagnostic tools, and new teaching skills and is always ready to accept the new challenges.

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8. Teachers responsibilities& teachers behavior www.ascd.org

DISCUSSION

In this study the perceptions of medical and dental students about attributes of a good medical teacher, as regarding the teachers class room behavior and instructional delivery, mean and SD was 4.57±.76 as compared to mean and SD 4.68±.54 the results reported by Singh et al. Good communication was ranked at number 2 (4.46±.80), this is comparable with findings from Singh et al. (4.46±.73) 13.

Our study shows that students like good sense of humor by teachers during the sessions (4.14±.86). These findings are in line with a study conducted by Rasheeda at Aga khan University, Pakistan. Students feel more comfortable if teacher breaks some jokes for entertaining during teaching, it keeps the students alive in the class enhances their learning outcome22. In our study, we found ‘enthusiasm’ as one of the important qualities of a good medical teacher with mean and SD was 4.67±.54, with no statistically significant different among junior and senior students. The ‘leadership quality’ is well documented in literature for a medical teacher28. Contrary to this, in our study, the students perceived it to be least important in personal qualities of a teacher (mean 4.03±.82). There was a significant difference between the perceptions of junior and senior students (mean=3.92±.84 & 4.15±.79 respectively, P=.018).

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What do Students Value in a Medical Teacher?

Empirical Use of Antibiotics in Urinary Tract Infection (Resistance Pattern of Bacteria Isolated from Urine Culture & Sensitivity of Patients)

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GAJJU KHAN MEDICAL COLLEGE SWABI KPK

ABSTRACT

Objectives: The aim of the study was to determine pattern of bacterial isolates from urine of local community and their sensitivity to various antibiotics as the current knowledge on antimicrobial susceptibility is essential for appropriate therapy.

Material and Methods: This study was performed in Medical Unit of Gajju Khan Medical College Swabi from 2015-2017. We examined 162 patient of local community of Swabi and nearby districts between 14 to 90 years of age. Their urine sample microscopy was done followed by culture and sensitivity testing.

Results: E. coli was 88% resistant to ampicillin, co Amoxiclave, 86 % resistant to ciprofloxacin, and 66% resistant to Cotrimaxazole. Klebsiella Pneumoni showed resistant to tetracyclin in 100% cases where as it showed 88 % resistance to Ampicillin, Co amoxiclave, ciprofloxacin and 66% resistance to Co trimaxazole. Enterococcus showed resistance to Tetracyclin, Ciproflaxacin, Erythromycin.

Conclusion: The results show that E coli is resistant to Ampicillin, Co Amoxiclave, ciprofloxacin, Co-trimoxazole. Klebsiella was resistant to tetracycline apart from above antibiotics.

Key Words: E. Coli, Resistance, Antimicrobial Susceptibility. Klebsiella pneumoniae, Enterococcus.

INTRODUCTION:

Urinary tract infections are bacterial infection in population of all ages. It is one of the most common reason of antibiotic prescription in general practice. The causative organism in 80% of community acquired urinary tract infection is E coli [12]. Enterobacteriaceae infections are increased in last fifty years. Some of the strains of E coli show resistance because of inappropriate and frequent use of antibiotics [12,18,19]. These infection are 30--50% more common in women of reproductive age group than in men of same age [13]. Microorganism develop various mechanisms to develop resistance, such as recombination of foreign DNA, horizontal gene transfer and alteration in genetic material [20]. Resistance pattern of microorganisms vary from country to country, state to state, large hospital to small hospital and hospital to community.

The main aim of therapy for urinary tract infection is to relieve the symptoms and prevent recurrence of infection by using least toxic, least expensive antibiotic in appropriate dose and sufficient long period [11]. Treatment of urinary tract infection begins empirically before the agent identification and susceptibility testing. If resistance to particular antibiotic is more than 20% it should not be prescribed empirically [14].

E coli resistance to major antibiotics is increasing in most countries of Europe [15,16]. Monitoring range of antibiotic susceptibility is important for rational prescribing of antibiotic to treat infection of urinary system with the aim to control level of resistance and improve etiologic diagnosis [17].

Three major organisms i.e., E. coli, Klebsiella, and Enterococcus are commonly susceptible to imipenim, fosfomycin, nitrofurantoin, amikacin, peptasobactum in 77 to 100% cases. These antibiotics should be used for empirical treatment of urinary tract infections whereas cotrimaxazole, ampicillin, and ciprofloxacin should not be used. We should perform culture sensitivity test in all suspected cases.
MATERIAL AND METHODS:

Patient presenting with signs symptoms of urinary tract infection between 14 years up to 90 years were included in the study. These patient were enrolled and their midstream urine samples were collected, which was examined under microscope for presence of leukocyte and bacteria. These samples were then subjected to culture and sensitivity examination. Recognized bacterial culture were identified and susceptibility to anti-microbial agents were determined.

RESULTS

The total number of patient included in this study was 162. The age of the patient ranged 14 years to 90 years. There were 47 (29%) male and 115 (71%) female patients. The urine sample of 76 (46.9%) patients grew organisms while the urine samples of 85 (53%) patients did not grow any organism. The number of female and male in the group those grew bacteria was 45 (27.7%) and 17 (10.4%) where as the female to male ratio in the group who do not grow bacteria is 67 (41.3%) and 18 (11.11%).

The urine microscopy revealed occasional pus cell per high power field in 22 (13.5%) patients, 0 to 5 pus cells per high power field were present in 63 (38.8%) patients, 5 to 20 pus cells per high power field were present in 49 (30.24%) patients and numerous pus cell per high power field were present in 31 (19.1%) patients.

E colli was obtained in 50 cases (64%). Klebsiella pneumoniae and Enterobactereae was obtained in 9 cases (11.5%) Proteus and Candida, Acinobacter, Pseudomonas, St Trophonema and citrobacter was found in 2(4%) cases each. The susceptibility rate of E colli was 98% to Imepenim and 94.2 % to Fosfomycin, 88.4 % to Amikacin and Peptazo-bactum 84.6 % to Nitrofurtoin 67.3 % to Meropenem, 45 % Gentamycin 32.6% to tetracyclin, 26.9 % to ceftriaxone, Cefuroxim, Cefotoxim, 25% to Cotrimaxazole. Empirically commonly used Quinolone, Ciprofloxacin showed only 9.9 % susceptibility rate .Similarly Ampicillin and Nalidixic acid showed only 4% susceptibility rate.

In case of Klebsiella pneumonia susceptibility rates were 100 % to Imipinim,77.7% to Amikacine, and Fosfomycin, 66.6% to Piptazo-bactum, 55% to Meropenem and Nitrofurantoin, 33.3% to cefuroxim and cefotoxim, 22.2 % to ciprofloxacin in, Cotrimaxazole, Ceftriaxone. In case of enterococcus the susceptibility rate were 100 % to Teicoplanin Vancomycin, 77.7% to Ampicillin, Fosfomycin, nitrofurontoin. Here again Ciprofloxacin showed 11% susceptibility rate.
Empirical Use of Antibiotics in Urinary Tract Infection

<table>
<thead>
<tr>
<th>Sensitivity of Enterococcus to Various Antibiotics</th>
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<tbody>
<tr>
<td>Imipenem</td>
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<tr>
<td>Fosfomycin</td>
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<td>Amikacin</td>
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<td>Peptazo Bactum</td>
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<td>Nitrofurantoin</td>
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<th>Resistance of Ecoli</th>
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<tr>
<td>Ampicillin</td>
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<td>Co Amoxiclav</td>
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<td>Ciprofloxacin</td>
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<th>Sensitivity of Klebsiella Pneumoni to Various Antibiotics</th>
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<td>Imipenem</td>
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<td>Amikacin</td>
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<td>Ciprofloxacin</td>
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<th>Resistance of Klebsiella Pneumoni</th>
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<td>Tetracyclin</td>
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<tr>
<td>Ampicillin</td>
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<tr>
<td>Co Amoxiclave</td>
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<td>Cotri Ceftriaxon</td>
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**DISCUSSION:**

This study shows the pattern of bacterial isolates from the urine of local community of Swabi, nearby districts and their sensitivity to various antibiotics. The total number of the patients was 162, 47 males, and 115 females, which show that adult females have a higher prevalence of urinary tract infections than men owing to anatomic and physiological factors. The results also showed that out of 162 tested urine samples, 76 (46.9%) were positive.
while 85 (53.1%) were negative. Sabina Mahmutac Vanic et al have reported 25.36% positive sample out of 405 cases in their study.

In our study E. coli was the predominant organism isolated in 64% cases while Klebsiella Pneumoni and Enterobacter was isolated in 11% cases each. Proteus and Candida, Acinobacter, Pseudomonas, St Trophomena and citrobacter was found in 2(4%) cases each. This is consistent with finding of previous studies in which Ecoli was the predominant organism isolated from community acquired urinary tract infection (9, 10).

In our study susceptibility rate of E coli was 98% to Imepinim and 94.2% to Fosfomycin, 88.4% to Ampicillin, and Peptazo-bactum 84.6% to Nitrofurtoxin 67.3% to Meropenem, 45% Gentamycin 32.6% to tetracyclin, 26.9% to ceftriaxone, Cefuroxim, Cefotixim, 25% to Cotrimaxazole. Empirically commonly used Quinolone that is Ciprofloxacin showed only 9.9% susceptibility rate. Similarly Ampicillin and Nalidixic acid showed only 4% susceptibility rate. Our Ecoli was 88% resistant to ampicillin, co Amoxiclave, 86% resistant to ciprofloxacin, and 66% resistant to Cotrimazaxole. This shows more resistance of Ecoli to Ampicillin, Cefmonixclae, Ciprofloxacine as shown by Akram et al 2007 (6) This is because of misuse of these antibiotics in our community and worldwide. Resistance to Co trimazaxole is 66% against 75% which may be because of small use of this antibiotic in our region.

In case of Klebsiella pneumoniae susceptibility rates were 100% to Imipenim, 77.7% to Amikacin, and Fosfomycin, 66.6% to Peptazo-bactum, 55% to Meropenem and Nitrofurantoin, 33% to cefuroxim and cefotoxim, 22.2% to Ciprofloxacin, Cotrimazaxole, Ceftriaxone. Our Klebsiella Pneumoni was more resistant to tetracyclen in 100% cases where as it showed 88% resistance to Ampicillin, Co amoxiclave, ciprofloxacin and 66% resistance to Cotrimazaxole. In case of enterococcus the susceptibility rate were 100% to Teicoplanin Vancomycin, 77% to Ampicillin, Fosfomycin, nitrofurtoin. Here again Ciprofloxacin showed 11% susceptibility rate.

The international literature reveal the problem of increasing resistance in uropathogens worldwide. (5,7) High resistance rates are seen against Co trimazaxole, Ampicillin and Ciprofloxacin Beta lactam antibiotics and Aminoglycoside as it was used as first line therapy in urinary tract infection in various part of the world because these were common inexpensive agents as shown by Matute et al in 2003 (8). Therefore the risk of clinical failure increases as these agents are used in clinical practice.

CONCLUSION
Our study also show that three major organisms, Ecoli, Klebsiella, and Enterococcus are commonly susceptible to Imipenim, Fosfomycin, Nitrofurontoin, Amikacin, Peptasobactum from 77 to 100%, these antibiotics should be used for empirical treatment of urinary tract infection whereas Cotrimazaxole, Ampicillin, and Ciprofloxacin should not be used for the same treatment. In order to save our antibiotics from developing resistance we should perform culture and test in all suspects of urinary tract infection.

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17. Chang HH, Cohen T Grad YH Hanage WP.
Orthopedic Approach in Patients with Multiple Injuries

ABSTRACT

Background: Polytrauma is the result of high energy trauma and presents itself as damage to multiple systems of the body. Since fractures frequently exist, the presence of femoral and pelvic fractures is alarming and presents a great challenge to trauma surgeons. There are two different schools of thought regarding the timing of definitive surgical involvement in polytrauma patients i.e. early total care and the damage controlled orthopaedics. Each approach has its merits and demerits. The clinical status of the patient determines the appropriate orthopaedic approach, which should aim at the survival of the patient.

Objective: To assess the best possible orthopaedic approach in a patient with blunt multiple injuries.

Patients and Methods: This is a retrospective study that include 40 patients of multiple trauma with associated fractures of femur or pelvis during the period of 2013 at KTH Peshawar. The patients’ age was 20-60 years and the spectrum of injuries varied. All patients has deranged one or more vital functions. Road traffic accident is the main cause of multiple injuries in our series. Early total care (ETC) or damage control orthopaedics policy was followed. We tried to find out the best possible orthopaedic approach by studying the incidence, of acute respiratory distress syndrome (ARDS), multiple organs dysfunction syndrome (MODS), pneumonia, pulmonary embolism, death rate as well as the length of ICU and hospital stay.

We followed Rape classification to group the patients on the basis of their clinical status. There are derangement of one or more vital functions along with fracture of femur or pelvis. We targeted to achieve control of bleeding, haemodynamics and ventilation. Subsequently the clinical status of the patient guided us to follow the policy of ETC or DCO. In our series ETC is carried out on 33 patients after resuscitation. 9 of them deteriorated after surgical stabilization of femur/pelvis. Early total care is effective in 27 stable patients (75%). Damage control orthopaedics is followed in 4 unstable patients (11.11%) 9 borderline cases in our study developed ARDS after ETC (19.4%). The mean follow-up period is 10.08±1.11 (range 9-12 months). Bony union is achieved in all cases.

Conclusion: The results of our series of multiple trauma patients indicate that the best orthopaedic approach cannot be predetermined definitely at the time of presentation of patient to emergency room. Early total care is indicated in a stable patient within 24-48 hours after injury. Damage control orthopaedics is adopted in unstable patients preferably between 5th-10th days. Effectiveness of resuscitation plays important role.

