# Contents

**EDITORIAL**

- **VISUAL DEVELOPMENT (A landmark in the life of an infant)**
  
  Sameera Irfan .................................................................................................................................................. 1

**OPHTHALMIC SECTION - ORIGINAL ARTICLES**

- **Proportion of Dry Eyes in Patients of Computer Vision Syndrome**
  
  Rabia Mobeen et al ........................................................................................................................................ 5

- **Comparison of Bevacizumab alone and combination of Bevacizumab with focal Application of Laser for the Treatment of Diabetic Macular Edema**
  
  Tariq Khan et al ........................................................................................................................................ 9

- **Rhegmatogenous Retinal Detachment repair with 23-G & 25 G, Trans-conjunctival Pars Plana Vitrectomy (PPVs)**
  
  (Is Trans-conjunctival Suture Less Vitreoretinal Surgery – the Future?)
  
  Nisar Ahmed Siyal et al ............................................................................................................................... 12

  
  Shaban Khan et al ....................................................................................................................................... 17

- **Effect of Accommodation on Auto Refractometer Reading in Different Age Groups**
  
  Rabia Mobeen et al ....................................................................................................................................... 21

- **Incidence of Hypermetropia Associated with Astigmatism in Children of Age Group 2-15 Tears**
  
  Iftikhar Ahmed et al .................................................................................................................................... 25

- **Prevalence & Pattern of Refractive Errors in School Going Children Between 5 & 15 Years Age**
  
  Muhammad Adeel et al .................................................................................................................................. 27

- **Mean increase in Pupillary Diameter with Intracameral Injection of 1% Lidocaine and Topical Mydriatic during Phacoemulsification of Cataract Extraction**
  
  Rana Naveed Iqbal et al ................................................................................................................................ 32

- **Limbus vs Fornix based Conjuntival Flaps: (Primary Trabecelectomy with MMC)**
  
  Muhammad Nazim et al ............................................................................................................................... 36
• Frequency of Hypermetropia Associated with Other Eye Diseases in Children 1-16 Years of Age
  Iftekhar Ahmed et al. 41

• Nd YAG Laser Hyaloidotomy for the Treatment of Premacular Subhyaloid Haemorrhage
  Muhammad Tariq et al. 43

• Low Vitamin-D Levels Risked to Macular Degeneration
  (Genetics of Age-Related Macular Degeneration)
  Cedric Annweiler 48

• The Orderly Loss of Visual Field in Glaucoma
  Dr. Syed S. Hasnain 50

• Vaso-occlusive disorder of the Central Retinal Vein: Urbanization Impact
  Marianne Shahsuvaryan 54

**GENERAL SECTION - ORIGINAL ARTICLES**

• Efficacy of Post Operative Intra-peritoneal instillation of Rupivicaine as an Analgesic in Patients with Laproscopic Cholecystectomy
  Imtiaz Ahmed et al. 58

• Effect of Grand Multiparity on Maternal Outcome in the Presence of adequate Antenatal Care
  Nadia Rashid Khan et al. 63

• External Post Mortem, Helping To Diagnose of Cause of Death (an autopsy based study)
  Riaz Qadeer et al. 67

• Sensitivity of fine Needle Aspiration vs Core Biopsy in the Diagnosis of Palpable Breast Lesions
  Shahid Nisar et al. 71

• Role of FNAC in diagnosis of Palpable Breast Lesions
  Arshad Amin et al. 74

• Association of Consanguinity, Ethnicity and Addiction with Clubfoot in Pakistan
  Abbas Ali et al. 77

• The Study of Medico Legal System (an Autopsy helps the Law)
  Riaz Qadeer et al. 81
- Pre-operative Pregabalin for Pain relief after Modified Radical Mastectomy (MRM) for Carcinoma Breast  
  Mujeeb-ur- Rahman et al  
  85

- Effect of Grand Multiparity on Fetal Outcome in the Presence of adequate Antenatal Care  
  Nadia Rashid Khan et al  
  90

- Study of Efficacy of Solifenacin for Treatment of Overactive Bladder (OAB) in Women in terms of Frequency to Urinate  
  Imtiaz Ahmed et al  
  93

- Meniscal Cysts Associated with Meniscal Tears in Asiatic Population  
  (An Outcome of Arthroscopic Debridement)  
  Abbas Ali et al  
  98

**OPHTHALMOLOGY NOTEBOOK**

- Letter to the Editor  
  103

---

**35th Lahore Ophthalmmo**

2-4 December, 2016  
At P/C Lahore

Please Contact:  
Prof. Nadeem H. Butt  
President OSP, Lahore  
Cell: 0300-8415977, Email: nhbutt@gmail.com
Visual development is a complex phenomenon, it is incomplete at birth and is influenced by many factors during the first few years of life. Anxious parents often bring their child to an ophthalmologist and ask, “Doctor my baby’s eyes wander. Is his/her vision all right? or “I think he is squinting his one eye.” Being the treating ophthalmologist, it is important to know certain facts regarding visual development. Not only the parents need to be advised and re-assured but the underlying visual problem has to be managed appropriately and timely otherwise it can result in long-term and even permanent visual deficit.

1. At birth, the fovea as well as Lateral Geniculate Nucleus (LGN) in the thalamus is not developed so the baby only has a peripheral vision; it can see to the sides but cannot focus his/her eyes straight ahead or smile back at the parents because of a blurred central vision. By two months, LGN and its connections to the visual cortex in occipital lobe develop and infant begins to follow moving objects. As fovea fully develops by the age of three months, the baby starts to focus on a parent’s face, toys and respond. Infants respond better to high contrast images, bold colors and bright objects. Parents should be advised to paint the baby’s room in bright colors, decorate with contrasting shapes, hanging brightly colored toys over the crib, adding new furnishings to room to retain interest, changing the direction of the crib frequently so the baby can see new furnishings and keeping a dim light on even at night to help stimulating a baby’s vision. As the visual acuity improves from 20/400 at birth to 20/25 by the age of six months, hand-eye coordination also develops and the infant can now locate toys and tries to grasp them. Six months of age is the time when a detailed ophthalmological examination should be conducted for all infants to rule out gross refractive errors, amblyopia, strabismus, and a definitive treatment started.

2. Infants who suffer anoxia at birth or are premature (<32 weeks of gestation) and have a low birth weight, the development of brain is delayed. It has important centers for controlling eye movements, accommodation and convergence. Retina, being a neural structure, and the fovea, also have a delayed development. Such an infant will present with wandering eye movements, nystagmus, poor fixation or response to light and toys. A study conducted by Scott et al showed that most of these infants have normal ERGs and VEPs as compared to their age-matched controls; they develop normal visually mediated responses by the age of 8 months. Hence, parents need to be reassured that the baby has a delayed brain development and as the general health improves, it will soon start focusing and smiling back. They need to be advised regarding a diet rich in Omega 3 and 6 Fatty acids which are found in the phospholipid layer of retinal and neuronal membranes. Such a diet (mother’s milk and enriched food supplements) help in the development of neural tissues in the retina and visual pathways.

3. About 90% of infants are born hypermetropic due to a smaller axial length of the eyeball at birth. Stimulation of retina by light results in the growth of eyeball and resultant emmetropia by the age of 1 year. Visual deprivation during this period will lead to a continued increase in axial length resulting in Myopia. Myopia and strabismus are seen to be more prevalent in preterm babies as the visual system is still immature so the blurred vision leads to an increase in axial length of eyeballs. Similarly, blockage of visual axis by the upper lid, as seen in common congenital problems like severe ptosis, blepharophimosis, capillary haemangioma will hamper light entering the eye and retinal stimulation, with resultant refractive errors and amblyopia. So these should be managed rather urgently to keep the visual axis clear. Studies have proven that even peripheral stimulation of retina...
can influence refractive development. In the presence of a central corneal opacity, a central congenital cataract, a vitreous opacity which hinder the light stimulating the fovea, the pupil should be kept fully dilated in that eye (with either 1% Homatropine eye drops or 1/4% Atropine eye drops once a day) so that light can enter the eye around the opacity and stimulate the retina/fovea, till that opacity is removed surgically.

4. Anatomically, the bony orbits on a human face are pear shaped structures; the medial walls are parallel to each other while the lateral walls diverge at $90^\circ$. Similarly, both eyeballs, optic nerves and the surrounding rectus muscles are at a divergent angle to each other. After birth, in order to see the same object in space, both eyeballs have to converge to focus on that object and avoid double vision. Impulses of double vision go to the convergence centre in the brain, which then orders both the medial rectii to contract and the eyeballs converge. The phenomenon of convergence is the most essential component for the development of a binocular single vision in humans. That is why medial rectii are always more fleshy, bulky and stronger that the lateral rectii. If there is an absence of convergence, a congenital exotropia appears while too much convergence results in a congenital esotropia. Since the fovea develops by the age of 3 months after birth, any comment on the presence or absence of strabismus should not be made prior to that age.

5. Where is the Convergence Centre located? The brain-stem reticular formation has many lower centers for regulating important body functions like cardiac activity, breathing and convergence. All these lower centers develop during the first three months of intra-uterine life. Convergence Centre is located in the rostral midbrain near the oculomotor nuclei. It is very sensitive to anoxia which may occur during pregnancy due to maternal smoking (cigarette smoke contains 300 chemical toxins), alcohol, drugs like aspirin which delay the baby’s growth and result in low birth weight infants. Many studies have confirmed higher incidence of refractive errors and strabismus in infants born to mothers who are active smokers or are exposed to cigarette smoke passively. Anoxia to a baby’s brain during childbirth or early post-natal period due to high grade fever, fits or jaundice can weaken or damage the convergence centre and the infant may either be born with a congenital exotropia or it may appear during the first 3-6 months of life. In any child presenting with a congenital strabismus, history of anoxia in the first 3 months of life should be particularly sought; the child may have normal higher mental functions and only the convergence may be strongly affected.

6. The optic nerve is fully myelinated by the age of one year and the whole visual pathway is matured by this age and the child develops a visual acuity of 20/20 or 6/6. This means that he/she can now see toys, lights or a parent walking towards him/her from a far distance. The first year of a child’s life is the most critical period for the development of visual pathway extending from the retina (including cornea, lens, vitreous, retina, optic nerve), onto the lower visual centers in the brain stem and higher visual centres in the occipital cortex. An insult during this period anywhere along the pathway will reduce a child’s visual functions drastically. 7-12 months of age is the most important developmental period too; this is the time when a baby is learning to coordinate his vision with body movements. As the baby learns to crawl, the parents should be advised to play with him on the floor to help develop his hand-eye coordination and motor skills. This is also the time when parents should be extremely diligent to keep the baby out of harm’s way as they are very eager to explore their environment and are extremely prone to injuries. All sharp objects should be out of their reach, cabinets need to be kept locked, electric sockets covered with tapes and barriers placed in front of staircases.

7. The true critical period extends from a period of three months till five years of age due to continued maturation of synapses in the visual pathway. This means that although a 20/20 vision has developed by the age of one year, any insult to the visual pathway till the age of five years will result in regression of vision and development of Amblyopia in that eye. During this period, particular care to the child’s nutrition, general health, detection and correction of refractive errors is mandatory for a normal visual development.

8. Another important characteristic of vision in humans is Binocularity, Depth Perception or Stereopsis (Stere mean 3 dimensional and opsis meaning sight). To see the same object in space, both eyeballs have to converge towards it and perceive that image: Simultaneous Perception. On human face, both eyeballs are placed at a distance of 6-6.5 cm. This results in a separation of image
of the same object in space viewed simultaneously by both eyes. These two slightly dissimilar images are fused in the brain if they fall within its fusion-capacity i.e., in the Pannum’s Fusion Area. The Fusion of two slightly dissimilar images perceived by two eyes, simultaneously, avoids diplopia. The impression of Depth is perceived as the right eye sees more on the right side of the object and the left eye sees more on the left side. This results in Retinal Disparity or separation of two images viewed by the right and left eye. The closer the two objects are to each other, the retinal disparity will be smaller; if the objects are farther away from each other, the retinal disparity will be larger. Hence an impression of depth (Stereopsis) is perceived when an object in space is viewed with both eyes. Hence these 3 characteristics of vision in humans are only possible because of Convergence of two eyeballs towards one single object in space.

9. What is the significance of Stereopsis? The answer comes from observation of the animal kingdom. Animals like rabbit, chicken, cow, horse, goat and deer have their both eyes placed on opposite sides of their heads. This provides them with the widest possible field of view in which they can see a predator approaching from a far distance and seek refuge (a protective phenomenon). Since they graze grass, leaves and do not have to hunt/kill for food, they do not need depth perception and stereopsis.

On the other hand, predators (hunting animals) like lions, tigers, wolves and eagles have eyes placed on the front of their heads. This allows them a binocular single vision and depth perception to track their target precisely and keep it focused in their view while they are moving fast towards it to kill for food. Hence their field of view has been reduced in favour of stereopsis.

Similarly, humans are also predators / hunters. They need a precise, focused clear vision to carry out fine tasks. Hence we are blessed with a high level of stereoscopic vision at the expense of a relatively reduced visual field.

10. Amblyopia and strabismus go hand in hand which occurs first is controversial. The proper management of any patient presented with strabismus is not possible without treating the amblyopia. The concept of neuroplasticity proves that there is no age limit for improving a patient’s vision and treating amblyopia. Studies reveal that there is no cell death or apoptosis in the neurons of the visual pathway; like the rest of the neuronal systems in the brain, visual pathway also has 3 orders of neurons: the retina, lateral geniculate body and the occipital cortex. They are found to be shrunken in an amblyopic eye and can be stimulated and activated to full function by strong and persistent stimulation. This can only be achieved if the inhibitory influence of the good eye has been blocked. Once the visual acuity of the amblyopic eye improves and binocularity has been restored, stereopsis also starts improving. This only happens if visual axis in both, equally seeing eyes are converging and are focused at a single object in space.

Summary: Normal visual development is achieved after birth in progressive steps. Problems related to abnormal visual development are common in infants, but their occurrence and long term affects on vision can be minimized by early screening. A paediatrician should refer a baby early to an ophthalmologist if a blockage of visual axis is noted. A complete ophthalmological examination at 6 months of age for detection of refractive errors, amblyopia and strabismus is mandatory to prevent a permanent visual deprivation.

REFERENCES

Dr. Sameera Irfan
FRCS, Consultant Oculoplastic Surgeon & Strabismologist
Mughal Eye Trust Hospital, Lahore.
Cell: 0336-4500901

Acknowledgement:
After special permission from Prof. Dr. A. K. Khurana, Editor IJSPO, & Head, Squint and Oculoplasty Services, RIO, PGIMS, Rohtak, India
(Chief Editors’ Note: Dr. Sameera has a great insight with deep perception in this field of Ophthalmology. She is a prolific writer, greatly tinged with community orientation. Her manuscript can be very useful for postgraduates, junior ophthalmologists especially the practicing pediatricians).
ABSTRACT

Purpose: The key purpose of this study was to evaluate the proportion of dry eyes in patients of computer vision syndrome.
Study Design: Descriptive cross sectional study.
Material & Method: 100 students (55 males and 45 females) of King Edward Medical University, Lahore and HBS Medical and Dental College Hospital, Islamabad, having age group 18-30 years of both genders were included in the study. Data was composed using a structured proforma and 22 items questionnaire in all age groups having computer vision syndrome.
Results: The schirmer test was performed to assess dry eyes in patients with computer vision syndrome. The results showed that 82% of patients with computer vision syndrome suffer from dry eyes as mean value on schirmer test was 9.52mm and 18% patients were normal with no dry eye symptom as the mean value on schirmer test was 15.44mm. The p-value (p=0.01) shows highly significant association between dry eye and computer vision syndrome.
Conclusion: It is concluded that there is risk of dry eye patients among CVS as assessed by schirmer test. This risk increases with the duration of computer usage and elderly females are more prone to develop dry eye syndrome as compared to males.
Keywords: Computer vision syndrome, Schirmer test, Dry eye, computer users.

INTRODUCTION

The viewing of digital electronic screen is no longer restricted to desktop computers. Today’s visual necessities might embody viewing laptop computer and electronic book readers and smart phones either within the work at home or within the case of transportable instrumentality in any location.1 The use of these devices has made easy access to information, writing articles and communication to others.2 According to International Dry Eye Workshop conducted in 2007, the dry eye defines “multifactorial ocular surface disease having symptoms like visual disturbance, discomfort, damage to ocular surface and instability of tear film.” Visual discomfort is highly associated with the degree of sloop and height of monitor screen. It has a great influence on the visual function for men and women both.4 In the modern era, the use of electronic devices for both professional and non-professional use like e-email and for entertainment is worldwide. The recent survey has shown that about 45% of the total world’s population is associated with the use of such electronic devices including computer.

There is a risk of dry eye in patients with Computer Vision Syndrome as assessed by Schirmer test. This risk increases with the duration of computer usage especially in elderly females who are more prone to suffer from this syndrome as compared to the males.

Millions of people including children, college students are using computers for many hours per day.2 The company made the first computer in 1981 did not have the capability to overcome the tasks and challenges of health risks and problems that are experienced by computer users.4 Computer vision syndrome (CVS) describes a symptom complex of various eye and vision related errors that is caused by over use of computer. The amount of computer use is proportional to the level of discomfort. According to American Optometric Association computer vision syndrome is a part of eye and vision problems in relation to the actions which pressurize the near vision and which are experienced in...
relation, or during computer use. Mostly, complications linked with the use of the computers are endorsed to improper computer use and the most important is lack of knowledge about computer usage practice and techniques. Many CVS-related complications can be ignored by proper preventive procedures but most of computer users are not much aware of CVS-related symptoms while some decide to ignore the symptoms. In this era, large number of students are using computers for their studies and for research work. In addition, computers are used for playing video games, data collection, social net working, watching movies and videos. PubMed search shows only one report among the college students in india.

Approximately 60 million people suffer from CVS worldwide and one million new cases are occurring every year. It is a most commonly encountered ocular condition. Dry eye is a common source of discomfort that can seriously affect in elderly population. Studies reported women are more likely to symptoms of dry eye than men, in most cases, are chronic and progressive. There are many subjective and objective methods to test for dry eye. However, to date, there is no single criteria or combination of criteria known to conclusively diagnose this disease. A key aspect of dry eye that remains a major problem is the absence of association between the signs and symptoms of dry eye and the poor test reproducibility of objective tests making it difficult to assess disease progression or the impact of treatment on symptoms.

Dry eye is an increasingly a common disease of the human tear film that coats the anterior surface of the eye. It affects up to 30 % of the global population, especially post-menopausal women, older adults in general, and contact-lens wearers in particular. A vicious cycle of tear-film instability, ocular-surface inflammation, pain, and epithelial-cell damage apparently originates from chronically salty tears. In Nigeria a study shows nearly females 18.6%, and males 30% reported dry eyes. In contrast the incidence shows dry eye symptoms in office workers in Japanese males 10.1% and in females 21.5% who were using VDTs. In a comparative study reported that medical students are in low risk to dry eye while engineering students have greater risk of dry eye. Its also reported that prolonged use of computer drops blinking rate to 60%. In different studies reported that symptoms of dry eye is more likely in women than men. Most cases are always chronic and progressive.

Dry eye is more likely found in elderly women but in younger-age group and non contact lens user are not common. According to research females may be more susceptible to C.V.S with the increasing age due to reduce aqueous layer of tear film. In a study CVS is categorized by three parts: (i) eye disorder (e.g, watery eye, dry eye, burning eyes, irritated eyes.) (ii) Visual disorder (e.g, headache, eye strains, blurring of eye, redness, double vision.), and the third (iii) posture related symptoms (e.g, Sore back, sore neck, shoulder pain).

One of the report suggests that diagnosing dry eye by symptoms alone is acceptable because dry eye rarely progresses to the stage of causing ocular damage without symptoms being present. However, more recent reports suggests that symptoms alone are inadequate for diagnosing dry eye because the same symptoms can be experienced by patients with a large range of ocular surface conditions and tear film disorders. A cross-sectional study reported that the reduction in tear secretion is caused by other factors, including primary lacrimal gland deficiencies that may be age related, due to congenital alacrima (absence of lacrimal gland) or familial dysautonomia (a disorder of the autonomic nervous system) that affects the parasympathetic neurons survival and development of sensory, sympathetic nervous system, resulting in various symptoms, including in ability to produce tears.

Research reveals that visual discomfort which occurs due to excessive computer usage can damage the eye permanently of computer users. In fact some user may be affected by blurred distance vision, decrease visual abilities and headache after using computer. Studies have shown that main cause of computer vision syndrome is the evaporation of tear film. It is greater in older women then in older men. It is 36-69% more then young women.

RESEARCH DESIGN AND METHODOLOGY

A quantitative, descriptive cross-sectional study was conducted to evaluate the proportion of dry eye in patients of computer vision syndrome. Study population included 100 students both from King Edward Medical University, Lahore and Hazrat Bari Sarkar Medical College Hospital, Islamabad were conducted simultaneously. Non probability convenient sampling was used to collect the study sample. Data was collected with the help self designed proforma and 22 items questionnaire to find CVS symptoms and proportion of dry eye. Data was analyzed using SPSS 20.0. Descriptive statistics were used to describe the data generated in order to understand about proportion of dry eye and knowledge and awareness of CVS and relationship between knowledge of CVS and demographic factors such as age and gender. A two tailed ‘p’ value of less than 0.05 was considered.
RESULTS

The study was concluded to assess proportion of Dry Eye in patients of Computer Vision Syndrome. Data was composed from 100 (55 male and 45 female students) having age group 18-30 years from both hospitals. All were diagnosed with dry eye in computer users. Data was collected using a common proforma.

Table No. 01:

<table>
<thead>
<tr>
<th>Tear film</th>
<th>Frequency</th>
<th>Schimmer Test Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defective</td>
<td>82</td>
<td>9.52</td>
</tr>
<tr>
<td>Normal</td>
<td>18</td>
<td>15.44</td>
</tr>
</tbody>
</table>

Frequency of dry eye is presented in Table 1. Table 1 shows frequency of dry eye patient in which 18 have normal values and 82 patients having abnormal values in schirmer test. Mean value of abnormal is 9.52 and normal 15.44.

Table No. 02:

<table>
<thead>
<tr>
<th>Stages of Dry eyes</th>
<th>Frequency</th>
<th>Schimmer Test Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>40</td>
<td>12.33</td>
</tr>
<tr>
<td>Moderate</td>
<td>32</td>
<td>8.22</td>
</tr>
<tr>
<td>Normal</td>
<td>18</td>
<td>15.44</td>
</tr>
<tr>
<td>Severe</td>
<td>10</td>
<td>4.10</td>
</tr>
</tbody>
</table>

Stages of Dry eye is presented in table 2 shows stages of dry eye on schirmer test, the result concluded that patient with mild dry eye are 40% having (minimum value of 10mm and maximum value of 14mm), moderate are 32% having (min value 6mm and max 10mm) normal are 18% having (min value 15mm and max 16mm), severe are 10% having (min value 3mm and and max 5mm).

DISCUSSION

A self-structured proforma and 22 multiple questions used in the study to collect data. Fifty five male (55) and forty five females (45) participated in that study. Patients were of the age group between 18-30 years. The most of the patients (61%) had little or no awareness of Computer vision syndrome and used computer in daily routine. 46% of the patients...
presented at least one or two symptoms of CVS. The symptoms mostly presented by patients when working on computer are eye strain (23.93%) and headache (30.43%). Diplopia was experienced by 10.86%, lacrimation were experienced by 15.21%, and Dry eye (4.34 %), Blurred vision and redness of eye were reported by 13.04% and 2.17% respectively. Schirmer test is used as diagnostic tool for assessing dry eye in computer users. The schirmer test value was compared between normal and affected patients of computer vision syndrome.