Keywords: Multiple trauma, Femoral/pelvis fracture, Early total care, damage control orthopaedics

INTRODUCTION

There is no consensus on the positive definition of polytrauma, however it may be defined as blunt trauma having damaged multiple body cavities or regions, dysfunction of uninjured organs and compromised physiology. Early total care involves definitive operative stabilization of all long bone and pelvic fractures during the early phase of treatment (24-48 hours).

The best orthopaedic approach cannot be predetermined definitely at the time of presentation of patient to emergency room. Early total care is indicated in a stable patient within 24-48 hours after injury. Damage control orthopaedics is adopted in unstable patients preferably between 5th-10th days, the resuscitation plays important role.

DCO consists of four stages (i) focus on saving the life, (ii) control of haemorrhage, temporary external stabilization of major fractures and management of soft tissue injuries, (iii) monitoring in ICU and (iv) definitive fracture fixation. The literature shows that polytrauma is one of the main causes of death in patients under 40...
years. Fractures frequently accompany polytrauma, most common being the pelvic and femur fractures. The significance of pre-hospital trauma management should be emphasized. Since 1980s the ideal approach has been to perform definitive fixation of all fractures under single anaesthesia (early total care) to make possible the prompt mobilization of patients. However with the passage of time and more and more exposure to polytrauma it became evident that in unstable patients lengthy surgery with associated blood loss resulted in a catastrophe further worsening the condition of a patient. Thus in 90’s the idea of damage control orthopaedics emerged. This deviation from ETC to DCO was the result of better understanding of pathophysiological and immunological mechanisms regulating the host responses to injury.

Trauma causes systemic inflammatory response syndrome (SiKS) followed by recovery period mediated by a counter-regulatory anti-inflammatory response (CARS). Severe inflammation may cause acute organ failure and early death after injury. Initial trauma or the first hit may increase the risk of deterioration of patient after surgery/ In such situation surgery manifests itself as a ‘second hit’ which may lead to ARDS, MODS or even death. Early total care may cause fat emboli and hypoxic events which may further damage the injured lungs in polytrauma patient who has sustained pulmonary contusions or rib fractures. In damage control orthopaedics definitive osteosynthesis should be carried out within 15 days. Further delay increases the contamination rates in external fixator pin sites. With shift from ETC, data supports the evidence of up to a 5-fold increase in the death rate in patients who do not have early surgical stabilization of a femoral fracture. So most trauma surgeons surgically fix femoral fractures within first 24 hours after injury provided that patient is haemodynamically stable. Weninger concluded that early unreamed intramedullary nailing of femur fractures is safe in polytrauma patient with severe thoracic injury and is justified to achieve early definitive care. Brundage reported that chest and head traumas are not contraindications to early fixation with reamed intramedullary nailing. The literature shows that pelvic ring disruptions range from 3-8.2% of all trauma patients. These fractures are the result of high-energy trauma and are associated with other injuries which strongly influence the outcome and survival rates. DCO is most suitable option for pelvic fractures. The mortality rate of polytrauma patients with pelvic fracture and unstable haemodynamics is as high as 50% in one series. Early mortality is due to uncontrolled haemorrhage whereas late mortality is the result of associated injuries and sepsis induced MODS. If even after external fixation of pelvis the patient remains haemodynamically unstable, then the possibility of arterial bleeding must be kept in mind. These patients benefit most from angiographic embolization. Temporary pelvic packing via laparotomy aids in control of pelvic bleeding and gives a chance for more selective management of haemorrhage. ETC is rarely undertaken for the management of pelvic ring fractures.

**PATIENTS AND METHODS**

This retrospective study included 40 adult blunt poly trauma patients with ISS > 16 points and age 20-60 years who were admitted through the KTH Peshawar within first few hours after the injury during period. Road traffic accident is the only cause of polytrauma. They are assessed by our trauma team which included general surgeon, orthopaedic surgeon, Neurosurgeon, Urologist and anaesthetist. The assessment is made on the basis of advanced trauma life support (ATLS) criteria. Primary survey of airway, breathing, circulation, neurological status and body temperature was carried out. The initial survey included the trauma series X-rays i.e. cervical spine, chest and pelvis to see fractures and hemothorax or pneumothorax etc. X-rays of the extremities were then done. In more severe cases CT scan (cervical spine, chest, abdomen and pelvis) is done straightaway and patients were rushed to operation theatre. Other ER evaluations included systolic blood pressure, heart rate, haematocrit, CBC, coagulation status and acid-base balance. We followed Rafe classification which divides patients into four groups based on their clinical status: stable, borderline, unstable and in extremis. 27 patients fell into stable, 9 borderline and 4 unstable categories. The criteria for assessing borderline patient included polytrauma, ISS 20 and additional thoracic injury, polytrauma with abdominal/pelvic injury (Moore 3) and shock (initial BP 90 mmHg) and X-ray findings of bilateral lung contusion. The pattern of injuries varied in our study. Twenty six poly trauma patients have diaphyseal fractures of femur, 12 pelvic fractures, 4 head injuries, 15 chest injuries, 19 abdominal injuries, all in combination.

Thirty six patients has shown satisfactory response to initial management, the haemo-dynamics is stable and there is no evidence of hypothermia, coagulopathy, occult hypo-perfusion, abnormal acid-base status or any life threatening injury. They are labeled as stable and ETC is done within 24 hours of injury. 9 patients are labeled as borderline patients in our series. They are in stable condition after resuscitation during period. Road traffic accident is the only cause of polytrauma. They are assessed by our trauma team which included general surgeon, orthopaedic surgeon, Neurosurgeon, Urologist and anaesthetist. The assessment is made on the basis of advanced trauma life support (ATLS) criteria. Primary survey of airway, breathing, circulation, neurological status and body temperature was carried out. The initial survey included the trauma series X-rays i.e. cervical spine, chest and pelvis to see fractures and hemothorax or pneumothorax etc. X-rays of the extremities were then done. In more severe cases CT scan (cervical spine, chest, abdomen and pelvis) is done straightaway and patients were rushed to operation theatre. Other ER evaluations included systolic blood pressure, heart rate, haematocrit, CBC, coagulation status and acid-base balance. We followed Rafe classification which divides patients into four groups based on their clinical status: stable, borderline, unstable and in extremis. 27 patients fell into stable, 9 borderline and 4 unstable categories. The criteria for assessing borderline patient included polytrauma, ISS 20 and additional thoracic injury, polytrauma with abdominal/pelvic injury (Moore 3) and shock (initial BP 90 mmHg) and X-ray findings of bilateral lung contusion. The pattern of injuries varied in our study. Twenty six poly trauma patients have diaphyseal fractures of femur, 12 pelvic fractures, 4 head injuries, 15 chest injuries, 19 abdominal injuries, all in combination.

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patients. We considered DCO approach in order to avoid a second hit that might have been responsible for subsequent ARDS, MODS or even death. They have pelvic fractures which are fixed immediately with rapid external fixation.

In our series, we fixed femur shaft fractures with interlocking I/M nails (reamed) and one femoral neck fracture with screws. 5 pubic symphseal disruptions were fixed with 3.5 mm reconstruction plates. Posterior ring fixation is done in 2 cases with 3.5 mm DCP and in one case with percutaneous cannulated ilio-sacral screw. Chest intubation is the mainstay of treatment for chest injuries in our study. 4 of our patients had head injury (GCS >8). Majeed functional scoring system is applied to assess functional outcome of pelvic fractures in polytrauma.

RESULTS

This study included 40 patients with polytrauma. Initial resuscitation was done in all cases. We followed Rape classification. Early total care is carried out on 36 stable patients but was effective in 22 stable patients. Damage control orthopaedics is followed in 4 unstable cases. Seven borderline cases developed acute respiratory distress syndrome (ARDS) after ETC. We did not observe any local complication. Follow-up period is 9-12 months. There is no mortality in our series. All patients has bony union of their fractures. There is no sexual or urinary dysfunction and no neurological deficit (Table 1). Majeed functional scoring system is applied to assess functional outcome of pelvic fixation in polytrauma cases with special emphasis on sitting, work, pain, sexual intercourse, gait, walking aids and walking distance. The total score measures 0-100. Total score grading is as follows i.e. excellent = 95, good = 85-94, fair = 70-84 and poor = less than 70 points (Table 2). Early total care is successful in femoral fractures.

<table>
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<tr>
<th>Complication</th>
<th>Early total care</th>
<th>Damage control orthopaedics</th>
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<tr>
<td>Ards</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Mods</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pneumonia</td>
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<td>-</td>
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<tr>
<td>Pulmonary embolism</td>
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<td>-</td>
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<tr>
<td>Death rate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Length of ICU stay</td>
<td>1-2 days</td>
<td>10-14 days</td>
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<tr>
<td>Length of hospital stay</td>
<td>10-12 days</td>
<td>20-25 days</td>
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Table 3: Final outcome of femoral fixation in polytrauma patients (n=25) after early total care

<table>
<thead>
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<th>Outcome</th>
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<tr>
<td>Excellent</td>
<td>14</td>
<td>48.27</td>
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<tr>
<td>Good</td>
<td>10</td>
<td>34.48</td>
</tr>
<tr>
<td>Fair</td>
<td>3</td>
<td>10.34</td>
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<tr>
<td>Poor</td>
<td>2</td>
<td>6.89</td>
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DISCUSSION

The multiple injuries in a polytrauma patient need serious consideration. Polytrauma is one of the major causes of death in young people under the age of 40. The commonest cause is RTA. Tissue destruction, massive bleeding and insufficient oxygenation after trauma are the main challenges to trauma team. Fractures are important constituents of polytrauma. In the past, these patients were labeled as too sick to undergo surgical stabilization of fractures and manipulation was thought to precipitate fat embolism syndrome but in 80’s and early 90’s early stabilization of long bones fracture was considered important. Early total care involves definitive operative fixation of all long bone fractures within 24-48 hours after injury. This also reduced the incidence of pulmonary complications, length of ICU and hospital stay.

The concept of ETC started changing during the 90s as it was observed to have higher rate of pulmonary complications in unstable patients. Patient is considered stable if there is no life-threatening injury, hypothermia, coagulopathy, any occult hypoperfusion or abnormal acid base status, he shows satisfactory response to initial management and is haemo-dynamically stable. If the patient has major soft tissue injuries, blood pressure less than 90mmHg, platelet count <90,000, increased lactate levels and body temperature <33°C, then DCO should be considered. The choice of treatment also depends on patient’s age and comorbidities. The mortality rate increases in elderly patients. Obesity increases the risk of mortality. (Borderline patients are difficult to manage because the choice between ETC and DCO remains uncertain. Preoperatively these patients are apparently stable but deteriorate unexpectedly and may develop organ dysfunction after the surgery. Injury severity score (ISS) is an important factor in multiple injuries as it is related to mortality, morbidity and hospitalization time after trauma.

CONCLUSION

There is no universally accepted precise definition of polytrauma. Thorough preoperative assessment
of patient’s haemodynamics and ventilation is a key factor in determining the type of treatment policy. Identification of borderline cases is very important, their treatment is controversial. The orthopaedic surgeon should not make intervention which is likely to give the patient a “sustained” hit. In a well resuscitated patient early stabilization is warranted. ETC is the gold standard in stable patients. Currently DCO is the preferred approach in “unstable” and “in extremis” patients. Major goal is survival of the patient. Adequate resuscitation before surgery is essential.

REFERENCES
Prevalence of Anxiety and Depression in Patients with Acne Vulgaris

Aqsa Naheed FCPS(Derma)1, Naveed Ghani FCPS(Psych)2, Ejaz Gul FCPS(Psych)3, M. Muslim Khan FCPS(Psych)4.

ABSTRACT

Background: Acne vulgaris is a common skin disease especially occurring during the second and third decades of life, and previous studies have identified significant psychosocial burden associated with this disease.

Objective: The objective of this study was to determine the prevalence of anxiety and depression amongst patients diagnosed with acne vulgaris presenting to the dermatology outpatient department of a tertiary care facility.

Methods: 100 consecutive patients who were diagnosed as suffering from acne vulgaris by a skin specialist were enrolled in the study from January 2016 till August 2016. Elderly patients aged >65 years, and those who were on long term steroids were excluded from the study. The selected patients, having obtained their written informed consent, were screened for anxiety and depression using hospital anxiety and depression scale.

Results: The mean age was 28.72 ± S.D 7.76 years. There was a female preponderance with 76(76%) females and only 24(24%) males. The mean anxiety and depression scores on hospital anxiety and depression scale were 9.64 ± S.D 5.62 and 9.93 ± S.D 5.135 respectively. The hospital anxiety and depression scale interpretation revealed that Depression was present in about 70 (70%) cases with 30(30%) having mild, 20(20%) for moderate and 20(20%) again for severe depression. The anxiety subscale interpretation revealed that anxiety was present in 66% of the cases with 26(26%) cases having mild anxiety, 20(20%) for both moderate and severe anxiety.

Conclusion: This study does show some degree of anxiety and depression in patients suffering from acne vulgaris. Early and effective management of these cases could lead to improved self-image, better psychosocial health and improved health related quality of life.

Keywords: Depression, stress, anxiety, acne vulgaris

INTRODUCTION

Acne vulgaris is the chronic inflammatory disease of the pilosebaceous units, which predominantly involves face and upper part of the trunk and is characterized by seborrhea, comedo, red papules, superficial pustules, deep or pseudocystic nodules, pustules, and sometimes scar.1

Four main factors play roles in its pathogenesis: increase of sebum production, hyper cornification of the pilosebaceous duct, microbial flora, especially colonization of Propionibacterium Acne, and inflammation.2 Knowledge of relationship between skin diseases and psychiatric morbidity is increasing. There are few studies which show evidence of existence of psychiatric disorders such as anxiety, depression, aggression, low self-esteem, suicidal thoughts and attempts in patients with acne vulgaris.1,2

In some studies, increase of prevalence of anxiety in patients with acne and positive relationship between severity of anxiety and severity of acne have been reported.3-5 Yet, in few other studies, no such association has been seen or the severity of anxiety and depression was unrelated to the severity of acne clinically.6,8 As regards socio-demographic variables, some studies have identified no significant correlation between anxiety and depression with age and gender,4,6 but some studies found a higher prevalence of anxiety and depression for women.9,10

This study reveals some degree of anxiety and depression in patients suffering from acne vulgaris. Early and effective management of these cases could lead to improved self-image, better psychosocial health and quality of life.