The results showed that there is marked difference between normal and effected patients as shown by Schirmer test for dry eye. Our finding encloses 81.9% of the 100 students had computer vision syndrome. This result is slightly higher than study reported by Zairina & Suhaila who reported that the prevalence was 68.1% among academic and administrative staff in a public university in Malaysia. Another survey recorded that women patients are more at risk of computer vision syndrome as they get older because with the increase of age there is a reduction in aqueous layer of tear film. Our findings revealed that females show most common prevalence and min-imum value of 3mm with dry eye on Schirmer test and maximum value of 16mm as reported in similar study where dry eye is more common in women than men and most cases are always chronic and progressive. One of the reports suggests that diagnos-ing dry eye by symptoms alone is acceptable because dry eye rarely progresses to the stage of causing ocular damage without symptoms being present. However, more re-cent reports suggest that symptoms alone are inadequate for diagnosing dry eye because the observed symptoms are related to patients with tear film disorders. Our study shows the stages of dry eye on Schirmer test, the result concluded that patients with mild dry eye are 36% having (minimum value of 10mm and maximum value of 14mm), moderate are 36% having (min value 6mm and max 10mm) normal are 18% having (min value 15mm and max 16mm), severe are 10% having (min value 3mm and and max 5mm).

The value of schirmer test increases when the duration in month decreases. In one study, the awareness of CVS increases with increase of age, with a strongly pro-gressive relationship of 0.97. There is a equal knowledge of computer vision syndrome among males and females.

CONCLUSION

It was concluded that there is a risk of dry eye in patients among CVS as assessed by Schirmer test. This risk increases with the duration of computer usage especially in elderly females who are more prone to suffer from this syndrome as compared to the males.

REFERENCES

Comparison of Bevacizumab alone and combination of Bevacizumab with focal Application of Laser for the Treatment of Diabetic Macular Edema

Muhammad Tariq Khan FCPS (Ophth), FCPS (VR)¹, Imran Ahmad FCPS²
Jehan Zeb Khan FCPS³, Mubashir Rehman FCPS⁴, Zeeshan Tahir MBBS⁵

ABSTRACT

Purpose: To compare the efficacy of intravitreal Bevacizumab alone with bevacizumab and focal macular laser for the treatment of diabetic macular edema.

Material & Methods: It was a retrospective study conducted in Khyber Institute of Ophthalmic Medical Sciences (KIOMS), Hayatabad Medical Complex, Peshawar from March 2015 to August 2015.

Results: A total of 146 eyes were included in the study with 60.96% male and 39.04% female patients with a mean age of 62.36 years.In 146 eyes focal macular edema was found in 46 patients (31.50%), diffuse in 53 (36.30%), cystoid in 23 (15.75%), and mixed types of macular edema in 24 patients (16.66%).Statistically significant difference was noted in macular thickness improvement and visual acuity from baseline after 6 months of treatment in both groups (p<0.005) but there was no significant difference between the bevacizumab alone group and in combination group of bevacizumab with focal laser in terms of effectiveness (0.64).

Conclusion: There is no significant difference between intravitreal bevacizumab alone and combination treatment of bevacizumab with focal application of laser in the treatment of diabetic macular edema.

INTRODUCTION

Diabetic retinopathy (DR) is the leading cause of blindness in the working population. Diabetic macular edema (DME) is affecting about 30% of the patients with duration of diabetes of 20 years and is the most common cause of reduced vision in diabetics.¹ Both proliferative and non-proliferative DR may show DME, which is classified as either focal, if edema is caused by a focal leakage from micro-aneurysms or diffuse if generalized leakage from retinal capillaries with abnormal permeability is observed throughout the posterior pole.² Besides the abnormal permeability, edema may also occur due to occlusion of the capillary bed that leads to dilatation of the patent capillaries and leakage.³ According to ETDRS study focal laser photocoagulation is effective for the treatment of DME and the risk of moderate visual loss was reduced by 50% in patients with mild to moderate non-proliferative diabetic retinopathy.⁴,⁵ Photocoagulation for DME may be associated with central scotomas, loss of central vision and decreased color vision.⁶

There is no significant difference between intravitreal bevacizumab alone and combination with bevacizumab and focal macular laser in treatment of diabetic macular edema.

Vascular endothelial growth factor (VEGF) is an important mediator of blood-retinal barrier breakdown, which leads to fluid leakage and the development of macular edema.⁷ Observing that VEGF intraocular levels are increased in DME, it was hypothesized that alternative or adjunct therapies using VEGF inhibitors (anti-VEGF) could be beneficial in reversing visual loss from macular edema.⁸ Anti-vascular endothelial growth factors have been used intra-vitreally in patients with DME and favorable results have been shown in studies but the effects were temporary and the injections were needed to be repeated at regular intervals to get the desired therapeutic effects.⁹ The purpose of the study was to compare the effectiveness of bevacizumab alone or combination therapy of bevacizumab and macular photocoagulation.

MATERIAL & METHODS

It was a retrospective study conducted in Department of Vitreo-Retina of Hayatabad Medical Complex, Peshawar. The duration of study was 6 months from March 2015 to August 2015.

¹Assistant Professor, Khyber Institute of Ophthalmic Medical Sciences (KIOMS) Hayatabad Medical Complex, Peshawar. ²Postgraduate Trainee (VR), Khyber Institute of Ophthalmic Medical Sciences (KIOMS) Hayatabad Medical Complex, Peshawar. ³Assistant Professor, Nowshera Medical College, Nowshera. ⁴Assistant Professor, Khyber Institute of Ophthalmic Medical Sciences (KIOMS) Hayatabad Medical Complex, Peshawar. ⁵Medical Officer, Lady Reading Hospital, Peshawar.

Correspondence: Dr. Imran Ahmad, FCPS, Medical Officer Khyber Institute of Ophthalmic Medical Sciences (KIOMS) Hayatabad Medical Complex, Peshawar - (KPK). Cell: 0321-9255244, House 229, Street 10, Sector E-3, Phase-1, Hayatabad, Peshawar. Cell:0300-5902517 E-mail: doctorimranahmad@gmail.com

Received: March 2016 Accepted: June 2016
Data Collection: Patients with diabetes were included in the study from the outpatient department of Vitreo-retina of Hayatabad Medical Complex Peshawar having diabetic macular edema diagnosed clinically on slit lamp biomicroscopy and were confirmed on OCT. Patients with diabetic macular edema were divided in 2 groups. In group “A” patients with macular edema were given only intra-vitreal injections of bevacizumab (Avastin: Genentech Inc., South San Francisco, CA, USA) 2.50 mg (0.05 ml). In group “B” patients were given combination therapy of intra-vitreal bevacizumab 2.50 mg (0.05 ml) and macular laser photocoagulation to the leaking areas. Injections were withheld when there was no further improvement in macular edema on OCT since last injection or when macular edema reached below 250 µm and we were re-started these injections when the edema reoccurred. Patients were followed monthly with complete ophthalmic examination including best-corrected visual acuity, slit lamp examination, intraocular pressure measurement and funduscopic examination after pupillary dilatation. All the findings were recorded in a proforma.

RESULTS
146 eyes of 118 patients were included in the study with 89 (60.96%) male patient and 57 (39.04%) female (Table No 1). Mean age was 62.36 ± 5.8 years. Diabetic macular edema was classified as focal, diffuse, cystoid and mixed types. Out of 146 eyes focal macular edema was found in 46 patients (31.50%), diffuse in 53 (36.30%), cystoid in 23 (15.75%), and mixed types of macular edema in 24 patients (16.66%) as shown in graph No 1. Baseline visual acuity and macular edema measured through OCT were recorded and then patients were followed monthly up-to 6 months with visual acuity and macular edema on OCT as shown in table No 3. Statistically significant difference was noted in macular thickness improvement and visual acuity from baseline after 6 months of treatment in both groups (p<0.005) but there was no significant difference between the two groups in terms of effectiveness (0.64). The mean number of injections in bevacizumab group alone were 3.6 and that of combination group was 2.3 (p=0.56).

DISCUSSION
In diabetic patients, macular edema is a common cause of visual loss. Chronically elevated blood glucose levels leads to capillary damage resulting in micro aneurysms formation in the retina. Chronic leakage from these micro aneurysms leads to progressive visual loss if the fluid involves the macular region. For about 20 years, laser photocoagulation to micro-aneurysm outside the foveal avascular zone was considered the
Comparison of Bevacizumab alone and combination of Bevacizumab with focal Application of Laser

mainstay of treatment. However, clinical trials have proved the efficacy of anti-vascular endothelial growth factors in the treatment of diabetic macular edema. Some studies have evaluated the effect of triamcinolone and laser for DME but showed no beneficial effect on treatment than conventional therapy. Kim et al. used triamcinolone for DME in his study and concluded that cystoid macular edema responded better than other types of macular edema to intra-vitreal steroids.

Our study have shown significant improvement in macular edema with first 3 injections in both groups but after 3 injections the effect was not so much pronounced with further injections. The improvement was slightly more in the combined group treatment than with bevacizumab alone but the difference was not statistically significant. These results can be explained in accordance with a study done by Baket al. who reported that in DME, macula isdiffusely thickened and fluid is accumulated in the outer retinal layer because of the compromise of blood-retinal barrier, therefore the laser could not deliver sufficient power to the RPE layer. Results from clinical trials of drugs that block vascularendothelial growth factor (VEGF) for the treatment of diabetic macular edema have led to a dramatic shift away from laser therapy to primary treatment with intravitreal injections.

CONCLUSION

Diabetic macular edema is a common cause of visual impairment in diabetics. Previously laser photocoagulation was considered the standard treatment option for this condition. However recently anti-VEGF intra-vitreal injections have superseded laser photocoagulation in respect of anatomical and visual outcomes in patients with diabetic macular edema.

REFERENCES


-----------------------------------------------------------------------------------------------------------------
Rhegmatogenous Retinal Detachment repair with 23-G & 25-G, Trans-conjunctival Pars Plana Vitrectomy (PPV)
(Is Trans-conjunctival Suture Less Vitreoretinal Surgery – the Future?)

Nisar Ahmed Siyal FCPS¹, Nargis Ashraf FCPS²
Sharjeel Sultan FCPS, FRCS³, Faraz Ahmed Farooqi⁴

Dow University of Health Science, Civil Hospital, Karachi & College of Dentistry, University of Dammam, Kingdom of Saudi Arabia

ABSTRACT

Objective: The purpose of this study is to compare the 23-G and 25-G surgery technique for repair of primary rhegmatogenous retinal detachment.

Methods: Seventy nine eyes of 72 patients were operated for rhegmatogenous retinal detachment with 23-g and 25-g pars plana vitrectomy surgery technique. 70% male and 30% female were reported. Demographic information, postoperative outcomes were recorded and reported.

Results: All eyes were operated through primary vitrectomy 23-g (54 eyes) and 25-gauage (25 eyes) instruments, endolaser photocoagulation, filled with silicon oil or gas tamponade. 78% postoperative anatomical success was achieved in 23-g and 83% for 25-g surgery system. Mean follow-up was 5 to 18 months. Post op. Visual acuity improved in 61 eyes (77.27%), and stabilized in five eyes (6.32%). There was no statistical difference between the surgery types and final anatomical outcome.

Conclusion: Both surgical instrument 23-G and 25-G are effective equally for Primary rhegmatogenous retinal detachment. This transition shortened operative time, reduced complications, and increased patient satisfaction.

Keywords: Retinal Detachment, 23-gauge, 25-gauge, Transconjunctival Sutureless Vitreoretinal surgery.

INTRODUCTION

Pars plana vitrectomy (PPV) was introduced more or less 40 years ago and with trans conjunctival suture-less vitrectomy (TSV), it was introduced in 2002. When first commercially available suture-less trans conjunctival 25-gauge vitrectomy technique was introduced by Fuji and co-worker.¹,⁴ Micro-incision vitrectomy surgery reduces operative time and eases post-operative recovery. This technique does not require a suture because of small opening that why MIVS has supported reduction of surgical trauma risks and suture-related inflammation.⁵,¹⁰ Presently, the utmost common two TSV systems are using 25-gauge and 23-gauge instrumentation. The 1st generation 25-gauge equipment limitations, reduced posterior segment illumination, decreased equipment rigidly that reduced their application to principally epiretinal membrane, vitreous opacities, and macular-hole surgery.¹¹,¹² Though, appliance of 2nd generation addressed the issue of instrument and large range of equipment, thereby enabling 25-TSV in more complex cases including pseudophakic retinal detachment and multifaceted detachments with silicone oil.¹³,¹⁵

Technological development and introduction of better instrumentation have made small-gauge vitrectomy as the gold standard. This transition has shortened the operative time, reduced complications and increased the patient’ satisfaction.