In Kellet et al. study on 34 patients with acne, using hospital anxiety and depression scale (HADS) questionnaire, depression and anxiety score in these patients were more than in patients with psoriasis and cancer and psychiatric disorders were more prevalent in women. Significant clinical depression and anxiety were identified in 18 and 44% of the patients, respectively.9 Keeping this background in mind, and the fact that previously no relevant study was conducted in our
hospital setting, we decided to determine prevalence of anxiety and depression amongst patients presenting to Dermatology outpatient department in our hospital.

**METHODOLOGY:**

This descriptive, cross-sectional study, was conducted for a period of 8 months from January 2016 till August 2016, at the Dermatology Outpatient Department of Cantonment General Hospital, Rawalpindi, a tertiary care setting. The study protocol was presented to and thoroughly discussed with the Ethical review committee of the hospital, and the study was commenced having obtained formal approval from the Ethical Committee.

100 newly diagnosed patients, aged 18 and above, with acne vulgaris through thorough assessment and examination by a certified dermatologist, were consecutively recruited for the study. They were clearly explained the objectives of the study and written informed consent was obtained from them. They were also ensured of the concealment of their identities and confidentiality was maintained throughout the study period. The subjects were screened for anxiety and depression using Hospital Anxiety and Depression Scale.

HADS questionnaire includes 14 questions (seven questions related to anxiety and seven questions related to depression) and each question scores 0 to 3 depending on the severity of the problem. Summing anxiety score, HAD-A (Anxiety subscale), and summing depression scores, HAD-D (depression subscale) were achieved. HADS interpretation: 0-7 = Normal 8-10 = Mild 11-14 = moderate and 15-21. The anxiety and depression scores were calculated separately and interpreted as mentioned above. Internal consistency according to α-Chronbach for Persian copy of HADS questionnaire based on Montazeri et al. study for HAD-D and HAD-A is 0.86 and 0.78, respectively. Elderly patients aged more than 65 years especially with severe cognitive impairments, were on long term steroids, and those patients who could not understand the native language were excluded from the study. The data was entered and analysed using SPSS 22.0. For the continuous variables like age, mean ± S.D was calculated. For the categorical variables, like gender, prevalence of anxiety and depression, frequencies and percentages were presented.

**RESULTS:**

The mean age was 28.72 ± S.D 7.76 years. There was a female preponderance with 76(76%) females and only 24(24%) males. The mean anxiety and depression scores on hospital anxiety and depression scale were 9.64 ± S.D 5.62 and 9.93 ± S.D 5.135 respectively. The Hospital Anxiety and Depression scale interpretation revealed that Depression was present in about 70 (70%) cases with 30(30%) having mild, 20(20%) for moderate and 20(20%) again for severe depression. The anxiety subscale interpretation revealed that Anxiety was present in 66% of the cases with 26(26%) cases having mild anxiety, 20(20%) for both moderate and severe anxiety,
FIGURE 3 | Histogram showing the mean score of depression on Hads depression subscale (n=100)

Table 1 Patients showing the different severities of anxiety according to HADS (anxiety) subscale

<table>
<thead>
<tr>
<th>Severity of anxiety</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>absent/no anxiety</td>
<td>34</td>
<td>34.0</td>
</tr>
<tr>
<td>mild anxiety</td>
<td>26</td>
<td>26.0</td>
</tr>
<tr>
<td>moderate anxiety</td>
<td>20</td>
<td>20.0</td>
</tr>
<tr>
<td>severe anxiety</td>
<td>20</td>
<td>20.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2: Patients with depression

<table>
<thead>
<tr>
<th>Severity of depression</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>absent/no depression</td>
<td>30</td>
<td>30.0</td>
</tr>
<tr>
<td>mild depression</td>
<td>30</td>
<td>30.0</td>
</tr>
<tr>
<td>moderate depression</td>
<td>20</td>
<td>20.0</td>
</tr>
<tr>
<td>severe depression</td>
<td>20</td>
<td>20.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2: Showing the different severities of depression according to HADS (depression) subscale

DISCUSSION:

This study shows acne vulgaris is associated with some degree of anxiety and depression. Previous studies have shown that, in patients with acne vulgaris, the risk of anxiety and depression, and therefore suicidal tendencies, is said to be increased. This finding is in line with other locally and internationally published studies which shall be reviewed and discussed here.

A recent study\(^\text{12}\) showed that amongst cases of acne vulgaris, 56.1% of the respondents had comorbid anxiety, depression symptomatology or suicidal ideation related to acne. Among them, 38.4% had anxiety symptoms, 23.1% had depression symptoms and 12.9% had suicidal thoughts due to acne. Yet another study from India\(^\text{13}\) showed that amongst the patients of acne vulgaris, the prevalence of anxiety was 68.3%, while the prevalence of depression was 25.6%.

Another study\(^\text{14}\) found that amongst the acne vulgaris patients, 70% cases were normal having 0-7 score, 20% were borderline abnormal (8-10 score) and 10% having abnormal anxiety level; while 84% individuals had normal depression level; 14% were borderline abnormal and only 2% individuals were abnormal. Likewise, a number of studies have identified acne vulgaris itself to be a major risk factor being closely associated with increased psychological distress and poor quality of life.\(^\text{15,16}\)

Now it’s worthwhile to relate findings from local studies conducted in Pakistan. Most studies\(^\text{17-19}\) generally have found have reported a high prevalence of anxiety and depression in patients diagnosed with acne vulgaris. One of these studies was conducted at Lady Reading Hospital Peshawar, which compared 50 patients of acne vulgaris with 50 patients of seborrhic skin problems for associated psychiatric morbidity. Out of 50 acne patients 19 (38%) were suffering from depression, with a female predominance. The control group (seborrhic) presented lower prevalence of depression i.e. 57% in females. Similarly Anxiety problem in particular social anxiety were overall more in acne group (34%) as compared to seborrhic group (10%). A statistically significant difference was observed between the two groups indicating that depression and social anxiety was more in the acne group. A consistent finding in the study over six months depicted the difference between gender i.e. more females presenting with depression. Total depressed patients were 19, with suicidal thoughts were 4 (21%).\(^\text{17}\) Another study from Pakistan by Faria Asad et al. (2002)\(^\text{18}\) found a high prevalence of about 60% for anxiety however mean scores for depression were non-significant.

Another study from Karachi\(^\text{19}\) confirms again this association. This study was conducted in the out patients departments of Psychiatry and Dermatology, Ziauddin Medical University, KDLB campus, Karachi - Pakistan. Around 42% of the total recruited patients with acne vulgaris were diagnosed as suffering from significant anxiety and depression, with females accounting for 29% and males 13%. Another study from India\(^\text{20}\) revealed higher psychiatric morbidity in patients with acne vulgaris. Clinically significant depression in 39.1% and anxiety in 4.35% of patients with acne vulgaris was found. There were statistically significant differences between males and females.

CONCLUSION:

This study reveals some degree of anxiety and depression in patients suffering from acne vulgaris. Early and effective management of these cases could lead to improved self image, better psychosocial health and improved health related quality of life.

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Knowledge and Practice of Using Devices amongst Females visiting Family Planning Center.

Summen Saif MBBS, Hafiza Ammara Khan MBBS, Erfa Sikandar MBBS

ABSTRACT:

Objective: Objective of this study is to determine the extent of knowledge and practice of contraceptives among females visiting family planning center.

Methodology: It is a cross sectional study which was performed in Department of Gynaecology POF Hospital Wah Cantt from January 2016 to July 2016. Sample size was calculated by using WHO sample size calculator (n=(1.96)^2*pq/0.05^2). Sampling technique used was convenient sampling. Approval for the study was obtained from Hospital’s Ethics Committee and informed consent was taken from the women taking part in the study. A total number of 125 females visiting family planning center were included in the study. A performa in the form of questionnaire was distributed among the patients participating in the study. In order to determine the extent of knowledge we defined good knowledge as; those who answered 6-9 questions had good knowledge as; those who answered 4-5 questions had average knowledge as; those who answered less than 4 questions had poor knowledge; those who answered no or less than 4 questions had poor knowledge. Similarly practice was also defined in terms of good, average and poor. Those females who answered 4-5 questions out of 5 had good practice, those who answered 3 out of 5 had average practice and those who answered less than 3 had poor practice. The data thus collected was analyzed using computer software SPSS 23 version.

Results: According to our survey out of 125 females 30 females lied in 15-25 group, 62 in 26-30 year’s group and 33 in 31 to 45 years group. When educational status was considered 103 were educated and 22 were uneducated. Out of 125, 85 were housewives and 40 were employed. Monthly income of 24% females was less than Rs. 5000; monthly income of 54% females was less than Rs. 10000; and monthly income of 45% was greater than Rs. 10000. Out of 125, 20 females had no children, 31 had 1 child, 40 had 2 children and 34 had more than 2 children. Out of total 125 females, 52 females came to know about family planning through media, 36 came to know through doctor and 37 came to know through friends/relatives. When knowledge about different devices used to avoid conception was inquired, 93 had knowledge about other methods while 32 did not. Out of 100% (125) 60.8% females had previously used such method while 39.3% had not used any such device previously. When question asked about the name of the method previously used by them, 34 females had no knowledge about them, 45 used such devices, 22 used OCPs, 19 used IUCDs and 5 used injectable.

Conclusion: This study concludes that both knowledge and practice of such devices/methods used to avoid pregnancy was good among the women participating in the study. However there was a slight difference between level of knowledge and practice i.e. level of practice of using such devices was slightly lesser as compared to level of knowledge among women.

Keywords: Knowledge, Practice, devices.

INTRODUCTION:

Contraception was defined by World Health Organization (WHO) as: “way of thinking and living that is adapted voluntarily, upon basis of knowledge, attitudes and responsible decisions by individuals and couples, in order to promote the health and welfare of family and thus contribute effectively to the social development of a country”. By preventing unwanted pregnancies, proper spacing and limiting the births, contraception plays significant role to improve women’s health (1). Moreover it is also important in improving child and fetal health, child mortality and its growth and development. Contraception plays role in child development through birth spacing and family control (2). With the help of birth spacing and short family size, a child is more likely to receive full care, protection and nutrition.

Both knowledge and practice of such devices/methods used to avoid pregnancy is good among the women. However, there is a slight difference between level of knowledge and practice of using such devices which is slightly lesser as compared to the level of knowledge in them.

For any country, its productive capacity is very
Knowledge and Practice of Using Devices amongst Females visiting Family Planning Center.

MATERIALS AND METHODS:
Sample size was calculated by using WHO sample size calculator \( n = (1.96)^2 \times pq / (0.05)^2 \). Sampling technique used was convenient sampling. Approval for the study was obtained from Hospital’s Ethics Committee and informed consent was taken from the women taking part in the study. Women who reported in outpatient and visiting family health center for treatment and checkups in POF Hospital were included in the study, while those who reported in Obstetrics Department were not included in the study. A total number of 125 females visiting family planning center were included in the study. A performa in the form of questionnaire was distributed among the patients participating in the study. In order to determine the extent of knowledge we defined good knowledge as; those who answered 6-9 questions had good knowledge, average knowledge as; those answered 4-5 questions had average knowledge and poor knowledge; those who answered no or less than 4 questions had poor knowledge. Similarly practice was also defined in terms of good, average and poor. Those females who answered 4-5 questions out of 5 had good practice, those who answered 3 out of 5 had good practice and those who answered less than 3 had poor practice. Questionnaire consisted of questions regarding awareness and practice of using contraceptive devices among females of reproductive age taking part in this study. The data thus collected was analyzed using computer software SPSS 23rd version.

RESULTS:
According to our survey out of 125 females, 30 females lied in 15-25 group, 62 in 26-30 years group and 33 in 31 to 45 years group. When educational status was considered 103 were educated and 22 were uneducated. Out of 125, 85 were housewives and 40 were employed. Monthly income of 24% females was less than Rs. 5000; monthly income of 54% females was less than Rs. 10000; and monthly income of 45% was greater than Rs. 10000. Out of 125, 20 females had no children, 31 had 1 child, 40 had 2 children and 34 had more than 2 children. When inquired about practice of family planning 28.8% females said it’s about permanent contraception and 71.2% females said it’s about child spacing. Out of total 125 females, 52 females came to know about family planning through media, 36 came to know through doctor and 37 came to know through acquaintances. When asked if the visits to family planning center should be done or not in the form of yes or no respectively, 116 said yes and 9 said no.

Out of 125(100%) 81.6% females said that their husband agreed to family planning while remaining 18.4% said their husband did not agree to this. When inquired about complete examination by physician before using such methods, 112 females said yes it should be done and 13 said no examination is required. When asked about the necessity of follow up in family planning 109 females said yes follow is necessary and 16 said no follow up should be performed. When asked about lactation as a contraceptive method, 64% agreed while 36% disagreed. When knowledge about different contraceptives was inquired, 93 had knowledge about other methods while 32 did not. Out of 100% (125) 60.8% females had previously used contraceptive method while 39.3% had not used any contraceptive method previously. When question asked about the name of the such devices previously used by them, 34 females had no knowledge, 45 used such devices, 22 used OCPs, 19 used IUCDs and 5 used injectable. Similarly when inquired about the duration for which they have been using this contraceptive method, 38 had no idea, 38 were using for 6 months, 29 were using over a year, 9 were using for two years, 10 females were using for more than 2 years.

DISCUSSION:
In our cross sectional study out of 125 women interviewed, 82.4% respondents were literate and 68% were housewives having good knowledge of contraception compared to 37.8% literacy rate and 95.2% housewives in study conducted in Kohat about knowledge, attitude and practices of contraception in women of reproductive age. Contraceptive use in our study was 72.8% which is a good practice as compared to 50.8% in study conducted in Kohat Pakistan. In a study it was concluded that in our country in spite of high level of awareness, use of contraceptives is low. The major factors contributing to the non-use of contraceptives are unwillingness of husband, religious beliefs, desire for large family and fear of side effects. These factors can be eradicated by women’s education to enhance their understanding and use of modern contraceptives. In a study conducted about the reasons behind non use of contraceptives in developing countries concluded that easy access to family planning services and other services which provide knowledge about different methods of contraceptives and help women to select and effectively use an effective method is critical in helping women of reproductive age to overcome the obstacles to contraceptive use. Another study showed similar conclusion that in spite of high level of awareness, use of contraceptives is low. The major factors contributing to the non-use of contraceptives are unwillingness of husband, religious beliefs, desire for large family and fear of side effects. These factors can be eradicated by women’s education to enhance their understanding and use of modern contraceptives.
of proper knowledge and awareness level, contraceptive use was insignificant, because of multiple myths, family norms, political and cultural barriers (13, 14).

In a study about use of emergency contraceptive to prevent unwanted pregnancy, it was found that use of emergency contraceptives was only 12%. It was also found that there was strong association of knowledge of the women and their age, number of children they had and socioeconomic status. The ration of unwanted pregnancies was highly associated with educational level of the participants of the study (15). Recently a study was conducted about prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Pakistan and its results showed that integrated national family planning program which provide awareness about modern contraceptive methods and their use to women during preconception and post-partum can prove beneficial in preventing unwanted or unintended pregnancies and their adverse outcomes in developing countries like Pakistan (16).

Another study which was conducted among the women of rural areas revealed that there was good knowledge and positive attitude of rural women towards the concept of contraception. This knowledge and attitude was basically influenced by media exposure and partner’s opposition. Education and effective counseling, electronic media, health personnel and governmental organizations can play important role to provide knowledge and bridge the knowledge/practice gap (17). In developing countries like Pakistan, in order to educate parents and couples about contraception and to strengthen the true belief about family planning and also to create awareness among women about family size, we need to use multiple media sources. Concept of gender discrimination between sons and daughters should also be discouraged. Governmental and non-governmental organizations need to organize counseling groups and promote contraceptive services at the doorstep (18).

CONCLUSION:
This study concludes that both knowledge and practice of using such methods was good among the women participating in the study. However there was a slight difference between level of knowledge and practice i.e. level of practice was slightly lesser as compared to level of knowledge among women.

Conflict of Interest: Nil  
Funding Source: Nil

Authors Contributions:
1. Conceived idea, design study, Dr Summen Saif
2. Data collection, Manuscript writing, Dr Hafiza Amnara Khan  
literature review
3. Statistical analysis, Manuscript Writing  
Dr Erfa Sikandar

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Frequency of Depression amongst Acne Patients.

Muhammad Murtaza MBBS1 Rana M. Zeeshan Khan MBBS2 Hina Hameed MBBS3, Bilal Nazar MBBS4

ABSTRACT:
Objective: of our study was to assess the magnitude of depression in patients presented with Acne in the Department of Dermatology Bahawal Victoria Hospital. Bahawalpur.
Methodology: This cross sectional study was conducted from July 2016 to January 2017. None probably consecutive sampling technique was used. Study was started after ethical approval from the departmental ethical committee. Data was analyzed through statistical software SPSS version 23, mean ± SD was calculated for quantitative data like age and frequency (percentage) was calculated for qualitative data like depression (present/absent) and education status. P value ≤ 0.05 was considered as significant.
Results: A total number of 375 patients were included in this study, both genders. The main outcome variable of this study was the frequency of depression. It was observed that, out of 375 patients, majority of the patients i.e. 59.5% (223 were severely depressed, 24% (n=90) had moderate depression and only 16.5% (n=62) had mild depression.
Conclusion: We concluded that acne is strongly associated with depression, in our society female gender is more depressed due to their skin problem. Moreover educated female were highly conscious and more depressed due to acne.
Keywords: Acne, Depression, AKUADS, Skin

INTRODUCTION
Now a days psychological problems are rising day by day in our society. Minute change in our skin can result in serious emotional disturbance(1). One of the skin disease which is most common in our region is acne. There are four basic causes of acne which were explained in literature: (i) sebum production (hyperactivity of sebaceous gland. (ii) Microbial flora. (iii) Inflammation and (iv) Hyper cornification of pilosebacious duct(2,3). In beauty related depression one person isolate his/herself from society or from his/her relations, person avoid sitting in gatherings or avoid get together. Person feels his/herself as a source of fun or joke for others and all these feelings leads him/her towards the state of depression(4).

One cannot measure the exact increasing rate of depression amongst beauty conscious persons and one cannot write its exact occurrence rate in figures.

Association of severity of acne and severity of depression was reported in many studies(5). Depression is a serious condition in which one express intense feeling of sadness, feels very low and accumulation of negative thoughts occur in person’s mind which may leads towards low self esteem, low confidence even it can leads towards suicides(6). Educated and professional female are more conscious about their skin color that’s why depression after skin change is increasing in these personalities(7).

Acne is strongly associated with depression especially in educated females who are highly conscious of their skin care.

Many studies have estimated 7%-50% depression in urban colonies as compared to rural colonies. Incidence of skin problem related depression is comparable with depression related to other medical problems. As depression rate moves from 25% to 40% in patients with skin problems, rate of depression can be 6-8% in patients with other medical problems(9). In a study Ahmed S(10) included 100 acne patients and found that there are 7% patients have severe depression, 21% have moderate and 12% patients were in state of mild depression.

Very few studies have been conducted on this topic internationally and no local study available, we
decided to conduct a cross sectional study to investigate the exact frequency of depression in acne patients. In future our study will be used as a local reference for further research.

METHODOLOGY:
This cross sectional study was carried out in six months duration and consent was taken from patients after complete information. Sample size was calculated with WHO sample size calculator using following figures: CI 95%, Power of study 80% proportion of outcome variable (p1) 21%. Those with known history of depression or mental disorders, using corticosteroids, phenobarbital, creams or lotions for treatment of acne, patient who were on prior medication like and known history of diabetes, liver disease, joint disease were all excluded from the study. Presence of depression was measured in Agha Khan University Anxiety and Depression Scale (AKUADS)(11).

All collected data was entered in SPSS software version 23 and analyzed. Mean and SD was calculated for quantitative data like age, frequency and percentages were calculated for qualitative data gender and presence of depression. Post stratification chi square test was applied to see effect modification. P value ≤ 0.05 was considered as significant.

RESULTS:
A total number of 100% (n=375) patients were included in this study, both genders, there were more males than females i.e. 70.1% (n=263) and 29.9% (n=112) respectively. The mean age of the patients was 25.88±6.36 years. It was observed that there were 53.3% (n=200) patients in 11-25 years’ age group and 46.7% (n=175) patients in age group 26-40 years. It was noted that almost half of the patients i.e. 50.7% (n=190) graduates, 29.9% (n=112) post graduates and only 19.5% (n=730) matriculation.

The main outcome variable of this study was the frequency of depression. It was observed that, out of 100% (n=375) patients, majority of the patients i.e. 59.5% (n=223) severe depressed, 24% (n=90) moderate depressed and only 16.5% (n=62) mild depressed. It was noted that, in male patients, 54.8% (n=144) severe, 26.6% (n=70) moderate and only 18.6% (n=49) patients had mild depression, while, in females, it was observed that a big majority i.e. 70.5% (n=79) severe, 17.9% (n=20) moderate and only 11.6% (n=13) had mild depressed (Figure.2). It was very interesting to note that as the education increased, the severity of depression will also be increased (Figure.1).

When Chi-Square was applied to check the association, it was noted that depression was significantly associated with gender, education status and stratified age with p-values (p=0.017), (p=0.00) and (p=0.001) respectively. (Table 1).

DISCUSSION
In this modern era people are more conscious about their physical beauty as compared to other medical problems. People prefer facial beauty over internal medical problems. People use different expensive therapies to look beautiful or charming(12). They are consciously or unconsciously attending cosmetic clinics, but unfortunately if they develop some skin problem like Acne then they can suffer from severe depression concerning their beauty (13, 14).

Golchai J et al(15) conducted a randomized control trial to compare the prevalence of depression among acne and normal persons and found that prevalence was 68.3 % in acne patients and 39.1% in normal subjects. In this trial outcome variable was not compare with respect to gender and socioeconomic status. Findings of this study are similar to our study results. In our study it was observed that, out of 100% (n=375) patients, majority of the patients i.e. 59.5% (n=223) were severely depressed, 24% (n=90) moderately depressed and only 15.5% (n=62) were mild depressed.

Incidence of acne related depression is high in competitive females of urban areas as compared to females of rural area. This is all because of sense of modernism. Other than specific areas of living, age, sex also had great influence over depression rate(16). People with young age are more beauty conscious than old age people. Thus it is reported in previous literature that skin problems can leads towards depression and affects people badly, but in our study we did not observe depression in rural and urban areas due to limitation of resources.

Khan M et al(16) conducted a study in 2001 and
concluded that acne is a leading cause of depression among skin problems. Fifty acne patients were included in this study out of them 19 patients 38% diagnosed with depression stat among these female gender was dominant. Twenty percent of these depressed patients attempt suicidal attempts. Same results are reported in our study that frequency of depression is more in female gender.

Refatllari B (17) studied about Acne Related depression and its incidence among patients. His studies concluded that incidence of depression was 27.5% of patients. According to his studies time period or length of skin problem can affect stage of depression. Higher length of skin problem can leads to severe depression. Results of this study were also identical and in favor of our results.

In 1998, Gupta M et al (18) correlated his study with our results. Results of this study were also identical and in favor of our studies. He also found high frequency of depression in female ed female were highly conscious and more depressed due to their skin problem. According to his studies time period or length of skin problem can affect stage of depression. Higher length of skin problem can leads to severe depression. Results of this study were also identical and in favor of our results.

In 1999 Kellett et al (19) conducted a study on psychological impact of acne and found that 18% of subjects were found in state of severe depression before start of treatment. As reported in previous reports he also found high frequency of depression in female patients than male patients. This study also confirmed our findings.

CONCLUSION:

We concluded that acne is strongly associated with depression, in our society female population is more depressed due to their skin problem, as educated female were highly conscious and more depressed due to their skin problem.

Conflict of interest: Nil. Funding source: Nil

1. Conceived idea, design study, Dr Muhammad Murtaza
2. Data collection, manuscript writing, Dr Rana M. Zeeshan Khan
3. Data collection, manuscript writing, Dr Hina Hameed
4. Manuscript writing, statistical analysis, Dr Bilal Nazar

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Prophylactic Dexamethasone as Antiemetic for Postoperative Nausea and Vomiting after Cardiac Surgery in High-Risk Patients

Nasreen Laiq FCPS¹ Shahid Khan, FCPS² Muhammad Naeem Khan FCPS³

ABSTRACT:

Background: Postoperative nausea and vomiting (PONV) is a frequent complication after any surgical intervention, including cardiac surgery where incidence can reach 70%. Proposed explanations for these prevalent complications include particularly prolonged surgery with gut hypoperfusion, and endogenous catecholamine surge. Close attention should be paid to PONV after surgery in fragile cardiac patients in light of increased metabolic demands during emesis and the risks of aspiration. Prophylaxis is now a well-accepted approach for decreasing PONV after non-cardiac surgery. Drugs typically used for prophylaxis are independently associated with a 26% decrease in PONV, notably droperidol, ondansetron, and dexamethasone.

Aims: To study the risk factors for PONV after cardiac surgery and the role of dexamethasone with or without for its prevention.

Material and Methods: A randomized clinical trial was conducted on 100 patients, planned for cardiac surgery from July 2015 to July 2016 with patients in the cardiac ICU of Lady Reading Hospital Peshawar, Pakistan. 50 patients were enrolled into either of two groups in a randomized way. Group D received dexamethasone while Group N received normal saline. The primary outcome measure was the incidence of postoperative Nausea and vomiting in two groups after cardiac surgery. Approval for the study was taken from Institutional Research and Ethical board Lady Reading Hospital Peshawar. An informed consent was obtained from each patient enrolled in the study. Calculations were done using the SPSS, software package, version 17. The student 't' test was performed to compare two data. Results were displayed in figures as mean ± SD. P values of 0.05 or < 0.05 were considered statistically significant.

Results: Patients demographics were almost similar between the two groups. There was no difference in the Cross-clamp time and Cardiopulmonary bypass times, intraoperative blood gases and haemodynamics were similar between the two groups. (P > 0.05). Postoperative Nausea and vomiting were significantly reduced in dexamethasone group versus control group (P < 0.05, significant). Length of stay in the intensive care unit (ICU) was also greatly reduced in Dexamethasone group. Of the 100 patients in both groups, no serious complications were seen, while discharged from the ICU.

Conclusion: Our study provides evidence that preoperative dexamethasone therapy is associated with a reduction in the incidence of PONV in high risk cardiac surgical patients without any side effect.

Keywords: Anti-emetics, cardiac surgery, postoperative emesis, postoperative nausea and vomiting, prophylaxis, in high-risk patients.

INTRODUCTION:

Postoperative nausea and vomiting (PONV) is a frequent complication after any surgical intervention, including cardiac surgery where incidence can reach 70%. Raised cerebral pressure, sympathetic nervous system overactivity, postoperative atelectasis, and endogenous catecholamine surge are responsible for PONV. However, the postoperative PONV in cardiac surgery is often related to traumatic intubation, hypotension, and hypoxia. Emotional, physical, and psychological stress are also considered as risk factors for PONV. Many factors influence PONV and act as a risk factor for PONV. Cardiac surgery with gut hypoperfusion, and endogenous catecholamine surge Close attention should be paid to PONV after surgery in fragile cardiac patients in light of increased metabolic demands during emesis and the risks of aspiration. Prophylaxis is now a well-accepted approach for decreasing PONV after non-cardiac surgery. Drugs typically used for prophylaxis are independently associated with a 26% decrease in PONV, notably droperidol, ondansetron, and dexamethasone.