Twenty five gauge, TSV system although was very beneficial only on those cases of comparatively simple vitreoretinal pathology owing to boundaries in cutter act and a lack of needed accessory apparatuses.¹⁶ Eckardt in 2005 developed 23-gauge vitrectomy system using an indirectly entering trocar cannula system.¹⁷ It was believed that big sclerotomy size can increase the risk
of wound problems but 23-gauge system appeared as improvement in cutter efficiency. An extensive range of vitreo-retinal microsurgical instruments complying with 25-G standards has been designed. The 23-G system is a variation of the 25-G TSV system. Recent studies revealing a low incidence of endophthalmitis in a large series of patients undergoing small-gauge suture-less surgery.

An extensive range of vitreo-retinal microsurgical instruments complying with 25-G standards has been designed. The 23-G system is a variation of the 25-G TSV system. Recent studies revealing a low incidence of endophthalmitis in a large series of patients undergoing small-gauge suture-less surgery. The study focused on the anatomical post-operative success rate, difference between operative techniques and complications of PPV in repair of primary rhegmatogenous retinal detachment.

**METHODS & PATIENTS**

A prospective study was conducted at Civil Hospital Ophthalmology unit Karachi, Pakistan during June 2013 to March 2014. The study was permitted by the institutional review Board (IRB) and patients were told about the possible risks or benefits and gave complete information on study. A signed written consent was obtained from every patients before surgery. Seventy nine eyes of 72 patients were operated for rhegmatogenous retinal detachment with 23-g and 25-g pars-plana vitrectomy surgery technique. Fifty (70%) male and 22(30%) female were recorded and allocated randomly either for 23-g or 25-g. Demographic information and standard characteristics were recorded and reported in Table 1. Study did not include the patients had previous vitrectomy or scleral buckling history.

Pre and post-surgical data was recorded, best corrected visual acuity, IOP, detailed fundoscopy, quadrants of retinal detachment, B-scan if needed, macular involvement, fluorescein angiography and complications. Improvement in Visual Acuity (VA) was distinct as progress by 2 or more lines. Stable VA was distinct as 1 line or no change and impairment in VA was distinct as progress by 2 or more lines. Best corrected visual acuity was transformed into LogMAR units for statistical analysis.

**Procedure:** All surgeries were performed by the same surgeon under local anesthesia. The 23g system is a variation of the 25g TSV system. The vitreous cutters in 23-g system are better now by placing cutter opening closer to the end of probe, which increase the safety near the retina. A tolerable gas or air tamponade must be filled at the end of surgery which can stops significant postoperative leakage in most of the cases. However, leakage can occur in some cases, and the sclerotomy spot can be sealed with a single 70 or 80 vycril suture. C3F8perfluoropropane, SF6 sulfur hexafluoride or Silicon Oil was used in all cases to prevent possible leakage.

In addition, the sclerotomy sites were closed if silicone oil is used. The micro cannulas were easily ejected by holding the external collar with a forceps at the end of the procedure. The last micro cannula to be detached was the one with the infusion line. Intraoperative surgical photographs of a patient with vitreous haemorrhage and preretinal haemorrhage in a diabetic patient managed with 23-gauge instrumentation. Intraoperative surgical photograph of a macular epiretinal membrane treated with 23-gauge instrumentation. Patients were advised a particular position for face ups and down for 2 to 10 days. For some cases the perfluoron-octane was used to keep constant the detached retina and ease outers of sub-retinal fluid through peripheral retinal breaks.

Statistical Analysis was done using SPSS (v22 Inc. Chicago, IL.). One way ANOVA was used to test the difference between the groups and paired sample t-test was used to check significance in pre and post-operative outcome. P-value less than 0.05 considered as statistically significant.

**RESULTS**

Patient’s demographic information presented in Table 1. Fifty (70%) male and 22(30%) female were recorded and allocated randomly either for 23-g or 25g. Fifty four (78%) eyes were treated through 23-g and 25(83%) were through 25-g. Mean follow-up was 7.2 ± 4.5 month (5 to 18 months). Pre and post-operative visual acuity comparison for both groups’ 25-g and 23-g shown in figure 1 and the patterns of recovery in post-operative visuals on 1st to 3rd month follow-up and shows no statistical significant difference between the groups at any follow up time (p-value= 0.071).The mean follow-up for 23-g (8 months) was almost equal to the 25-g (6 months) vitrectomy patients. Thus, we can conclude that the post-operative visual recovery does not affect by the different sizes of cutter used in 25-gauge and 23-gauge vitrectomy. Post Op. Visual acuity improved in 61 eyes (77.27%), and stabilized in five eyes (6.32%) overall.

Anatomic success in one surgery and main variables include in surgical technique are summed in Table 2. The number of retinal breaks found in surgical repair were comparatively same with eyes having one,
two, or more than two retinal breaks. In table 2. 25-g surgery technique has a trend of greater proportion of eyes with more than 2 (>2) retinal breaks and it’s not statistically significant (p-value=0.13). Perfluoron-octane was used in larger fraction of 23-g as compared to 25-g: 21/54 eyes (38.89) and 10 of 25 (40 %). Perfluorocarbon liquid was used in a higher portion of 23-PPV and 25-PPV, 24.3 of 54 eyes (45% %, 23-PPV), and 10 of 25 eyes (39%, 25-PPV), there was no statistical significant between the groups (P = .15).

Difference between the macular statues of cases underwent retinal detachment repair and total quadrants involved were recorded and identified. Macula off and macula on retinal detachment’s proportion was higher in 23 gauge surgery as compared to 25-gauge vitrectomy and statistically significant (p-value= 0.003) and number of quadrants involved also higher in 23-gauge than 25-gauge surgery (p-value= 0.025).

Intraocular pressure was decreased significantly at all visits during follow-up. Some possible complications precisely linked to the 25-gauge system were there, higher occurrence of endophthalmitis and being hypotony was obvious. But the risk of these complications was condensed by angular incision in an opposite plan relative to the conjunctiva, or making a tunnel and doing fluid-air exchange at the end of surgery. So no patients in each group experienced any wound leakage, endophthalmitis, or retinal detachment.

Overall 90% patients in both groups got successful retinal attachment and failure in 10% only but we perform re-do in between 1st to 3rd month follow-up time and all eyes succeeded to the final attachment.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Surgery Type n (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23-gauge</td>
<td>25-gauge</td>
</tr>
<tr>
<td>Number of Patients</td>
<td>48 (67%)</td>
<td>24 (33%)</td>
</tr>
<tr>
<td>Operated eyes</td>
<td>54(68%)</td>
<td>25(32%)</td>
</tr>
<tr>
<td>Age in years</td>
<td>56.6(12.6)</td>
<td>62.4(11.2)</td>
</tr>
<tr>
<td>Gender: Male</td>
<td>34(71%)</td>
<td>16(67%)</td>
</tr>
<tr>
<td>Female</td>
<td>14(29%)</td>
<td>8(33%)</td>
</tr>
<tr>
<td>Follow-up: mean±SD</td>
<td>08±3.2</td>
<td>06±2.6</td>
</tr>
<tr>
<td>Macular Detachment:</td>
<td>15(28%)</td>
<td>19(76%)</td>
</tr>
<tr>
<td>ON - OFF</td>
<td>39(72%)</td>
<td>6(24%)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The study compared the 23-g PPV and 25-g PPV technique for repair of primary rhegmatogenous retinal detachment. Small incision suture-less surgeries gained popularity for short time in surgery, fewer discomfort of patients, and quick visual recovery18,20 However, some recent studies tried to prove the superiority of suture-less surgery over 20-g vitrectomy.21,22 In this prospective study the results showed the almost similar pattern of visual recovery and other outcomes in both surgical techniques. Although faster recovery, less inflammation was more expected in 25-gauge technique because of its micro incision but when compared each cases most
of the results are similar. A very slight difference was noted in post-operative status of conjunctiva and cornea of patients and the wound size of 23-gauge was larger than 25-G. Hence, Study reveal no significant difference in postoperative or intraoperative outcomes between 23-G and 25-G vitrectomy system.

In general, TSV seems to be particularly advantageous for procedures that do not require extensive intraocular tissue dissection or manipulation. In complex cases where we need a variety of scissors and forceps and/or injection of silicone oil, 25g or 23g sclerotomies can be used for the infusion and illumination probe, and a 20g sclerotomy can be performed for instruments and the injection or removal of silicone oil at the end of surgery. It is also applicable for diabetic traction retinal detachment with moderate amounts of epiretinal membranes (ERMs), and idiopathic ERMs as well. TSV-based surgery shorten operative time for a range of procedures, and reduce postoperative irritation at the sclerotomy sites, thus decreasing patient uneasiness and quickening postoperative recovery another advantage is apparent on paediatric cases. One disadvantage of this system is the learning curve required to attain extreme competence. Though, this curve is short enough for the adaptable surgeon. It is important to note that hypotony is more common in previously vitrectomized eyes. A noticeable difference of 25-g instruments is their marked flexibility.

American Society of Retinal Specialists has been shown the thriving changes in vitrectomy system through trends and preference surveys during past five years. Only 30% surgeons in 2003 used the 25-g vitrectomy technique and among them only 9% used this technique in half of their cases. However in 2006, 25-gauge vitrectomy system was performed by 48% of the surgeons either Alcon or Bausch & Lomb in more than 50% of their cases. In the same year when Alcon was first announced the surgeons started to divide in two groups 23-gand 25-g. Next year 2007, 48% and 50% of surgeons had performed the 25- and 23-gauge systems, respectively, 36% and 13% are those surgeons who used 23-g or 25-g on more than half of your patients. Some of retina surgeons (20%) still using 20-g as their primary surgical procedure.

SUMMARY / CONCLUSION

Technological developments, more efficient vitreous cutters, and a variety of 23-g and 25-g instruments have made small-gauge vitrectomy the gold standard and it is here to stay. Both vitrectomy techniques, either 25g or 23g have been improving with time, experience, and the introduction of better instrumentation. This transition shortened operative time, reduced complications, and increased patient satisfaction and comfort performing minimally invasive surgery has many advantages for both the surgeon and the patient.

REFERENCES

18. Lam DS, Yuen CY, Tam BS, Cheung BT, Chan WM. Sutureless


Shaban Khan Ph.D1, Afzal Khan FCPS2, Abdul Qayyum MS. Fellow (Paed.Ophth)3
Shamas Ullah Bazi Ph.D4, Abdul Bari FCPS5, Iftikhar ul Haq FCPS6

Bolan Medical College & Helpers Eye Hospital, Quetta

ABSTRACT
Objective: The purpose of study is to compare visual outcome in cataract surgery by conventional extra capsular cataract extraction (ECCE) and manual small incision cataract surgery method (MSICS).

Material & Methods: This study was carried out in ophthalmology department Bolan Medical College /Helper Eye Hospital Quetta. A total 100 number of patients were enrolled from outpatient department (OPD) from August 15th to February 15th 2014. The patients were divided in to two groups. Group one included fifty patients, operated by conventional extra capsular cataract extraction (ECCE) and in group two fifty patients were operated by manual small incision cataract surgery (MSICS).

Results: Patients on first post-operative day showed visual outcome 17(34%) by conventional extra capsular cataract extraction (ECCE) and 33(66%) by manual small incision cataract surgical (MSICS) technique, patients showed corneal edema which was relived quickly giving additional treatment (acetazolamide and topical hypertonic solution). On the first week follow-up visit 50% patients showed improvement of visual acuity by conventional extra capsular cataract extraction (ECCE) method while 80% by manual small incision cataract surgical technique. The 3rd week follow-up visit the visual acuity improved 70% in the first group of patients and 90% in the second group which indicates the fast rehabilitation by using manual small incision technique. In 8th week follow-up visit our patients showed 84% and 94% visual outcome respectively.

Key words: ECCE; Extra capsular Cataract Extraction. MSICS: Manual small incision Cataract Surgery.