Preoperative dexamethasone therapy is associated with a reduction in the incidence of (PONV) Postoperative Nausea and Vomiting in high risk cardiac surgical patients without any side effect.

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**METHODS:**

A randomized clinical trial was conducted from July 2015 to July 2016 with patients in the cardiac ICU of Lady Reading Hospital Peshawar. 100 patients were enrolled, 50 in either of two groups in a randomized way, to evaluate postoperative nausea and vomiting after cardiac surgery (PONVACS) in high-risk patients. Group D received 4mg of dexamethasone intravenously while Group N received normal saline of same volume. Ethical approval for this study was provided by the regional Ethical Committee, Patients provided informed consent. Patients with planned cardiac surgery were screened for inclusion were planned non-emergent cardiac surgery performed using median sternotomy, age ≥18 years, and physician approval for study participation.

Exclusion criteria included pregnancy, contraindication to anti-emetics, chronic antiemetic use and emergent or complicated surgery. As some risk scores incorporate postoperative opioid use as a risk factor, we defined high-risk as having two or more factors among the following: female sex, nonsmoker, migraine sufferer, motion sickness, and a past history of PONV. Control arm Prophylaxis was indicated if a patient had two or more risk factors, and composed of dexamethasone (4 mg) immediately after cardiac surgery upon arrival in the Intensive Care Unit (ICU). Surgery and anesthetic management Patients were intubated after induction of anesthesia with midazolam, etomidate, atracurium and fentanyl. Maintenance was performed with atracurium, fentanyl, and propofol, +/- volatile anesthetics and oxygen Median sternotomy, normothermic cardiopulmonary bypass, and warm blood cardioplegia were performed whenever needed, without corticosteroids. Full heparinization was antagonized by protamine sulphate. Subxiphoideal chest tubes (18 or 28 Fr) were used to drain pericardial and mediastinal spaces (with or without additional pleural tubes). Sternal bone was closed with steel wires and stitches, and skin was sutured intracutaneously. At the end of surgery, sedatives were interrupted and patients were transferred to the ICU for fast-track postoperative care. Patients were extubated when they were without risk of reoperation, rewarmed, awake, and able to successfully perform a spontaneous breathing test (median extubation time 4 h). Preoperative cefazolin was continued for 24–48 h, and paracetamol (1 g/6 h) was administered to all patients. No nasogastric tubes were inserted. Outcomes All outcomes were assessed at 48 h after surgery.

The primary endpoint was the occurrence of PONV, assessed by nurses over the entire 48 h period. Secondary endpoints were the number of nausea and vomiting events, assessed according to a visual analog scale (VAS) in terms of severity (where 0 and 100 mm represent no and maximal intensity, respectively), and anti-emetics used to treat each episode (rescue therapy was administered following a nurse-driven procedure); Statistical analyses Data were expressed in number (%), median, and mean (± standard deviation). Categorical variables were compared using Chi-square test, A P < 0.05 was considered significant.

**RESULTS**

Patients demographics were almost similar between the two groups. There was no difference in the Cross-clamp time and Cardiopulmonary bypass times between the two groups. The percentage of minor complications in both groups were lower. Patients of the dexamethasone group had a shorter stay on ventilator as well as in the ICU, i.e. 2.95 ±0.78 days versus 7.44±1.12 days for controlled group. Mortality was similar in the two groups. Of the 100 patients in both groups, no serious complications were seen on ventilatory support while discharged from the ICU.

Patients had a mean age of 45 ± 13.03 and 40 ± 14.25 in dexamethasone and saline group respectively. In terms of cardiac surgery, 52 (%) underwent a coronary artery bypass graft and (48%) had heart valve surgery. At one month post-surgery, none had died. Analysis of the presence of PONV risk factors showed that patients in the control group had significantly higher incidence of motion sickness, migraines and a past history of PONV. A high-risk for PONV (≥2 risk factors) was reported in (35%) of patients. In the context of the study (54%) experienced PONV, with rescue antiemetic in 32 % of patients in control or saline group, while the number of patients in dexamethasone group were 45%, rescue antiemetic was given in 28% of the cases.

**Table 1.** Patient profiles.

<table>
<thead>
<tr>
<th></th>
<th>Dexamethasone</th>
<th>Control saline (n=50)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>45 ± 13.03</td>
<td>40 ± 14.25</td>
<td>P &gt; 0.05 (NS)</td>
</tr>
<tr>
<td>Sex (M / F)</td>
<td>23/27</td>
<td>35/15</td>
<td></td>
</tr>
<tr>
<td>Cross-clamp</td>
<td>50.74 ± 1.54</td>
<td>47.55 ± 1.44</td>
<td>P &gt; 0.05 (NS)</td>
</tr>
<tr>
<td>PONV</td>
<td>54.00%</td>
<td>45.00%</td>
<td>P &lt; 0.05 (NS)</td>
</tr>
<tr>
<td>CABG/Valve</td>
<td>25/22</td>
<td>27/26</td>
<td>P &gt; 0.05 (NS)</td>
</tr>
<tr>
<td>Rescue Antiemetic</td>
<td>32.00%</td>
<td>28.00%</td>
<td>P &gt; 0.05 (NS)</td>
</tr>
<tr>
<td>ICU stay (hours)</td>
<td>47 ± 4.45</td>
<td>62.71 ± 2.79</td>
<td>P &lt; 0.05 (Significant)</td>
</tr>
</tbody>
</table>

**Table No 2 : Risk Factors**

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>PONV%</th>
<th>No PONV%</th>
<th>P-Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>34.4</td>
<td>17.3</td>
<td>&lt;0.0001</td>
<td>Significant</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>74.4</td>
<td>77</td>
<td>0.49</td>
<td>NS</td>
</tr>
<tr>
<td>Past history of PONV</td>
<td>15</td>
<td>5.2</td>
<td>0.0003</td>
<td>Significant</td>
</tr>
</tbody>
</table>
Prophylactic Dexamethasone as Antiemetic for Postoperative Nausea and Vomiting after Cardiac Surgery in High-Risk Patients

Our protocol was relatively well followed, administering the drugs earlier. This approach was also used to allow for administration of rescue anti-emetics with first-line ondansetron and metoclopramide. Alternatively or in addition, droperidol is effective and safe, although it should not be administered to patients with extrapyramidal disease.[9] Similarly, prophylaxis with metoclopramide is more effective than with ondansetron, and is the preferred option, thus, ondansetron could be administered as rescue therapy if needed. However, we considered that dexamethasone is the preferred choice as an effective treatment for PONV prophylaxis, as it may decrease postoperative inflammation and atrial fibrillation, and improve recovery.[10] No other pharmacologic measures, such as gastric emptying by nasogastric tube may be more efficient, although not performed in our patients.[12] However, routine nasogastric tube may promote pulmonary complications. Further studies are necessary to fine-tune the optimal prophylaxis protocol(s) of PONV in cardiac surgery.

Risk factors for postoperative nausea and vomiting Volatile anesthetics have a particular role in cardiac surgery, including preconditioning. We did not find an association between volatile anesthetics (in 85% of our patients) and PONV. Nonetheless, this should not limit their broad use in cardiac surgery.[13] Clearly, quitting smoking as early as possible in all patients should be a priority, and particularly so in cardiac patients. Other risk factors, such as female sex, past history of PONV, and migraines were associated with two to three-fold increased PONV.[7,8,14] We also believe that our prophylaxis protocol should be intensified after cardiac surgery, as more than half of our patients experienced PONV and risk factors were independent. In pain management we hypothesized that prophylaxis of PONV may facilitate analgesic management and subsequently improve postoperative pain and discomfort in high-risk cardiac surgery patients; however we failed to validate this hypothesis. One possible way to manage PONV and hyperalgesia may be to administer clonidine, dexmedetomidine, or ketamine; this hypothesis has yet to be proven.[13]

In addition, several analgesic management strategies have been associated with decreased PONV, including paracetamol, non-steroidal anti-inflammatory drugs alone, and combined with dexamethasone (+ gabapentine).[16-18] Pain management specifically after cardiac surgery is our focus in this study and this area requires dedicated studies to identify the optimal protocol. However, it is of note that we were able to confirm the finding that pain is associated with PONV, independently of its analgesic management[16]. The cardiac disease and intake of other cardiac drugs (not reported in our study) may have been of importance. Female sex was associated with longer pre- and (to a less extent) post-surgery. In these fragile patients, PONV prophylaxis was considered safe, without any

**DISCUSSION:**

The Incidence of postoperative nausea and vomiting in our study of 100 patients after cardiac surgery, 36% were considered high risk patients, half (50%) of the study population experienced PONV. While it was generally well-tolerated, PONV was a very significant complication for more than one in ten patients, and required rescue anti emetics in 30%. We decided to give first-line dexamethasone for several reasons, including cost, effectiveness for PONV prophylaxis, tolerance, and its anti-inflammatory properties that may be valuable for improving shivering, and recovery after ischemia reperfusion, despite no valuable effects for hard outcomes after cardiac surgery.[8,13] The incidence of PONV seen in our study is coherent with previous reports, which range from approximately 30% to 45%.[7]

Our study adds to current knowledge of the prevalence of PONV after cardiac surgery in the fast-track management setting. Several hypotheses as to the cause of PONV are possible including prolonged surgery, a large amount of preoperative opioids, and gut hypoperfusion in patients without prolonged sedation. Our intervention protocol resulted in a slightly lower incidence PONV. While it failed to reach statistical significance in the overall population, it did result in significantly less vomiting and improved tolerance from the patient perspective, as assessed by VAS. Midazolam may be preferred over ondansetron if it is used at low doses or in (rare) patients with indications for prolonged mechanical ventilation.[8] Accordingly, global scores of risk for PONV did not differ between arms, and these results are coherent with published studies consistently showing benefits of prophylaxis, including in cardiac surgery.[7,8] The limitation of these published studies is however, only one treatment at a time was assessed. We performed our study in order to validate a protocol of prophylaxis with multiple drugs (zero, one or two), taking into account individual risk of PONV.[8]

Our protocol was relatively well followed, but prophylaxis was not performed intra-operatively. We decided to administer prophylaxis at the end of the prolonged surgery, immediately upon ICU arrival. Given that median extubation time was short, it is improbable that efficiency would be improved by administering the drugs earlier. This approach was also

| Motion sickness | 13.8 | 10.1 | 0 | 0.202 | NS |
| Migraines | 15 | 6.9 | 0.0036 | 0 | Significant |
| Volatile anesthetics | 83.9 | 86.3 | 0.45 | NS |
| VAS pain | 41±22 | 37±24 | 0.041 | 0 | NS |
| VAS pain >40 | 46.9 | 36.3 | 0 | 0.017 | Significant |
side effects related to the drugs.

CONCLUSION:

Dexamethasone was effective in decreasing PONV in high risk cardiac surgical patients without any side effects Absence of prophylaxis, female sex, past history of PONV, and migraines were independently associated with about 3-fold increased PONV.

REFERENCES

Frequency, Risk Factors and Types of Cardiovascular Congenital Anomalies in 1000 Live Births

Abdul Hamid M.Phil (Anat) 1, Muhammad Javed M.Phil(Anat) 2, Saima Naz Ph.D(Anat)3.

ABSTRACT

Objectives: This cross sectional study was carried out to know the frequency, risk factors and various types of cardiovascular congenital anomalies (CAs) in 1000 live births at District Peshawar KPK.

Material and Methods: The study was carried out in the Gynae and Obstetrics unit in Kulsoom Maternity Home Peshawar, during the study period from 01.10.2016 to 30.09.2017. The study sample included, 1000 pregnant women (both emergency and booked cases) admitted for the purpose of delivery, in the age group between 16 and 45 years. Besides preliminary investigations, all the cases were subjected to ultrasound examination and were examined periodically throughout pregnancy. After the delivery all the live newborns were thoroughly clinically examined for any gross congenital abnormalities, especially of the cardiovascular system. Newborns suspected of having congenital abnormalities other than the obvious ones, were subjected to ultrasonographic examination of the respective system. Echocardiography was done in newborns suspected of having cardiovascular anomalies (CVAs). Cases with still births, intrauterine deaths and abortions were excluded from the study sample.

Results: In the whole study population of 1000 pregnant females, only twelve (12) cases gave birth to newborn with cardiovascular congenital anomalies at the time of birth. Therefore the total incidence/ frequency of CVAs were 1.2%, excluding CAs in stillbirths. CAs were detected in other systems of the body also. Out of 12 cases, of cardiovascular CAs, Ventricular septal defect (VSD) was among the most frequent acyanotic congenital heart defect, constituting 5/12 (41.66%) of the total. Other anomalies in descending order of frequency included, ASD (Atrial Septal Defect) Secundum 2/12 (16.66%) while Pulmonary Stenosis (PS), Patent Ductus Arteriosus (PDA), Dextrocardia, Transposition of Great Arteries (TGA) and Tetralogy of Fallot (TOF) contributed to 1/12 (8.33%) each. Various associated risk factors included advanced maternal age, bad obstetrical history, antenatal febrile illnesses, drugs intake during pregnancy, Diabetes, exposure to radiations and poor socioeconomic conditions (deficiency of multivitamins/folic acid).

Conclusions: Cardiovascular congenital abnormalities being one of the important causes of increased morbidity and mortality, needs serious attention. Many of the possible risk factors can be avoided. For the safe and sound outcome of pregnancy, regular antenatal checkups are required. The condition can be detected at an early stage in the intrauterine period and possible preventive and curative measures can be taken in time. Therefore, regular and repeated ultrasonic examinations are suggested during pregnancy.

Key words: Cardiovascular congenital anomalies, Newborn, risk factors.

INTRODUCTION

Congenital anomalies (CAs) or congenital malformations take place during intrauterine life, as a result of various genetic and environmental factors, affecting the concepts during different stages of development. Birth defects and CAs are descriptive terms, representing various structural, metabolic, functional and behavioral problems, present in the fetus or newborn. Various congenital anatomic abnormalities are classified as congenital malformations, disruption, deformation and dysplasia, polytrophic field defect, sequence, syndrome and association.

Cardiovascular congenital abnormalities are important causes of increased morbidity and mortality which needs attention for risk factors and can be avoided through regular and repeated ultrasonic examinations for the safe outcome of pregnancy. These conditions can be detected at an early stage in the intrauterine period and possible preventive and curative measures can be taken in time.

Abnormalities carry high morbidity and mortality in the new born, having both social and economic
impact on the family in particular and the community in general. General incidence of CAs varies in different parts of the world. This difference can be due to change in the genetic and environmental factors. General incidences of CAs range from 1.5 to 3.5% of all births. Syndromes (multiple related anomalies with a known cause) constitute about 1%. Cardiovascular anomalies are relatively common and often a component part of syndromes, contributing almost 1% to the total burden of CAs. 20-30% of perinatal deaths in the developed countries are due to congenital anomalies, while 50% of the babies die in infancy. Congenital anomalies are one of the important causes of severe mental and physical handicaps in 50% of the affected children. Congenital malformations in 80-90% of the cases occur in infants without any risk factor, as obvious from the statistical data. Repeated ultrasonographic screening of the whole obstetric population is considered very helpful to allow prenatal diagnosis of structural birth defects.

The causes/risk factors responsible for various cardiovascular congenital anomalies include both genetic and environmental factors. Chromosomal abnormalities including various trisomies, intrauterine infections, placental damage by the mother immune system, increase in maternal age, utero-placental insufficiency, diabetes, immunological rejection, drugs and teratogenic exposure can all lead to the problem of CAs. The present study was undertaken to find out the frequency, types and possible risk factors involved in cardiovascular congenital anomalies in 1000 live births and to look at the possible preventive measures to avoid the risk factors.

METHODS AND MATERIALS

The study was conducted in Gynecology and Obstetrics Hospital, named Kulsoom Maternity Home Peshawar. The study population included a total of 1000 gravid females between the ages of 16-45 years, admitted in the hospital for the purpose of delivery (both O.P.D/Emergency Cases). Detailed history was taken. All the cases were inquired about the total duration and progress of the present pregnancy. Outcome of the previous pregnancies (if any) was recorded. Details of any previous bad obstetrical outcome, thorough history of, any drugs intake, various infections, including HIV and TORCH, exposure to radiations, Diabetes, hypertension or any other medical problems during the present pregnancy were all recorded. Repeated antenatal checkups and ultrasonic examinations were done in order to look at the progress of pregnancy as well as timely detection of any congenital anomaly if present.

After the delivery, all the live born babies were examined for any gross congenital anomalies in general and cardiovascular anomalies in particular. Newborn with cardiovascular anomalies were subjected to echo-cardiography and electrocardiography in order to confirm the diagnosis. Cases with abortions, miscarriages and still births were excluded from the study population.

RESULTS

Gravid females between 16-45 years of age included both primigravida and multigravida. CAs were more common in the elderly multigravida as compared to the young group. There was male predominance, with male to female ratio of 2:1.6. A total number of 36 (3.6%) were detected to have congenital anomalies of the various organs/systems at the time of birth, including anomalies of the cardiovascular system. In the whole study population of 1000 cases, 12 cases were detected to have cardiovascular congenital anomalies at the time of birth. Therefore the total incidence/ frequency of cardiovascular CAs were 1.2%, excluding CAs in stillbirths. Out of 12 cases, of cardiovascular system, Ventricular septal defect (VSD) was among the most frequent a cyanotic heart defect and Fallot's Tetralogy and Transposition of great arteries (TGA) being common in the cyanotic group. VSD, constituted 5/12 (41.66%) of the total number.

Other anomalies detected in descending order of frequency included, ASD (Atrial Septal Defect) Secundum 2/12 (16.66%) while Pulmonary Stenosis (PS), Patent Ductus Arteriosus (PDA), Dextrocardia, Transposition of Great Arteries (TGA) and Tetralogy of Fallot (TOF) contributed to 1/12 (8.33%) each. (Table: 1).

<table>
<thead>
<tr>
<th>Types of Congenital Anomalies</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventricular septal defect (VSD)</td>
<td>5</td>
<td>41.66</td>
</tr>
<tr>
<td>Atrial septal defect (ASD) secundum</td>
<td>2</td>
<td>16.66</td>
</tr>
<tr>
<td>Pulmonary stenosis</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Patent ductus arteriosus (PDA)</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Dextrocardia</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Transposition of great arteries (TGA)</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Tetralogy of fallots</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
</tr>
</tbody>
</table>

Advanced maternal age was the most common possible risk factor observed. Out of 12 cases with CAs, 25 % (3/12) cardiac anomalies were found in multi-gravida with advanced maternal age between 40 and 45 years. Cases with previous history of preterm deliveries and still births (past bad obstetric history)
were also found to have high incidence 16.66 % (2/12) of cardiovascular congenital anomalies in our study. Pregestational diabetes was found to be third most important risk factors accounting for 16.66 % (2/12) of the total burden of CAs. While antenatal febrile illnesses, drugs intake during pregnancy, exposure to radiations and poor socioeconomic conditions (deficiency of multivitamins/folic acid) accounted for 8.33% (1/12) cases each.(Table: 2).

**TABLE-2:** Possible risk factors in congenital anomalies

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>No of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Bad Obstetrical history</td>
<td>2</td>
<td>16.66</td>
</tr>
<tr>
<td>Pregestational Diabetes</td>
<td>2</td>
<td>16.66</td>
</tr>
<tr>
<td>Antenatal drugs intake</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Radiation in 1st trimester</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Antenatal febrile illness</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Multi vitamin deficiency</td>
<td>1</td>
<td>8.33</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The present study revealed that CAs are fairly common in this part of the world. Incidence of the congenital anomalies in general and that of the cardiovascular anomalies in particular varies in different locations of the world. The general incidence of congenital anomalies in this study group was 3.6% with cardiovascular anomalies constituting 1.2% and 38.88% of the total live birth and of the total anomalies respectively. Similarly findings were recorded in a study conducted at Tehran Islamic Azad University, Iran, which revealed the frequency of the general congenital anomalies to be 3.5%. The data is also in agreement with a study done in Atlanta, USA in 1990, where it was found that 3.1% live births were having CAs. However a lower incidences were reported by Verma et al (2.72%) and Martinez (2.02%) respectively.

The incidence of CAs was higher in the male as compared to female subjects in the present study. The ratio was 2:1.6. Male predominance has been established as they have less resistance to oxidative threats compared to females. The finding is consistent with the study conducted by Taksande et al on 9386 cases in India presenting with 179 cases of CAs and the studies conducted by Di Renzo et al and Inge M et al.

As far as the nature of congenital anomalies is concerned, Ventricular septal defect (VSD) was among the most frequent acyanotic heart defect, detected in 41.66 % (5/12) of the total cardiovascular anomalies and the commonest in our study group. Other anomalies detected in descending order of frequency included, ASD (Atrial Septal Defect) Secundum 2/12 (16.66%) while Pulmonary Stenosis (PS), Patent Ductus Arteriosus (PDA), Dextrocardia, Transposition of great arteries (TGA) and tetralogy of Fallot (TOF) contributed to 1/12 (8.33%) each. Similar findings were recorded in a community based study conducted in India by Bhat et al in 2013 and another study conducted by Shaad Abqari et al in 2016.

Advanced maternal age was the most common possible risk factor observed. Out of 12 cases with CAs, 25 % (3/12) cardiac anomalies were found in multigravida with advanced maternal age between 40 and 45 years. Similar finding were noted in a study carried out by Shaad Abqari et al in 2016 and Miller et al in 2011, detecting association of advanced maternal with increased prevalence of congenital heart disease.

In our study, 16.66% (2/12) cardiovascular congenital anomalies were detected in gravid females having bad obstetrical history, with previous history of preterm deliveries and still births because of congenital anomalies. The findings are consistent with the study conducted by Shaad Abqari et al. Pregestational diabetes being well recognized risk factor was found to be the third most important risk factor in our study, accounting for 16.66 % (2/12) of the total burden of CAs. YT Chia et al also
detected high incidence of cardiovascular anomalies in pregestational diabetics.\textsuperscript{26} Antenatal febrile illnesses, specially TORCH infections are also associated with CHD. Similar association was noted by Shi QY et al in 2014 and by another study conducted by Zang QQ et al in China in 2013.\textsuperscript{27,28} Poor socioeconomic conditions (deficiency of multivitamins/folic acid) accounted for 8.33% (1/12) cases in our study. Intake of multivitamins, especially Folic acid is a well-recognized factor in the prevention of CAs. This well recognized fact was also mentioned in a study conducted in Atlanta by Scanlon KS et al.\textsuperscript{29} Consanguineous marriage is also one the known causative risk factor in CAs, but surprisingly no cardiovascular congenital anomaly was detected in such couples in our study group. The variation in the incidence can be due to difference in exposure to various environmental and or genetic factors in various populations, their habitat and socio economic status.

**CONCLUSION:**

Cardiovascular congenital abnormalities being one of the important causes of increased morbidity and mortality, needs serious attention. Many of the possible risk factors can be avoided. For the safe and sound outcome of pregnancy, regular antenatal checkups are required. The condition can be detected at an early stage in the intrauterine period and possible preventive and curative measures can be taken in time. Therefore, regular and repeated ultrasonic examinations are suggested during pregnancy.

**Recommendations**

Cardiovascular congenital anomalies are fairly common in the community having strong correlation with the noted associated risk factors responsible for these anomalies. It is recommended to take the possible preventive measures in time and to help minimize the burden of the problem in the community. Nutrition deficiencies should be effectively corrected in the antenatal period. To detect the problem in time, repeated ultrasonography is suggested in all pregnant females throughout pregnancy.

**REFERENCES**

INTRODUCTION:

Adequate sleep is an important part of human life, work performance and healthy life style(1). It is helpful in healthy lifestyle adoption. Improper sleep not only the disturbance factor for daytime activities but also a risk factor for Alzheimer’s disease(2). Inadequate sleep and over sleep both can affect performance and health of a person(3). Association between sleep and work performance have been reported in many studies even in different field of work like, human sciences, psychology, general medicine, education and business(4).

Not only sleep but also sleep quality and sleep habits effects human performance in his education and work ability. Sleep deficiency commonly known as sleep deprivation(5, 6). Drummond et al (7) classified the sleep deprivation into three basic parts, partial deprivation, complete deprivation and sleep fragmentation. Another classification of sleep is; (i). Long term total sleep deprivation, it is labeled when someone awake continuously more than 45 minutes; (ii); short term total sleep, it is labeled when awakening is upto 45 minutes and at the end partial sleep is less than five hours in 24 hours (8).

Majority of medical students in medical institutions had suboptimal durations of sleep. Adequate sleep is positively associated with students’ class attendance and percentage of marks obtained in the examination.

Sleep disorder or insomnia may lead to cardiovascular diseases mental disorders and more important is road traffic accidents during say time traveling. Previous studies on this topic reported that insomnia or sleep disorder affects the work performance in both educational and job performance commonly
known as daytime dysfunction\(^9\). This may lead to the permanent loss of work abilities adjustment problem in socioeconomic and professional profile. Specifically in medical field clinicians and medical students have lot of experience of daytime dysfunction due to sleep disorders and unhealthy sleep habits?

Megan L. Zeek et al \(^{10}\) conducted a study on sleep duration and academic performance among student pharmacists in 2015 and concluded that sleeping hours affects student’s academic performance. He reported results of two semesters in 2013 as mid semester 38.7\% CGP and end semester 36.6\% as sleeping hours increased. Aim of this study was to evaluate association of sleeping hours on academic performance and study will be used as reference study in this region.

**METHODOLOGY:**

This cross sectional study was conducted in King Edward Medical Colleges, Lahore and Nishtar Medical College, Multan. Study was started after ethical approval from ethical approval committee of both medical collages. Data of 246 medical students were obtained in duration of one year from February 2016 to February 2017. Sample size was calculated from percentage of previous study using: CI 95\%, power of study 80\% and (P) percentage of marks 3.6\% 10. Students who were smoker, using sleeping pills or antipsychotic drugs and who were refused to give their professional data were excluded from the study.

A questionnaire was distributed to 246 students for all necessary information about study. Questionnaire was consisting of student’s demographic information sleeping hours, year of examination, percentage of marks and class attendance in every year. Students roll numbers also obtained for verification of information given by the students. Sleeping hours of students were divided into three categories one is sleeping hours less than five hours, 2nd is sleeping hours 5 to 10 hours and third is sleep more than 10 hours. Collected data was entered in statistical software SPSS software version 22 and analyzed. Mean and SD was calculated for quantitative data like age, frequency and percentages were calculated for qualitative data gender, year of study, sleeping hours percentage of marks obtained and percentage of attendance. Post stratification regression analysis was applied to see association of variables. P value ≤ 0.05 was considered as significant.

**RESULTS:**

During the period of this study, a total number of 246 students were included, both genders. Gender distribution showed 55.7\% (n=137) males and 44.3\% (n=109) females. The mean age and sleeping hours of the students was 23.38±2.19 years and 8.06±2.48 hours respectively. The age distribution noted as 84.1\% (n=207) students between 20-25 years and 15.9\% (n=39) between 26-30 years. It was noted that majority of the students i.e. 78.5\% (n=193) slept 5-10 hours, 12.6\% (n=31) students slept more than 10 hours and only 8.9\% (n=22) slept up to 5 hours. It was also noted that 15.9\% (n=39) students study in 1\textsuperscript{st} year, 36.5\% (n=90) in 2\textsuperscript{nd} year, 25.6\% (n=63) in 3\textsuperscript{rd} year, 17.1\% (n=42) in 4\textsuperscript{th} year and only 4.9\% (n=12) students study in 5\textsuperscript{th} year.