INTRODUCTION
Age related cataract remains the major cause of blindness throughout the world.1,2 The world health organization (WHO) estimates that 20 million people are blind by cataract3 and 80% of these people live in the poor countries4 it is estimated that by 2020 there will be 50 million people blinded by cataract.5 Cataract surgery form the major work load of eye units especially third world countries where four million operations are performed per year6 and is a health care expense.7 It is one of the most cost effective of all public Health intervention in terms of restored quality of life.8

MATERIAL & METHODS
Sample size: 100 patients with age related cataract.
Sampling Technique: The patients were divided into two groups of equal size on the basis of simple random sampling.
Group-I: Included fifty patients for conventional extra capsular extraction (ECCE).
Group-II: It included fifty patients who underwent manual small incision sutureless cataract surgery (MSICS).

Inclusion criteria: Patients with clear cornea, patients with age related cataract, patients of both gender between 40-80 years of age.

Exclusion criteria: Patients with posterior segment pathology, patient with complicated cataract.

A performa was used to record the pre operative and post operative evaluation of the patients undergoing cataract extraction. (Annex: 1).

Manual small incision sutureless cataract surgery is comparatively superior than conventional ECCE; it does not need the capital investment and training as in phacoemulsification surgery.

Pre-operative evaluation: One hundred (100) patients diagnosed on direct ophthalmoscopy in eye OPD were admitted in the ward and written consent was taken from the patients. They were randomly allocated in the group by using random number table. Systemic and ocular examination was carried out. Ocular examination included visual acuity, extra ocular movement, assessment, measurement of Intraocular pressure (IOP), patients were examined by silt lamp, keratometric reading, fundal examination and B-scan, where needed. Biometry was done for measurement of intra ocular lens (IOL). One hundred (100) patient of age 40 – 80 year with senile cataract
presenting the outpatients department and fulfilling the above mentioned criteria were divide into two groups and operated in the department of ophthalmology Bolan Medical College / Helper Hospital, by same surgeon. In Group-I fifty (50) patients were operated by conventional ECCE and in group II fifty (50) patients were operated by manual small incision sutureless cataract surgery (MSICS).

Steps of surgical Procedures: Before surgery phenylephrine and tropicamide eye drop were used for dilating the pupil after local anesthesia with bovacaine 5%, pyodine solution instilled into conjunctival sac, spirit swab, opsite applied, superior rectus was grasped with 4/0 black silk to expose the superior limbus.

Group: I

In the conventional extra capsular cataract extraction(ECCE) a clear corneal 12-mm incision was created using a stainless steel blade. A continuous complete Curvilinear capsulorrhexis (CCC) was done on the anterior capsule followed by extension towards incision sculpted a deep center groove, and the nucleus was extracted using the counter pressure method, and the remaining cortex was removed with aspiration cannula, capsular bag was filled with viscoelastic and polymethyl- methacrylate intraocular lens was implanted in the capsular bag, anterior chamber was filled with irrigation fluid and 3-4 interrupted or continues sutures were applied.

Group: II

In 50 patients of manual small incision sutureless cataract surgery was carried out; two special disposable knives were used, crescent knife beveled up 2.25 mm (Alcon of Visitec) and slit knife 3.2 pointed bevel up mm (alcon of Visitec). Bridle suture were placed and a fornix based conjunctival flap was made, Sclera was bared and minimum necessary cautery was then applied, the location and length of the incision was marked by a caliper set at 5.5 mm to 7 mm scales. All cases were approached superiorly and straight groove 0.25 mm deep was made in the sclera with surgical knife No . 15. The most anterior and central point of the groove was 2 mm from the peripheral corneal vascular arcade, the peripheral ends were approximately 4 mm from the peripheral vascular arcade, the length of the groove was 5.5-7 mm depending upon the hardness of the nucleus. After completion of the groove, the crescent knife was engaged in the center of groove, advancing the knife within sclera anteriorly and extending 1 mm into the stroma of the clear cornea, the scleral tunnel was then extended from both side at the lateral ends of the groove. After the completion of scleral tunnel, appointed slit knife 3.2 was introduced in the centre of the tunnel and corneal stroma was perforated with its tips to enter the anterior chamber. The internal corneal cut was extended on either side laterally to make internal corneal valve, anterior chamber was filled with viscoelastic and capsulotomy was done, after hydro dissection and hydro-delineation the nucleus was mobilized, loosened and displaced into the anterior chamber from where it was expressed out by hydro-expression with Simco cannula or using irrigation wire vectus.

The remaining cortical matter was aspirated out, Anterior chamber and capsular bag was filled with viscoelastic and in the posterior chamber PMMA IOL (6.5 mm) was implanted within the capsular bag. Visco -elastic was then aspirated out by a two way cannula. The wound checked for any leakage and the conjunctival flap was repositioned. At the end a subconjunctival injection of gentamycin 20mg and 0.5 mg dexamethasone was given and an eye pad applied. Postoperatively all the patients were given topical dexamethasone and tobramycin eye drops four hourly along with oral antibiotics for one week. Patients were examined on first two postoperative days then on first follow up visit first week after surgery. Next visit was done fortnightly for two months. The examination of both group was with slit lamp for corneal edema and for any other sign of complications, IOP on each visit was recorded with the help of Goldman’s tonometer, Visual acuity with Snellen’s chart was recorded, Keratomeric reading for astigmatism was recorded on each visit by the keratometer and refraction was done 8 week after surgery.

RESULTS

Patients on first post-operative day showed visual outcome 17(34%) by conventional extra capsular cataract extraction (ECCE) and 33(66%) by manual small incision cataract surgical (MSICS) technique. (Table 3) in the first post operative day some patients showed corneal edema operated by (MSICS) which was relived quickly giving additional treatment (acetazolamide and topical hypertonic solution). On the first week follow-up visit 50% patients showed improvement of visual acuity by conventional extra capsular cataract extraction (ECCE) method while 80% by manual small incision cataract surgical technique. (Table 5). By the 3rd week follow-up visit the visual acuity improved to 70% in the first group of patients and 90% in the second group (Table 6) which indicates the fast rehabilitation by using manual small incision technique. In 8th week follow-up visit our patients showed 84% and 94% visual outcome respectively (Table 7).

<p>| Table 1: Baseline characteristic |
|-----------------------------|-----------------------------|</p>
<table>
<thead>
<tr>
<th></th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age</td>
<td>58.52 year</td>
<td>57-12 years</td>
</tr>
<tr>
<td>Male</td>
<td>58%</td>
<td>48%</td>
</tr>
<tr>
<td>Female</td>
<td>42%</td>
<td>52%</td>
</tr>
</tbody>
</table>

DISCUSSION

Cataract is the leading cause of blindness in Pakistan contributing to 66.76% of the total 1.78% blindness. The prevalence of blindness due to cataract is all most same in all over Pakistan. In developing countries studies reported ten time higher incidence of blindness due to cataract as compare to developed countries. Visual rehabilitation after cataract surgery has progressed through the eras of couching intra-capsular cataract extraction (IEEC) extra capsular cataract and extra-capsular cataract extraction with IOL. With acceptance of ECCE and IOL. Implantation cataract surgery has grown more complex, with increased dependence on technology during and after the surgery procedures, adds to the complexities. Even after the implantation of calculated IOL implant some patients are still not satisfied because of surgically induced astigmatism (SIA). So there is a room for improvement in the specialty of Ophthalmology. With advent of sutureless technique which allows the removal of the cataract has achieved a level its deserved and would help to establish and maintain the elusive goal of excellence in the rehabilitation of cataract patients. Sutureless surgery has been established as a safe,atraumatic and widely accepted methods in the developed countries. The hospital stay has been reduced from 1 to 3 days to a few hours. Six to ten weeks wait for glasses is the story of the past.

Today if the cataract patients feel unhappy and cannot see well at the end of the surgical week. Of course, the precaution and limitation have not disappeared. Today we are introduced to development aimed at better, less limiting results for the cataract patient. Astigmatism and rapid stabilization of wound are major goals of small incision cataract surgery, these seems to be achieved with most and unsutured corneoscaleral incision between 3.5-5mm, visual rehabilitation is faster. A standard temporal approach may however worsen pre-operative with the rule astigmatism, and against the rule astigmatism. In this study both group achieved equally good postoperative visual outcome (98% in both (Groups) with best possible correction at 8 weeks. However, there was a difference in uncorrected visual acuity. There was no poor outcome in both groups. The clear corneal incision with steel blades may have caused the astigmatism even in phacoemulsification. A 3-year prospective randomized evaluation of intraocular lens implantation through a 3.2 mm and a 5.5 mm incision (0.18D against the rule shift in the 3.2 mm incision and 0.35 D in a 5.5 mm incision).

Nielsen found it to be a 0.10 to 0.20D against the rule shift in the 3.2 mm incision and 0.43D against the rule shift in the 5.5 mm incision. Training in phacoemulsification surgery has a steeper learning curve then manual small incision suture less cataract surgery.

REFERENCES

Study Performa:

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Registration No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Age/Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Address

<table>
<thead>
<tr>
<th>Date of Admission</th>
<th>Date of Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eye Operated R/L

<table>
<thead>
<tr>
<th>Date of Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Operation Performed:

1. Presenting complaints

2. History of the Present Illness

3. Ocular and systemic drug history

<table>
<thead>
<tr>
<th>Examination</th>
<th>Right Eye</th>
<th>Left Eye</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Operative visual acuity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intraocular Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keratometric Readings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iris</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lens/ fundus /B.Scan/ Any other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks
Effect of Accommodation on Auto Refractometer Reading in Different Age Groups

Rabia Mobeen (M.Phil Optometry)¹, Rabia Batool (B.Sc. Hons. Optometry)²
Faisal Rashid B.Sc³, Mohammad Siddique FCPS⁴

ABSTRACT

Objectives: Objective of this study is to investigate whether there is any effect of accommodation on Autoref reading before and after cycloplegia and to check out which age and type of refractive error is more effected by accommodation.

Methods: An informed consent was obtained describing the detail of study and its implication. Therefore the subject was assured of their confidentiality of information and outcome. Four groups were selected and effect of accommodation on patients autorefr reading were measured. Autorefractor reading was noted before and after cycloplegia. Autoref reading was taken without cycloplegia in different age groups and then by using cyclopentolate to relax the accommodation and by repeating the autoref reading to find out difference in reading before and after cycloplegia. 110 patients of age group 3 to 60 were assessed by that method.

Results: Accommodation affects different age groups except old age. Accommodation effects on refractive error more in age 3-15 years because accommodation is stronger in children. There was significant difference between morning and evening amplitude of accommodation as p<0.005.

Conclusions: Accommodation affects different age group and the effect is maximum between 3-15 years and decreases with increasing age. Autoref overestimate myopia and under estimate hyperopia without cycloplegia. By using cycloplegia exact refractive error can be measured.

Keywords: Autorefraction, cyclopentolate, accommodation, refractive error.

INTRODUCTION

With advancing age accommodation decreases and inability to focus at near is called presbyopia. There are also some anatomical factors which contribute to the loss of accommodation, like ciliary body alteration, decrease in lens capsule elasticity and stiffening of lens. Many instruments like auto refraction and aberrometer are designed in such a way that they prevent accommodation by having fixed distance target.¹

Automated objective refractor is easy to work and easy method to determine refractive error than retinoscopy. It gives quick and repeatable measures of refractive error, its legitimacy is as necessary as its efficiency. Objective refractive value is severely affected by accommodative activity under non cycloplegic condition. So retinoscopy is more reliable method in non cycloplegic refraction.²

To assess the precision of non cycloplegic auto refraction in school going children, we have to measure the refractive error with an autorefractor before and after cycloplegia tempted with cyclopentolate.

¹Optometrist, College of Ophthalmology & Allied Vision Sciences, KEMU Lahore. ²Optometrist, Department of Ophthalmology Sheikh Zayed Medical College/Hospital, Rahim Yar Khan. ³Optometrist, Sheikh Zayed Hospital, Rahim Yar Khan. ⁴Assistant Professor (Ophthalmology), Sheikh Zayed Medical College, Rahim Yar Khan.