The percentage of marks obtained by the students, observed as 77.6\% (n=191) students obtained between 60-70\%, 15.9\% (n=39) students obtained between 45-59\% and 6.5\% (n=16) students obtained above 70\% of marks. 50-60\% class attendance noted as 37.4\% (n=92) of the students, 61-70\% class attendance noted as for the 46.3\% (n=114) students and 16.3\% (n=40) students had above 70\% class attendance. The results showed significant association of percentage of marks for the sleeping hours (p=0.000) except age (p=0.465), year of study (p=0.256) and gender (p=0.965). Similar results was found of the class attendance for the sleeping hours (p=0.000) except age (p=0.845), year of

<table>
<thead>
<tr>
<th>Table-I</th>
<th>Regression analysis: percentage of marks versus age, sleeping hours, year of study and gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Constant</td>
<td>57.78</td>
</tr>
<tr>
<td>Age</td>
<td>-0.128</td>
</tr>
<tr>
<td>Sleeping Hours</td>
<td>0.990</td>
</tr>
<tr>
<td>Year of Study</td>
<td>0.403</td>
</tr>
<tr>
<td>Gender</td>
<td>0.028</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table-II</th>
<th>Regression analysis: class attendance versus age, sleeping hours, year of study and gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Constant</td>
<td>52.88</td>
</tr>
<tr>
<td>Age</td>
<td>0.050</td>
</tr>
<tr>
<td>Sleeping Hours</td>
<td>0.982</td>
</tr>
<tr>
<td>Year of Study</td>
<td>0.090</td>
</tr>
<tr>
<td>Gender</td>
<td>1.173</td>
</tr>
</tbody>
</table>
study (p=0.862) and gender (p=0.209) after applying the linear regression (Table I and II)

DISCUSSION:
Many factors have contribution in quality of sleep; adequate sleep is a key to good academic achievements, especially for medical students and professionals. Many studies claimed that poor sleep have a strong negative effects on academic performance. Poor sleep also has bad impact on person’s health and emotions (11,12,13).

In our study we included 100% (n=246) students 55.7% (n=137) males and 44.3% (n=109) females. The mean age and sleeping hours of the students was 23.38±2.19 years and 8.0±2.48hours respectively. Kelly and Clanton et al (14) conducted a study in 2001 and concluded that sleeping hours highly associated with academic and work performance. They hypothesized that long sleep hours results in higher grade and CGPs than short sleepers. In our study the results showed significant association of percentage of marks for the sleeping hours (p=0.000).

A similar study conducted by Daniel J. Taylor et al in 2013 (15) and reported that less total sleep. Prolong sleep late awakening and late sleeping lead to the decreased percentage of marks of academic performance. In our study we also found that higher and lower sleep has deep effect on class attendance and GPA of students.

Megan Lowry et al (16) conducted a study on this topic and concluded that there was a significant positive correlation between sleep hours per night with GPA. These results are also comparable with our results. In a study Singleton and Wolfson (17) reported that use of alcohol also have effects on GPAs of students because alcohol effect on sleep quality of students. This study also favors our results that sleep quality and quantity effect the academic performance of students.

Pilcher JJ et al (18) conducted a study on correlation between GPAs and sleep deprivation and found that human functioning impairs by the sleep deprivation. As sleep is abnormal, human brain functioning compromised which affects on work performance in work place or academic performance of students. This is the same conclusion as found in our study. Similarly Gomes AA et al (19) conducted a study on sleep and academic performance in undergraduates and reported that lower sleep time and late sleep awake is the main predictor of students GPA performance. Previous GPA grade is better in students before sleep wake up time disturbance. This study is also identical to our findings.

In a study Kabrita S et al (20) found that female bedtime is significantly lower than male 23:53±0.78 minutes vs 00:27±0.84 minutes respectively. Females also awake earlier at weekend than male students 7:39±0.83 minutes vs 8:06±0.87 minutes. In our study there is also a sufficient difference in sleeping hours of male and female.

In our study 15.80% students were taken from 1st year class of MBBS, 36.60% from 2nd year, 25.60% from 3rd year, 17.10 % from 4th year and 4.90% from final year class. This variable was not discussed in any previous study. In our study we also observed corelletion between class attendance and sleeping hours which was not discussed in previous studies of our knowledge or literature search.

CONCLUSION:
Our results concluded that majority of medical students in studied centers had suboptimal durations of sleep. Adequate sleep is positively associated with student class attendance and percentage of marks obtained..

Authors contributions:

Idea conceived, study designed, data collected... .............................................. Dr Rameez Irshad & Dr. Homaira

Literature review, Manuscript writing, drafting... .............................................. Dr Ayesha Arshad

Data collected, Manuscript writing... ...................................................................... Dr Muhammad Ramzan

Data analysis, Proof reading, Final approval... ...................................................... Dr Aamir Furqan

REFERENCES:
8. Franken, P; Dijk, DJ; Tober, I; Borbély, AA. Sleep deprivation in rats: effects on EEG power spectra, vigilance states, and cortical temperature”. Am. J. Physiol. Regul. Integr. Comp. Physiol.
Effect of Sleep Pattern on Academic Performance of Medical Students


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

Molluscum Contagiosum
A young boy complaining of widespread mildly-pruritic papular skin rash of atopic dermatitis for the last 3-months, characterized by umbilicated papules. It is caused by a poxvirus and transmitted by direct contact and fomites. It is usually self-limiting, but can be prolonged in children with atopic dermatitis. Differential Diagnosis are:
Molluscum Contagiosum, Pityriasisrosea Papularacrodematitis, Varicella zoster Neurofibromatosis. (Curtsey: NEJM-UK)
INTRODUCTION:

Nutritional rickets (NR) is a metabolic bone disease caused by deficiency of calcium and phosphorus as a result of vitamin D deficiency before epiphyseal fusion. NR presents as defective mineralization and deformation of the epiphyseal plate and is associated with a general decrease in the mineral content of the bone tissue [1, 2]. Today, it is well known that NR exists along a spectrum ranging from isolated vitamin D deficiency to isolated calcium deficiency. In Turkey, almost all NR results from vitamin D deficiency, whereas in Egypt and Nigeria, it results mostly from calcium insufficiency and/or vitamin D deficiency [1].

Nutritional rickets occurs when the bones are unable to take up sufficient amount of phosphorus and calcium to make healthy and strong bones. There can be metabolic and genetic causes of the rickets but the commonest cause is deficiency of Vitamin D that is also known as nutritional rickets. This disease is a serious public health issue in various countries of the world that is identified by disfigurements of the long bones, enlargement of the costochondral junctions, widening of wrists, in infants, softening of skull and prolonged fontanelle closure [1].

Limited exposure of sunshine and the effect of traditional clothing decreases the endogenous synthesis of vitamin D. Hence supplemental doses of vitamin D is required to achieve a serum 25-hydroxyvitamin D level of at least 20 ng/ml (50 nmol/l), the serum concentration that is needed to optimize absorption of dietary calcium, suppress excess secretion of parathyroid hormone, and reduce fracture risk as well as prevent long-term negative effects.

Keywords: Parathyroid, rickets, vitamin D, Optimize, hydroxyl vitamin D, Secretion

ABSTRACT:

Aims: To get to know about severity of nutritional rickets through radiographic scoring method.

Methods: A cross sectional hospital based study was done on 60 children of age under 10-15 without specification of gender with clinical signs of rickets. All the patients were underwent x-rays to find the radiographic changes for severity of rickets. The severity was calculated by the scores which were based on the radiographic changes. Study was undertaken in the Radiology department of general hospital Lahore. A10 points scoring method was applied to measure the severity of rickets by the radiographic changes of the wrists and knees such as cupping, metaphyseal fraying and degree of growth plate affected. According to the scoring method, changes in the radius and ulna were graded according to the presence of fraying and irregularity of metaphyseal margins and the degree of concave cupping.

Results: The mean radiographic score was found to be 6.86. Then according to the scoring 6 out of 60 presented with mild rickets. 22 out of 60 presented with moderate rickets and 31 out of 60 presented with severe rickets.

Conclusion: It is concluded that limited sunshine exposure as individuals spend more time indoors watching television and working on computers or intentional sunshine avoidance for prevention of skin cancer Traditional clothing (covered dress) further limits the exposure to sunshine and thus decreases the endogenous synthesis of vitamin D. Supplemental doses of vitamin D required to achieve a serum 25-hydroxyvitamin D level of at least 20 ng/ml (50 nmol/l), the serum concentration that is needed to optimize absorption of dietary calcium, suppress excess secretion of parathyroid hormone, and reduce fracture risk as well as prevent long-term negative effects.

Keywords: Parathyroid, rickets, vitamin D, Optimize, hydroxyl vitamin D, Secretion

Correspondence: Dr. Muhammad Shahzeb, Medical officer at RHC Lillah District Jhelum Email:muhammadshahzeb@gmail.com Ph: 03355592817

Received: Feb’2018 Accepted: March’2018
The American Academy of Pediatrics (AAP) advises 400 IU/d vitamin D for all infants. The human skeletal system mainly comprises of calcium and protein, hence without calcium, bone will become weak. The Vitamin D aids in increasing the rate at which the small intestine absorbs calcium and phosphorous, therefore if there is lack of Vitamin D then hypocalcemia develops. Radiography is advised in individuals with rickets. The characteristic radiological signs of rickets include cupping, widening, and fraying of the metaphyses with generalized osteopenia. Radiographic changes of rickets can be identified from the growth plate of fast growing long bones. The changes reveal enlargement of the cartilaginous growth plate and slowed mineralization.

A study was conducted by Tom D. Thacher on 67 children with active Rickets. He measured the severity of Rickets by radiographic scoring method which was based on the radiographic changes of the radiographs of the wrists and knees. He devised a 10-point score for the radiographs of the wrists and the knees to assess the degree of metaphyseal fraying and cupping and the proportion of growth plate affected. The score progresses in half point increment from zero (normal) to 10 score (severe). Four trained physicians independently scored radiographs. Mean radiographic score represented the all degrees of severity. So, the objective of this study is to get to know about severity of Rickets.

**MATERIAL AND METHOD:**

A cross sectional hospital based study was done on 60 children of age under 10-15 without specification of gender with clinical signs of rickets study from 25 July-15 October 2016. All the patients were underwent x-rays to find the radiographic changes for severity of rickets. The severity was calculated by the scores which were based on the radiographic changes.

Study was undertaken in the Radiology department of General Hospital Lahore. A10 points scoring method was applied to measure the severity of rickets by the radiographic changes of the wrists and knees such as cupping, metaphyseal fraying and degree of growth plate affected. According to the scoring method, changes in the radius and ulna were graded according to the presence of fraying and irregularity of metaphyseal margins and the degree of concave cupping.

The femur and tibia were scored by the degree of lucency and widening of the zone of provisional calcification and according to the proportion of growth plate affected. Each radiograph then scored according to the findings and categorized. According to scores they were categorized into mild, moderate and severe. The score progresses in half point increment from 0 means normal to 10 means severe. This classification was arbitrary. Our standard imaging protocols for rickets was x-ray modality. Postero-anterior view of the wrist and lateral view of the wrist, antero-posterior view of the knee. All these cases were performed at Siemens OPTITOP 150/40/80 HC-100-3PH. model number 345209.

**Factors:** Kvp : 44-48, mAs : 1.4-1.8

**RESULTS:**

The result shows that total 60 children were included in this study. Mean age of presentation was 10-15 year. Ten points scoring method for Ricket was as follow:

**Wrist:** Score both radius ulna separately. Grade: Radiographic features score one   A) Widened growth plate without cupping 2score   B) Metaphseal concavity with fraying of margins 2 bones x2points=4points possible. Knee; Score both tibia and femur separately Multiply the grade in A by the multiplier in B for each bone, and then add femur and tibia score together

Grade Degree of lucency and widening of provisional zone of calcification
1 1 Partial lucency ,smooth margin visible
2 2 Partial lucency ,smooth margin not visible
3 3 Complete lucency ,epiphysis separated

Multiplier Portion of Growth Plate Affected:
0.5 Less than 1 condyle or plateau
1 2 condyles or plateaus
2bonesx1pointx3points=6points possible. Total 10 points possible

31 children were suffering from severe phase of rickets. Which was most prevalent among them as shown in table 1:

<table>
<thead>
<tr>
<th>TABLE NO 1 : Severity of Rickets syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The mean sunlight exposure was 9min per week (range, 0–2 h per week) with 85% of patients having no sunlight exposure and 77% having sunlight exposure of less than 30 min per week. Those who were exposed to sunlight were partially dressed during the exposure. A history of prolonged breast feeding for more than 6 months was found in all the cases, with a mean of 1 year 8 months (range, 8–42 months).
It was found that initial radiographic changes were present in the distal ulna in 100% of cases followed by the distal radius in 95% of cases. Distal ulna was the last to heal in about 60% cases overall followed by distal femur in 53% cases (Table 2). However, in all the 77 cases having an initial radiological score of 10, the distal femur was the last to heal. It was also noted that, when the radiological score took more than 12 weeks to resolve, the distal femur was the last to heal in the majority of the cases. As shown in table 2:

Table 2. Variance of anatomical distribution of radiographic changes of rickets

<table>
<thead>
<tr>
<th>Anatomical location</th>
<th>Study subjects showing radiographical changes (n=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At presentation</td>
</tr>
<tr>
<td>Distal radius</td>
<td>95%</td>
</tr>
<tr>
<td>Distal ulna</td>
<td>99%</td>
</tr>
<tr>
<td>Distal femur</td>
<td>77%</td>
</tr>
<tr>
<td>Proximal tibia</td>
<td>44%</td>
</tr>
</tbody>
</table>

Multiple response table

The radiological score at presentation correlated negatively with the initial sunlight exposure ($p = 0.000$) and the initial daily milk consumption at presentation ($p = 0.000$), and positively with the duration of breast feeding ($p = 0.004$). The time taken for the radiological score to resolve completely was found to correlate negatively with daily milk consumption at initial presentation ($p = 0.000$) and initial sunlight exposure ($p = 0.000$), and positively with the initial radiological score ($p = 0.000$) and duration of breast feeding ($p = 0.004$).