Correspondence: Miss Rabia Mobeen (M.Phil Optometry), Coordinator, Optometrist (COAVS), KEMU, Lahore. Cell: 0321-7419896, Email: rabia_optometrist@yahoo.com

Received: April 2016 Accepted: June 2016

Autorefractors are frequently used to measure the refractive errors in clinical setting. Accommodation is very strong in children, is an issue, so to control accommodation we use cycloplegia. In non-cycloplegic autorefraction there is a possibility of showing minus overcorrection in myopic children. There is also a problem of pseudo myopia and latent hyperopia that ascend from non cycloplegic refraction.³ There is major difference between correction obtained by auto refraction alone and manifest refraction, mainly in children. Autorefraction only without subjective refinement cannot be replaced for apparent refraction, particularly in children 10 year old or younger.⁴

Accommodation affects different age group and the effect is maximum between 3-15 years which decreases with the increasing age. Autoref overestimates myopia and under estimate hyperopia without cycloplegia. By using cycloplegia exact refractive error can be measured.

There are statistically major differences between cycloplegic and non cycloplegic spherical power. Accommodation has a noticeable effect on the detection of refractive error of school-age children. The photorefractometer system removes the need for cycloplegia in detection of refractive errors of children. In the measurement performed with hand held
autorefractometer, the affinity of myopia as of result of accommodation can be seen.\(^5\)

Retinomax autorefractor can measure more minus as compared with table mounted auto refractor and subjective refraction. The Retinomax autorefractor is not commended for research purposes, it is used in remote areas where a portable instrument is necessary and cycloplegia is not possible. Atropine is gold standard for achieving cycloplegia. Due to its adverse effects, prolonged impairment of near vision, which is regularly replaced by cyclopentolate, which has less complications, easier to manage, and has short duration of action. From this study there is good connection between atropine and cyclopentolate and the two treatments appear extraordinarily similar, even in children with higher degree of hypermetropia.\(^7\)

In children, accommodation is stronger and causes difficulty in detection of exact refractive errors. Photorefractometer abolish the use of cycloplegia and identify the refractive error of children. It is also available in handheld photorefractometer.\(^8\)

High hyperopia can cause amblyopia, squint, anisometropia and astigmatism if it remains uncorrected and it also reduces the steroacuity in children. So it is necessary to do cycloplegic refraction to evaluate exact refractive errors in children.\(^9\)

With advancing age ciliary body muscle lose the elasticity due to loss of collagen fibers which results in loss of accommodation. This condition is called presbyopia. It is a main cause of near vision problem in old age. As elasticity of lens reduces and nuclear sclerosis occurs. At old age accommodation reduces and need near addion.\(^10\)

**PATIENTS & METHODS**

Before the start of research, a pre-research planning was done in which all the aspects were looked. It included selection of research site, target population, sample size, self-designed proforma, sampling method, research methodology, organizational issues, pilot study and work plan.

Logistics and ethical implications were thoroughly discussed with the supervisor at College of Ophthalmology and Allied Vision Sciences (COAVS). Letters were circulated to the concerned authorities on behalf of College of Ophthalmology and Allied Vision Sciences. 110 patients of age group 3-60 years having refractive errors were included in the study. Patients were selected through non-probability convenient sampling method. Data was collected by clinical examination and self-made proforma. Duration of study was 03 months.

Data was analyzed by using SPSS 20 data processing. All records were crossed checked, record file was carefully prepared for entering data using SPSS 20 software. To avoid entry bias, double entries were done in different computers. All data was cleaned and analyzed.

**RESULTS**

![Figure No. 01: Accommodation with Age](image)

With age accommodation decreases. It is maximum at the age group of 3-15 and gradually decreases with age.

![Figure No. 02: Distribution of patients according to age](image)

### Table No. 01: Amplitude of accommodation at morning

<table>
<thead>
<tr>
<th>Amplitude of Accommodation at Morning</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 to 7.9</td>
<td>20</td>
<td>18.18%</td>
</tr>
<tr>
<td>8 to 9.9</td>
<td>36</td>
<td>32.73%</td>
</tr>
<tr>
<td>10 to 11.9</td>
<td>40</td>
<td>36.36%</td>
</tr>
<tr>
<td>12 to 13</td>
<td>14</td>
<td>12.73%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Morning amplitude of accommodation was 6 to 7.9D in 20 (18.18%) subjects, 8 to 9.9D in 36 (32.73%), 10 to 11.9D in 40 (36.36%) and 12 to 13D in 14 (12.73%) subjects.
Effect of Accommodation on Auto Refractometer Reading in Different Age Groups

Table No. 02: Amplitude of accommodation at evening

<table>
<thead>
<tr>
<th>Amplitude Of Accommodation at Evening</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 to 7.9</td>
<td>33</td>
<td>30%</td>
</tr>
<tr>
<td>8 to 9.9</td>
<td>43</td>
<td>39.09%</td>
</tr>
<tr>
<td>10 to 11.9</td>
<td>24</td>
<td>21.82%</td>
</tr>
<tr>
<td>12 to 13</td>
<td>10</td>
<td>9.09%</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>100%</td>
</tr>
</tbody>
</table>

Evening amplitude of accommodation was 6 to 7.9D in 33 (30%) subjects. It was 8 to 9.9D in 43 (39.09%), 10 to 11.9D in 24 (21.82%) and 12 to 13D in 10 (9.09%) subjects.

Table No. 03: Difference in Autoref reading before & after Cycloplegia

<table>
<thead>
<tr>
<th>Age</th>
<th>autoref reading before cycloplegia right eye</th>
<th>autoref reading before cycloplegia left eye</th>
<th>autoref reading after cycloplegia right eye</th>
<th>autoref reading after cycloplegia left eye</th>
</tr>
</thead>
<tbody>
<tr>
<td>.148</td>
<td>-.162</td>
<td>-.245</td>
<td>-.281†</td>
<td></td>
</tr>
<tr>
<td>.855”</td>
<td>.960”</td>
<td>.843”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.830”</td>
<td>.944”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.896”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

Accommodation is the ability of crystalline lens to focus near object. The amount of accommodation varies with age. Accommodation is stronger in children and gradually decreases with age. Cyclopentolate is used to relax accommodation to find out exact refractive error. This study shows that amount of accommodation varies with age. Accommodation is more in children as compared to older. Accommodation affects on refractive error more in age 3-15 years because accommodation is stronger in children. Accommodation also affects different age groups but in old age it did not affect due to decrease elasticity of lens and weakness of ciliary muscles. This resembles with the study of Yekta AA et al. which shows that amplitude of accommodation decreases with advancing age.

Autorefractometer has ability to over estimation of myopia in children which means that over identification of myopia without cycloplegia. For accurate results it is necessary to do autorefraction under cycloplegic condition. It gives us exactness of auto-refraction as compared to subjective refraction. The same results were shown in the study of Rotsos T et al.

In a study conducted in 2014 by Elise B et al. showed similar results that Cyclopentolate is necessary for pediatric refraction because uncorrected hyperopia can cause amblyopia, squint, anisometropia and astigmatism. To evaluate exact refractive errors in children it is necessary to do cycloplegic refraction.

Auto-refractometers are frequently used in clinical setting. It is easy and repeatable values can be achieved. Now-a-days auto-refractometer is used by ophthalmologist as well as optometrist because its handling is easy and time saving procedure of obtaining objective refraction. With the increasing age amplitude of accommodation decreases; hyperopic person become presbyopic earlier than the myopic and emetropic person. When presbyopia develops patient need near add.

Recommendations: This study is by no means an exhaustive study therefore study on the larger scale should be carried out. On the basis of results of this study, following recommendations can be made:
1. Optometrist should not rely on autoref reading only.
2. In children accommodation is strong therefore always do cycloplegic refraction.
3. Best subjective verification should be done.
4. Autoref overestimates myopia and under estimate hyperopia so always do cycloplegia especially in children.
CONCLUSION

Accommodation affects different age group and the effect is maximum between 3-15 years and decreases with increasing age. Autoref overestimate myopia and under estimate hyperopia without cycloplegia. By using cycloplegia exact refractive error can be measured.

REFERENCES

Incidence of Hypermetropia Associated with Astigmatism in Children of Age Group 2-15 Tears

Iftikhar Ahmed FCPS¹, Abid Ali B.Sc², Saedaa Malik B.Sc³, Nabila Sharif B.Sc⁴

ABSTRACT
Objective: To find the frequency of hypermetropia associated with astigmatism in children of 2-15 years age in sample population. To assess the risk factors of hypermetropia leading to the development of Amblyopia.
Material & Method: The research study was conducted in District Head Quarter Hospital Haripur. With the help of cycloplegic and subjective refraction, we assessed, observed and corrected 100 children cases who had visited our OPD. Different variables were also considered including age of patients, gender, visual acuity, Hirschberg reflex (for assessment of squint), cover test, assessment of ocular motility, type of refractive error, range of hypermetropia, range of astigmatism and correction. Glasses were prescribed to the patients with refractive error.
Results: At presentation 97% children were with hypermetropia. Out of this 21(21.0%) were mild, 54(54.0%) were moderate and 22(22.0%) were severe Hypermetropic. Associated with this 93% were astigmatic, with 44(44,0%) mild, 35(35.0%) moderate and 14(14.0%) sever astigmatic patients. Among these 100 patients 10(10.0%) were normal with no refractive error, just having convergence insufficiency. In this study it was observed that the patient with age of 2 years had hypermetropia of +7.00D with no astigmatism and while going onwards it had been seen that hypermetropia going to be decreased with increasing degree of astigmatism. According to this study as we moved forward hypermetropia decreased from +7.00D to +5.00D, +3.00D, +2.00D, +1.75D, +0.75D, +0.50D and astigmatism going to be increased from 0.00D to -0.50D, -0.75D, -1.00D, -2.00D, -2.50D, -3.00D, -4.00D, -4.50D.
Conclusion: High hypermetropia may lead to squint or severe visual loss, if it remain uncorrected. Children have the best ability to regain vision if full prescription was given to them. Frequency of hypermetropia was 97.0% and associated astigmatism was 93.0% in this study.
Key Words: Hypermetropia, Myopia, Astigmatism, Cycloplegia.

INTRODUCTION
The human eye is the organ which gives us the sense of sight, allowing us to observe and learn more about the surrounding world than we do with any of the other four senses. We use our eyes in almost every activity we perform. In order to reduce the occurrence of avoidable visual impairment and blindness caused by refractive errors, there is an urgent need for obtaining the epidemiological information on refractive errors and other eye diseases among school-age children.⁹ High hypermetropia may lead to squint or severe visual loss if it remains uncorrected. Children have the best ability to regain vision if full prescription is given to them. The incidence of hypermetropia, Myopia, associated with Astigmatism is quite prevalent in school children in Pakistan.
MATERIAL & METHOD
Study Design: Descriptive, cross-sectional study.
Study Duration: Two months 1ˢᵗ Nov - 3¹ˢᵗ Dec 2014.

1Associate Prof. Abbotabad International Medical College, Abbotabad.
²Optometrist & Orthoptist, DHQ Hospital, Haripur. ³Optometrist & Orthoptist, Ayub Medical College, Abbotabad. ⁴Optometrist & Orthoptist, Shifa International Hospital, Islamabad.
Correspondence: Dr. Iftikhar Ahmed, FCPS, Associate Prof. of Eye, Abbotabad International Medical College, Abbotabad. Cell: 0333-9298462, Email: dr-iftikhar@hotmail.com
Received: Feb 2016  Accepted: March 2016

High hypermetropia may lead to squint or severe visual loss if it remain uncorrected. Children have the best ability to regain vision if full prescription is given to them. There is an urgent need for obtaining the epidemiological information on refractive errors and other eye diseases among school-age children.

This was a cross-sectional and descriptive study, specialized designed performa was used in all the patients in order to obtain accurate results. Our study was designated to find the frequency of hypermetropia associated with astigmatism in sample size, ratio of refractive error that affect the normal vision, to calculate the extent of refractive errors and their correction plus treatment. With the help of cycloplegic and subjective refraction, we assessed, observed and corrected 100 children cases who had visited our OPD. Different variables were also considered including age of patients, gender, visual acuity, Hirschberg reflex(for assessment of squint), cover test, assessment of ocular motility, type of refractive error, range of hypermetropia, range of astigmatism and correction. Full prescription was given to all the patients who had refractive error and convergence insufficiency. Exercise was advised to
those patients who had not any refractive error but had convergence insufficiency.

RESULTS

Our study revealed 97% children were with hypermetropia, out of this 21(21.0%) were mild, 54(54.0%) were moderate and 22(22.0%) were severe Hypermetropic. Associated with this 93% were astigmatic, 44(44,0%) mild, 35(35.0%) moderate and 14(14.0%) severely astigmatic. Among these 100 patients 10(10.0%) were normal with no refractive error, just having convergence insufficiency. In this study it was also observed that the patient with age of 2 years had hypermetropia of +7.00D with no astigmatism and while going onwards it had been seen that hypermetropia going to be decreased with increasing degree of astigmatism. Accordingl, hypermetropia decreased from +7.00D to +5.00D, +3.00D,+2.00D, +1.75D, +0.75D,+0.50D and astigmatism going to be increased from 0.00D to -0.50D, -0.75D, -1.00D, -2.00D, -2.50D, -3.00D, -4.00D, -4.50D.

<table>
<thead>
<tr>
<th>Count</th>
<th>Range of Hypermetropia</th>
<th>Range of Astigmatism</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mild</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Mild</td>
<td>15</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Moderate</td>
<td>26</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Severe</td>
<td>3</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>No hyperopia</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>35</td>
<td>14</td>
</tr>
</tbody>
</table>

DISCUSSION

In a large study of more than 11,000 children with glasses, conducted recently in the UK, 47.4 percent of wearers had astigmatism of 0.75 D or greater in at least one eye, and 24.1 percent had this amount of astigmatism in both eyes. The prevalence of myopic astigmatism 31.7 % was approximately double that of hyperopic astigmatism of 15.7%.

Early correction of hyperopia and astigmatism in children leads to better development of visual acuity. Early correction of hypermetropia and of hypermetropic astigmatism 1.0 Diopter or more, results in better development of visual acuity as measured at the age of 8 years or later. Since visual acuity of better than 1.0 (20/20) is “normal”, late corrected children often did not develop normal visual acuity.

Many studies reviewed about hypermetropia and associated astigmatism in children like Refractive Errors, Profile in School Age Children. According to this study about 11.4% of blindness is due to the uncorrected refractive error in our country. According to European Journal of Scientific Research- A study in Northeastern Brazil cited that hyperopia were mostly found 61.7% in 1 to 10 years old.8 In a recent study of 2,523 American children ages 5 to 17 years, more than 28 percent had astigmatism of 1.0 diopter (D) or greater. Also, there were significant differences in astigmatism prevalence based on ethnicity. Asian and Hispanic children had the highest prevalence (33.6 and 36.9 percent, respectively), followed by Whites 26.4% and African-Americans 20.0%.

CONCLUSION:

High hypermetropia may lead to squint or sever visual loss if it’s uncorrected. Children have the best ability to regain vision if full prescription is given to them. Frequency of hypermetropia was 97.0% and associated astigmatism was 93.0% in this study.

REFERENCES

2. Wikipedia, the free encyclopedia- Emmetropia.
3. What is astigmatism? what causes astigmatism? Main Category: Eye Health / Blindness Article Date: 26 Jul 2009 - 0:00 PDT.
9. Lian-Hong Pi1, Lin Chen1, Qin Liu1, Ning Ke1, Jing Fang1, Shu Zhang1, Jun Xiao1, Wei-Jiang Ye1, Yan Xiong1, Hui Shi1, Zheng-Qin Yin 2-Research Paper International Journal of Medical Sciences 2010; 7(6):342-353 © Ivyspring International Publisher. All rights reserved Refractive Status and Prevalence of Refractive Errors in Suburban School-age Children.
Prevalence & Pattern of Refractive Errors in School Going Children Between 5 & 15 Years Age

Muhammad Adeel FCPS, (Resident in Ophthalmology)
Al-Shifa Trust Eye Hospital, Rawalpindi

ABSTRACT

Objective: To determine the frequency of refractive error and its types in school age children between 5 and 15 years.

Material and Methods

Study Design: Descriptive Cross Sectional Study.

Setting: The study was conducted at Pediatrics Eye OPD of Al-Shifa Trust Eye Hospital Rawalpindi.

Sample Size: The sample size was 170 children.

Results: The mean ± SD age of the study patients was 9.98 ± 2.96 years ranging from 5 to 15 years. Out of 170 children 54.71% were males while remaining 45.29% were females. Prevalence of Refractive error was found to be 21.76%. Considering the type of refractive error myopia was more prevalent 43.24% followed by astigmatism 32.43% and hyperopia 24.32%.

Conclusions: Refractive error is common in the school age children between 05 and 15 years and if not early diagnosed and managed properly it can cause significant and permanent visual impairment.

Key Words: Refractive error, Myopia, Hyperopia, Astigmatism.

INTRODUCTION

Refractive errors occur when the eye cannot clearly focus the image from outside world. It is a state of refraction wherein the parallel rays of light coming from infinity with accommodation at rest are focused either in front or behind sensitive layer of retina in one or both the meridia. The result of refractive errors is blurred vision, which is sometimes so severe that it causes visual impairment. WHO estimates that 13 million children aged 5-15 years worldwide are visually impaired from uncorrected refractive error. Refractive errors are among the leading causes of visual impairment worldwide and are responsible for high rates of low vision and blindness in certain areas. Refractive errors are present in childhood and continue in adult life. Blindness due to refractive error usually manifest at early age and number of blind-person-years due to refractive error in developing countries is approximately twice as high as cataract related blindness. It was estimated that blindness due to refractive error resulted on average of 30 years of blindness for each person as compared to 5 year blindness due to untreated cataract for each person. In Pakistan, 11.4% blindness is due to uncorrected refractive error.

Refractive errors are fairly common amongst the school going children at vulnerable age which could result in permanent damage if uncorrected. Screening programs for every child should be started at the time of its admission by a trained personnel, with a system of provision of free or low cost spectacles to those children cannot not afford.

Refractive errors include Myopia, Hyperopia and Astigmatism. If any one of these refractive errors is uncorrected or treated late they can lead to serious visual complications. Uncorrected myopia can result into Retinal tear, Retinal detachment, Complicated Cataract, Vitreous Hemorrhage and Choroidal Hemorrhage. Uncorrected Hypermetropia can cause Amblyopia and Accommodative convergent squint. Uncorrected Astigmatism during early development can result into Meridional Amblyopia.

Studies on the prevalence of refractive errors among children in different parts of the world show significant differences. In one study conducted on school children in Pakistan, prevalence of refractive error was found to be 19.8% and among them myopia was 43.0%, hyperopia was 21.5% and astigmatism was 35.5%. In another study conducted in Ethiopia, prevalence of refractive error was found 9.4% and among them myopia was 31.6% and hypermetropia was 26.4%. In developed countries prevalence of refractive error has been reported at 8.2% in Baltimore, 10.4%...
in Kazuhiro, Japan and 18.2% in Santa Monica, USA. Studies have reported a prevalence of refractive error up to 11%. Refractive errors cannot be prevented but can be diagnosed by eye examination and treated with corrective glasses, contact lens or refractive surgery and thus preventing from developing the severe visual impairment.

MATERIAL & METHOD

The study was conducted at the Pediatric OPD of Al Shifa Trust Eye Hospital Rawalpindi. The sample size was 170.

Patient Selection

Inclusion Criteria: All children aged between 5 and 15 years, children of both genders.

Exclusion Criteria: Children having chronic eye diseases, infective and allergic conditions diagnosed on history and examination. Patients with any chronic illnesses like Glycogen storage diseases, Thalasemia diagnosed on history and examination. Those who refused to consent.

Data Collection Procedure: After an informed written consent from child’s caretaker or parent the patients were screened for inclusion criteria. The physical assessment and eye examination was undertaken and those fulfilling the selection criteria were included in the study. Children were enrolled and their demographic characteristics along with presenting signs and symptoms were recorded. According to study objective the patient age was categorized from 5 to 15 years and the eye examination was done to look for refractive error.

Steps for Eye Examinations: Assessment of distance VA at 4 m with ETDRS logMAR charts (Precision Vision, Inc., La Salle, IL). Examination of the external eye and the fundus for abnormalities. Measurement of refractive errors 40 to 60 minutes after instillation of one drop of proparacaine (0.5%) and two drops of cyclopentolate (1%) in each eye. Cycloplegic refraction was performed with an autorefractometer, followed by verification of autorefractometer measurements by retinoscopy and when effects of cycloplegia vanished then by subjective refinement in subjects under cycloplegia. The final estimate, i.e., the estimate was confirmed by post mydriatic testing (PMT) by subjective refinement, and was used for determination of presence versus absence of refractive error and for the prescription of spectacles.

RESULTS

In this study a total of 170 cases with age between 5 to 15 years were enrolled. The mean ± SD age of study patients was 9.98 ± 2.96 years. Majority of the children were of age between 11 to 15 years and constitute about 64.70% of total cases while remaining 35.30% of cases lie in range of 5 to 10 years of age as shown in Table 1. Total numbers of male children were 93 (54.71%) and total numbers of female children were 77 (45.29%) as shown in Figure 1.

Refractive errors were found in total 37 children (21.76%), shown in Figure 2. Among these total 37 cases of refractive error Myopia was found in 16 children (43.24%), Hyperopia was present in 09 children (24.32%) and Astigmatism was present in 12 children (32.43%), shown in Figure 3. The gender distribution of refractive error was such that among male children (total 93), 17 had Refractive error (18.28%), out of these 8 had Myopia (47.06%), 4 had Hyperopia (23.53%) and 5 were Astigmatic (29.41%). Similarly among female children (total 77), 20 were having refractive error (25.97%), out of which 8 had Myopia (40.00%), 5 had Hyperopia (25.00%) and 7 were Astigmatic (35.00%), shown in Table 2 and Figure 4 & 5.

Table 1: Age of study cases

<table>
<thead>
<tr>
<th>Age Range (years)</th>
<th>No of Cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 - 10</td>
<td>60</td>
<td>35.30</td>
</tr>
<tr>
<td>11 - 15</td>
<td>110</td>
<td>64.70</td>
</tr>
<tr>
<td>Total (05 -15)</td>
<td>170</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean Age - 9.98 years - Standard Deviation - ± 2.96
DISCUSSION

Refractive errors are a world-wide problem. World Health Organization (WHO) estimates a total of 153 million people (range of uncertainty: 123 million to 184 million) visually impaired from uncorrected refractive errors and among them eight million are blind. There are 12.8 visually impaired children due to uncorrected refractive error in age between 5 and 15 years. The world prevalence in this age is 0.96 percent. Uncorrected refractive errors cause serious visual impairment to children and have impact on their learning and education. It is one of the avoidable causes of blindness therefore WHO launched a program Vision 2020 to tackle this problem. Studies on prevalence of refractive errors among children of different parts of world show significant differences. In developed countries prevalence of refractive error has been reported at 8.2% in Baltimore, 10.4% in Kazuhiro, Japan and 18.2% in Santa Monica, USA. Refractive error study in children (RESC) was conducted in China, Nepal, Chile, India, South Africa and Malaysia. The results of RESC show prevalence of presenting visual impairment from 1.2% to 14.7%. In Pakistan a few studies also conducted on refractive error among children but these studies also show variable results.

In our study total 170 children participated. It was a hospital based study. These children were of age between 5 and 15 years and were taken from Out-Patient Department. Male children were 93 and female children were 77. Overall male participation was more (54.71%) than females (45.29%) in our study. The refractive error was found in total 37 children thus concluding a prevalence of 21.76%. We can compare our result to a study conducted in Pakistan in Lahore city where the prevalence of refractive error was found to be 19.8% which is close to our results. However in that study children were of age between 11 to 16 years. A similar study was also conducted in Pakistan on refractive errors among school children. They conducted study on school children of age between 4 and 15 years and concluded the prevalence of refractive error 22.21%. Let’s take another study which was also conducted in Pakistan among children between 6 and 15 years of age. That study was done to determine refractive errors in those children who used to play video games. In their study prevalence of refractive error was 18%. A similar study was conducted in Nepal on refractive errors among school children between 7 and 15 years. They found prevalence of 19.8%. Another study was conducted on refractive errors among school children in Tafila city of Jordan. In that study prevalence of refractive error was found 25.32% which is more than
that of our study. However they did study on 1,647 school children and also children were of age between 12 and 17 years while our study includes 170 children and of age between 5 and 15 years. Moreover prevalence of refractive error also varies in different parts of world so these might be reasons of difference in results of two studies.