**DISCUSSION:**

The result shows that the mean radiographic score was found to be 6.86. Then according to the scoring 6 out of 60 presented with mild rickets. 22 out of 60 presented with moderate rickets and 31 out of 60 presented with severe rickets.

A study was conducted in US by Chatter.J according to that radiological resolution was complete by 6 months. Time for radiological resolution and initial radiological score were linearly associated on regression analysis. The distal ulna was the last to heal in most cases except when the initial score was 10, when distal femur was the last to heal.

Thacher’s scoring system can effectively monitor nutritional rickets. The formula derived through linear regression has prognostic significance. A study was conducted in Nigeria by Tom. D according to that The daily dietary calcium intake was low in the children with rickets and the control children (median, 203 mg and 196 mg, respectively; $P = 0.64$). Treatment produced a smaller increase in the mean (±SD) serum calcium concentration in the vitamin D group (from 7.8±0.8 mg per deciliter [2.0±0.2 mmol per liter] at base line to 8.3±0.7 mg per deciliter [2.1±0.2 mmol per liter] at 24 weeks) than in the calcium group (from 7.5±0.8 mg per deciliter [1.9±0.2 mmol per liter] to 9.0±0.6 mg per deciliter [2.2±0.2 mmol per liter], $P<0.001$) or the combination-therapy group (from 7.7±1.0 mg per deciliter [1.9±0.25 mmol per liter] to 9.1±0.6 mg per deciliter [2.3±0.2 mmol per liter], $P<0.001$). A greater proportion of children in the calcium and combination-therapy groups than in the vitamin D group reached the combined end point of a serum alkaline phosphatase concentration of 350 U per liter or less and radiographic evidence of nearly complete healing of rickets 61 percent, 58 percent, and 19 percent, respectively; $P<0.001$.[17]

A study was conducted in Bangladesh by flesher. R according to that Within one month of treatment leg pain was relieved and the children were more active. The mean x ray score improved from 3.3 at baseline to 1.7 at three months and 0.9 at six months (arbitrary scoring system, 0–6). Twelve cases were healed radiologically after six months, 11 others improved considerably, two showed no significant improvement, and a non-compliant patient was worse. There was progressive reversal of biochemical features. Median plasma alkaline phosphatase fell from 519 (range 178–1078) to 283 (209–443) IU/l ($p = 0.04$) in four months, while mean 1,25-dihydroxyvitamin D fell from 243 (251–1057) to 281 (155–481) pmol/l ($p = 0.04$), and mean plasma calcium increased from 2.26 (1.63–2.54) to 2.37 (2.06–2.54) mmol/l ($p = 0.13$). Parathyroid hormone fell from 5.3 (0.4–21.5) to 1.7 (0.45–7.4) pmol/l. Type I collagen carboxy terminal cross linked telopeptide was very high at baseline (20 (7.2–103) to 14 (11–24) μg/l) ($p = 0.03$) and fell promptly to normal.[18]

**CONCLUSION:**

It is concluded that limited sunshine exposure as individuals spend more time indoors watching television and working on computers or intentional sunshine avoidance for skin cancer prevention. Traditional clothing (covered dress) further limits the exposure to sunshine and thus decreases the endogenous synthesis of vitamin D. Supplemental doses of vitamin D required to achieve a serum 25-hydroxyvitamin D level of at least 20 ng/ml (50 nmol/l), the serum concentration that is needed to optimize absorption of dietary calcium, suppress excess secretion of parathyroid hormone, and reduce fracture risk as well as prevent long-term negative effects.
REFERENCES:

Preoperative Treatment with Statins, Significantly reduces Length of Stay of Patients Undergoing Valve Replacement in Cardiac Surgeries.

Nasreen Laiq,1 Shahid Khan,2 Muhammad Naeem Khan3

ABSTRACT:
Objective: The primary objective of the study was to determine the strength of evidence for preoperative statin therapy for prevention of AF after cardiac surgery, and to determine the length of stay in Cardiac ICU.

Material and Methods: A randomized clinical trial was conducted from June 2016 to July 2017 with patients in the cardiac ICU of Lady Reading Hospital Peshawar Pakistan. 50 patients were enrolled into either of two groups in a randomized way. Group S received statin while Group N received normal saline. The primary outcome measure, was the incidence postoperative AF or atrial flutter. Two other outcome measures length of stay on ventilator and in ICU were also analyzed. Exclusion criteria included history of atrial fibrillation, history of paroxysmal atrial fibrillation, preoperative heart rate of less than 50 beats /min and redo surgery. Approval for the study was taken from Institutional Research and Ethical Board Lady Reading Hospital Peshawar. An informed consent was obtained from each patient enrolled in the study. Calculations were done using the SPSS, software package, version 17, the student’s t test was performed to compare two data. Results were displayed in figures as mean ± SD. P values of 0.05 or < 0.05 were considered statistically significant.

Results: Patients demographics were almost similar between the two groups. There was no difference in the Cross-clamp time and Cardiopulmonary bypass times, intraoperative blood gases and haemodynamics were similar between the two groups. \(P > 0.05\). Time spent on ventilator and length of stay in the intensive care unit (ICU) were significantly reduced in statin versus control group \(P < 0.05\), significant). Of the 100 patients in both groups, no serious complications were seen on ventilatory support while discharged from the ICU.

Conclusion: Our study provides evidence that preoperative statin therapy is associated with a reduction in the incidence of atrial fibrillation after cardiac surgery.

Key words: Statin, cardiac surgery, atrial fibrillation

INTRODUCTION

Atrial fibrillation (AF) is a common complication after cardiac surgery and is associated with increased morbidity and prolonged hospitalization with significant economic implications.1,2 Although perioperative predictors of AF are identified and various preventive pharmacologic and surgical strategies have been introduced.3,4 The incidence of AF after cardiac surgery remains high, occurring in 20% to 40% of patients.1,5 Beyond the involvement of a multitude of perioperative factors including alterations in the autonomic and metabolic response and oxidative myocardial stress, inflammation has been suggested recently to play a pivotal role in the pathogenesis of AF after cardiac surgery.5,6 Statins (3-hydroxy-3-methylglutaryl-coenzyme A reductase inhibitors) exert multiple pleiotropic actions independently of their lipid-lowering properties. We and others have demonstrated that preoperative statin therapy decreases markers of inflammation7,8 and attenuates myocardial reperfusion injury after cardiac surgery.9

Thus, use of statins prior to heart surgery may contribute to improved perioperative cardiac protection with a favorable impact on the incidence of AF. The primary objective of the study was to determine the strength of evidence for preoperative statin therapy for prevention of AF after cardiac surgery, and to determine the length of stay in Cardiac ICU.

Preoperative statin therapy is associated with reduction in the incidence of atrial fibrillation, reducing the length of stay in ICU after cardiac surgery.
METHODS

A randomized clinical trial was conducted from June 2016 to July 2017 with patients in the cardiac ICU of Lady Reading Hospital Peshawar Pakistan. Patients of both sexes and ages between 20-50 years, post bypass surgeries for valve replacement and were on mechanical ventilation for more than 48 hours, were included in the study. Sealed envelopes were used for random assignment. 50 patients were enrolled into either of two groups in a randomized way. Group S received statin while Group N received normal saline. The primary outcome measure was the incidence postoperative AF or atrial flutter. Two other outcome measures, length of stay in ICU and in the ward were also analyzed. Exclusion criteria included history of AF, history of paroxysmal AF, preoperative heart rate of less than 50 beats /min and repeated surgery. Approval for the study was taken from Institutional Research and Ethical Board Lady Reading Hospital Peshawar. An informed consent was obtained from each patient enrolled in the study.

Induction of anesthesia was done with routine standard techniques in both groups. Patients were monitored routinely, serial blood gas analysis, serum glucose and electrolytes including potassium and magnesium, were recorded continuously from the time of anesthesia induction and every hour to 48 hours after arrival in the ICU. Multiple doses of Cold (4°C) Cardioplegia was infused for Myocardial protection, and is supplemented with mild systemic (35°C) hypothermia. Inotropic support given to maintain systolic blood pressure ≥80 mm Hg after after-load, pre-load, and heart rate were maximized. ECGs were obtained before surgery, immediately on arrival in the ICU for three consecutive days, for any ischemic changes. Heart rate ≥60 BPM and a systolic blood pressure ≥95 mm Hg was maintained with β-Blockers.

Time of ventilation was recorded as arrival to ICU till extubation. All patients were placed on standardized “fast-track” protocols. Length of stay in the ICU was defined as time from ICU arrival to transfer to the high dependency unit (HDU). Criteria for discharge included a stable vitals, stable cardiac rhythm, temperature < 99°F, a well-healed incision, and oxygen saturations >90% on room air.

Calculations were done using the SPSS, software pakage, version17, the student ‘t’ test was performed to compare two data. Results were displayed in figures as mean ± SD. P values of 0.05 or < 0.05 were considered statistically significant. Specific statins used in trials included the following: atorvastatin (20 and 40 mg), fluvastatin (80 mg), pravastatin (40 mg), rosuvastatin (20 mg), and simvastatin (20 mg) daily. This corresponds to an atorvastatin dosing equivalent range of 10 to 80 mg. Preoperative duration of statin used were 2 days (2 days–01 week for trials reporting the postoperative AF end point).

Postoperative AF was defined as any documented AF longer than 5 minutes in duration or AF episodes requiring intervention for symptoms or hemodynamic compromise and assessed patients with telemetric monitoring for a minimum of 6 postoperative days.

RESULTS

Patients demographics were almost similar between the two groups. There was no difference in the Cross-clamp time and Cardiopulmonary bypass times between the two groups. Mean serum potassium levels were within normal levels in both groups throughout the perioperative period. (P > 0.05). Time spent on ventilator and length of stay in the intensive care unit (ICU) were significantly reduced in statin versus control group (P < 0.05, significant).

The percentage of minor complications in both groups were lower. The comparisons of gas measurements between the statin group and controlled groups showed no significant differences. Patients of the statin group had a shorter stay on ventilator as well as in the ICU, i-e 2.95 ±0.78 days versus 7.44+1.12 days for controlled group. Mortality was similar in the two groups. Of the 100 patients in both groups, no serious complications were seen on ventilatory support while discharged from the ICU.

<table>
<thead>
<tr>
<th>TABLE 1. Patient Profiles</th>
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<tbody>
<tr>
<td><strong>Statin group (n=50)</strong></td>
</tr>
<tr>
<td>Age (years)</td>
</tr>
<tr>
<td>Sex (M / F)</td>
</tr>
<tr>
<td>Cross-clamp</td>
</tr>
<tr>
<td>Perioperative K levels mEq/L</td>
</tr>
<tr>
<td>Time spent on Vent(h)</td>
</tr>
<tr>
<td>ICU stay (hours)</td>
</tr>
</tbody>
</table>
DISCUSSION

Our literature review suggests that preoperative use of statins significantly reduces the incidence of AF after cardiac surgery. In addition, the observed statin effects are largely based on observational data sets including 8 retrospective studies.10,11,12,14,15,17 On the other hand, the statin-related reduction in the odds for development of any AF were more prominent when considering only prospective trials or studies being rated of good methodological quality.

Consistent with this, the only double-blinded RCTs allocating patients to pre-specified statin doses (atorvastatin 20 to 40 mg/d) and treatment periods before cardiac surgery (3 to 21 days) demonstrated a 61% to 67% reduction in the odds for postoperative AF.6,7,13 Nonetheless, evidence supporting perioperative statin use for prevention of AF remains inconclusive because all randomized trials enrolled only a small number of patients with limited control for perioperative variables or blinding.

Furthermore, the AF incidence rates in the placebo arm of the ARMYDA-3 trial6 (statin group 35% vs placebo group 57%; P < 0.003) was higher than the expected 20% to 40% AF rates after cardiac surgery usually reported in the current literature1,2. Mathew et al.1 reported a 75% increase in the odds of developing AF after cardiac surgery for every 10-year increase in age, thereby indicating the relevance of age-associated structural changes in the atrium for AF.3 Similarly, ß-blocker or ACE inhibitor treatment prior to cardiac surgery has been repeatedly reported to be independently associated with reduced AF incidence rates after cardiac surgery.1,4,18,19

Conversely, neither the status of surgery (i.e., elective vs non-elective surgery) nor the use of antiplatelet agents has been identified as being of predictive value for the development postoperative AF.1,2 Nevertheless, the observed treatment bias parallels the findings shown in a recent literature review11 and indicates a more aggressive peri-procedural risk management with superior cardioprotection in patients receiving statins. Perioperative Management Liakopoulos et al. high-dose statin therapy in patients with acute coronary syndromes.20,21. Although differing pathophysiologic mechanisms for the development of AF might be primarily responsible for the observed discrepancies between patients having cardiac surgery and patients with acute coronary syndrome, the optimal statin treatment protocol for prevention of postoperative AF remains to be established.

Recent trials have shown that postoperative statin withdrawal is independently associated with increased in-hospital mortality22 and that statins reduce the risk of major adverse cardiac events only in hyperlipemic patients having CABG.14 In conclusion, our study has demonstrated a reduction in the incidence of AF for patients pretreated with statins and having cardiac surgery, we observed significant difference in the length of stay on ventilator as well as in ICU in both of the studied groups. Patients in the S group had shorter stay time on ventilator as well as in Cardiac ICU. (P value <0.05) However relevant publication bias and heterogeneity of studies mandate future RCTs to define the perioperative role of statins for prevention of AF, especially for non-molipemic patients and patients with valvular heart disease.

CONCLUSION:

Our study provides evidence that preoperative statin therapy is associated with a reduction in the incidence of atrial fibrillation and hence reduces the length of stay in ICU after cardiac surgery.

REFERENCES

Preoperative Treatment with Statins, Significantly reduces Length of Stay of Patients Undergoing Valve Replacement in Cardiac Surgeries.


INSTRUCTIONS TO AUTHOR.

(According to PMDC rules/instructions, recently designed criteria/SOP of Higher Education Commission, Islamabad and concurrent policy of Ophthalmology update, it should be strictly followed).

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