In our study among those refractive error children (37), myopia is present in 16 children (43.24%), hyperopia is present in 9 children (24.32%) and astigmatism is present in 12 children (32.43%). So in our study myopia is more prevalent followed by astigmatism and then hyperopia respectively. The pattern of these various types of refractive error among children is similar to that study conducted in Lahore on school children. Similarly we can also compare the pattern of these various types of refractive error found in our study to a study conducted in Chittagong, Bangladesh. That was also hospital based study conducted on 500 children of age 5 to 15 years. That study included only those children who had refractive errors. In that myopia was prevalent 64.6%, astigmatism 56% and hyperopia 22.6%. So we see in that study myopia is more prevalent followed by astigmatism and then hyperopia. Thus pattern of refractive error found in that study is similar to that of our study. Now again come to the study conducted in Tafila city Jordan, here prevalence of myopia determined was 63.5%, astigmatism 20.4% and hyperopia 11.2%. So pattern found in Tafila study is that myopia is more prevalent then astigmatism and least prevalent is hyperopia which is similar to that of our study results. Let’s consider another study conducted on refractive error among the school children in Nepal. Here myopia was found more prevalent (44.8%) followed by astigmatism (34.9%) and then hyperopia (20.3%). Thus pattern of refractive errors found in that study matches with pattern of our study.

In our study regarding gender, the prevalence of refractive errors in female is 25.97% (20 of 77) and in males it is 18.28% (17 of 93). Thus refractive errors are found to be more prevalent in females. In one study conducted on school children of Karachi the refractive error was significantly associated with male gender which supports our results. Another study was done on one million school children of district Rawalpindi and Islamabad and in that study refractive errors were found to be more prevalent in females which is similar to our study. Similarly another study was done on refractive errors among school children in Saudi Arabia and they also found higher prevalence of refractive error in females like to that of our study. However there are also various studies done which show no any gender association of refractive error, such as study conducted in Bangladesh at Chittagong eye hospital shows no any significant gender association. Similarly in one study conducted on children based on population surveys in Asia, Africa and Latin America, prevalence of refractive error found to be more in females than males but not at a statistically significant level.

This study has some weaknesses and strengths. The weakness lies in the fact that our study is not population based while all over the world such kind of studies is mostly done in a specific population. We conduct study in hospital due to various limiting factors such as time limitations, hospital responsibilities, logistic and financial unavailability. The strength of study lies in the fact that we use rigorous method for determination of refractive error including cycloplegia to eliminate accommodation related variability in refractive error measurement, initial determination of refractive error with an unbiased objective instrument (Retinomax autorefractor) and verification by retinoscopy and then by subjective refraction. Moreover our study is a good source of information for development of infrastructure of eye care services to our population.

This study is an effort to report the burden of loss of visual acuity due to refractive errors at a tertiary care eye hospital setting in Pakistan. Data from this study will be helpful to plan strategies for the enhancing awareness about refractive errors in general population and to transform this increased awareness to actual utilization of services. The calculation of frequency of refractive errors and their different types in our setting will help to determine the various strategies to tackle this problem on the government side e.g. training of expert personnel, development of infrastructure at a community level and provision of spectacles according to a type of error to our poor people at a low cost etc. It will also help to educate the public about this problem. For example poor vision during childhood affects the performance in a school or at work resulting in a negative impact on the present and future life of a person as planning of a career of youth is very much dependent on the visual acuity especially in the jobs for military, railway, navy and aviation. Hence the significance of such a study is many folds as it helps us to better understand the intensity of this problem in our society where these kind of quantitative studies are lacking.

CONCLUSION
According to our study findings we concluded that Refractive errors are fairly common among the school age children and it is this age group which is vulnerable
to the disastrous effects of uncorrected refractive error, thus causing visual morbidity and decrease in the functional vision which may be permanent if not diagnosed and managed early.

It is thus suggested that screening programs for refractive errors shall be started at a mass level and also every child, at the time of its admission to the school must undergo ophthalmic examination by a trained Ophthalmologist or an Optometrist at least, so that the Refractive error is diagnosed and thus managed early to prevent permanent visual disability. Moreover there must be a system for provision of free or low cost good quality spectacles to those children who have refractive error. As refractive error is among those leading causes of blindness that can be preventable and if a person get visually handicapped just because of a reason that he or she was unable to get his or her eye examination or unaware of decrease vision due to refractive error or unable to buy a spectacle for treatment then it would be a large stigma to our health care system and services towards the community. These measures can help in the early diagnosis and treatment of refractive error and thus preventing the persons from the permanent visual impairment.

REFERENCES

ORIGINAL ARTICLE

Mean increase in Pupillary Diameter with Intracameral Injection of 1% Lidocaine and Topical Mydriatic during Phacoemulsification of Cataract Extraction

Rana Naveed Iqbal FCPS¹, Naseer Ahmad MBBS², Junaid Hanif MBBS³
Khalid Jamal MBBS⁴, Syed Abdullah Mazhar MBBS⁵

ABSTRACT
Objective: To compare the mean increase in pupil diameter by intracameral injection of 1% lidocaine versus topical mydriatics during phacoemulsification cataract extraction.

Materials & Methods: This study was conducted in the Department of Ophthalmology Services Hospital Lahore, from 1st June 2014 to 30th Nov 2014. 100 patients suffering from age-related cataract with age range from 50 to 72 years were selected, in which two groups were made on the basis of intracameral lidocaine 1% and topical mydriatics. In Group A, there were 48.0 % (n=24) male and 52.0 % (n=26) female patients while Group B had 44.0 % (n=22) male and 56.0 % (n=28) female patients. Informed consent was obtained from each patient. 100 patients were divided topical and intracameral group. Baseline pupillary diameter was measured 1 hour before surgery in topical group and just before surgery in the intracameral group (D₁). After that, patients in Group A were given 3 drops of cyclopentolate 1% at 10 minute intervals before surgery for total of 3 doses. Patients in Group B received intracameral 0.3 ml of non preserved lidocaine 1% injected into the anterior chamber at the beginning of surgery. The pupillary diameter was repeated with the same caliper just before surgery in the topical group and 90 seconds after intracameral injection in the intracameral group (D₂). Increased in pupillary diameter was measured by subtracting initial diameter (D₁) from final diameter (D₂) by same person unaware of study group.

Results: Both groups were comparable to each other in terms of age and gender distribution. Mean increase in pupillary diameter was 3.70 ± 0.69 mm in mydriatic group and 2.40 ± 0.97 mm in intracameral group. (P Value 0.001).

Conclusion: There is greater increase in mean pupil diameter by topical mydriatics than intracameral injection of 1% lidocaine during phacoemulsification cataract extraction.

Key words: Cataract, Phacoemulsification, Pupil dilatation, Lidocaine.

INTRODUCTION
Untreated cataract is the most common cause of blindness in the world.¹ Cataract surgery with intraocular lens (IOL) implantation is the most common ophthalmic surgical procedure worldwide. It is also the most common surgery that corrects refractive error, performed over five times more frequently than corneal refractive surgery.² Cataract has been operated by extra capsular cataract extraction with posterior chamber intraocular lens implantation,³ small incision cataract surgery (SICS),⁴ or phacoemulsification.⁵ Phacoemulsification is the dominant form of cataract surgery in developed countries, accounting for > 90% of procedures.⁶

The use of intracameral lidocaine has gained wide acceptance in routine phacoemulsification surgery, as a result of its safety and favorable anesthetic properties. In recent years, the mydriatic effects of intracameral lidocaine have been recognized and used in clinical practice.⁷

There is greater increase in mean pupil diameter by topical mydriatic than intracameral injection of 1% lidocaine during phacoemulsification cataract extraction.

Khokhar et al compared pupil dilation between intracameral lidocaine and conventional topical mydriatics during phacoemulsification and showed that mean increase of pupillary diameter was 4.06 ± 0.09 mm in topical mydriatics versus 4.52 ± 0.08mm in intracameral lidocaine. (P value 0.001).⁸ In another study of 49 eyes, O Golan et al showed that mean increase of pupillary diameter was 5.7 ± 0.6 mm with topical mydriatics compared to 4.1 ± 0.8 mm in intracameral lidocaine.⁹ As Khokhar et al study showed more increase in horizontal pupillary diameter with intracameral lidocaine but O Golan et al study showed more increase in horizontal pupillary diameter with topical mydriatics which is opposite to the results
Mean increase in Pupillary Diameter with Intracameral Injection of 1% Lidocaine and Topical Mydriatic during Phacoemulsification of

of Khokhar et al study, that is why we wanted to study intracameral lidocaine and topical mydriatic for pupillary dilation in phacoemulsification so that the drug with better pupillary dilation can be used during surgery in it will ease the surgical procedure, reduce operative time and reduce intra operative complications and this lessens the morbidity of patients.

MATERIALS & METHODS

**Study Design:** Randomized control trial

**Study Setting:** Department Ophthalmology, Services Hospital, Lahore

**Duration of Study:** Six Months (1st June 2014 to 30th Nov 2014).

**Sampling Technique:** Non Probability purposive sampling.

**Sample Size:** Sample size of 100 eyes (50 eyes in each group) was calculated with 80% power of test, 5% level of significance and taking expected mean increase in pupillary diameter 4.06 ± 0.09mm in topical mydriatics and 4.52 ± 0.08mm in intracameral lidocaine. 8

**Data collection procedure:** After approval of medical ethical committee of hospital and informed written consent from patients about the study procedure, 100 eyes fulfilling the inclusion criteria were included in the study. The patients were randomly assigned to 2 groups by lottery method. Group A (topical group) and Group B (intracameral group).

Baseline pupillary diameter was measured 1 hour before surgery in topical group and just before surgery in the intracameral group ($D_1$). After that, patients in Group A were given 3 drops of cyclopentolate 1% at 10 minute intervals before surgery for total of 3 doses. Patients in Group B received intracameral 0.3 mL of non preserved lidocaine 1% injected into the anterior chamber at the beginning of surgery. The pupillary diameter was repeated with the same caliper just before surgery in the topical group and 90 seconds after intracameral injection in the intracameral group ($D_2$). Increased in pupillary diameter was measured by subtracting initial diameter ($D_1$) from final diameter ($D_2$) by same person unaware of study group.

**Data analysis:** All data was entered into SPSS Version 11.0. Quantitative data such as age, pupillary diameter before and after dilation and increase in pupillary diameter were presented as mean and standard deviation. Qualitative data such as gender, side (right/ left) were presented as frequency and percentage. Student t test was used for comparison of quantitative data i.e. mean increase in pupillary diameter. P value ≤ 0.05 was considered significant. Data was stratified for age and gender. T test was applied to post stratification.

**RESULTS:**

A total of 100 patients were included in this study. Mean age of patients was 62.87 + 7.24 years. (P value 0.467) [Table 1] In Group A, there were 48.0 % (n=24) male and 52.0 % (n=26) female patients while Group B had 44.0 % (n=22) male and 56.0 % (n=28) female patients. (P value 0.161) [Table 2] In group A the pre dilation pupil size in males was 3.30+ SD 0.39 and in females was 3.49+ SD 0.46, whereas in group B the pre dilation pupil size in males was 3.31 + SD 0.34 in females 3.56 + SD 0.35, with a P value of 0.256 which is not significant. Mean post dilation pupil size in males in group A was 7.16+ SD 0.69 and in females was 7.15+ SD 0.50 whereas in group B it was 6.00+ SD 0.69 in males and 5.61+ SD 0.86 in females with a P value of 0.475 which is again not significant as shown in (Table-3).

Age group 51-62 years in group A pre dilation pupil size in mm was 3.27+ SD 0.38 n 63-75 was 3.45+ SD 0.42 and in group B 51-62 years of age it was 3.33 + SD 0.39 and in 63-75 years was 3.45 + SD 0.41 with a P value of 0.578 which is not significant. Mean post dilation pupil size in age range 51-62 years in group A was 7.73 + SD 0.63 and in 63-75 years was 6.60 + SD 0.94 and in group B age range of 51-62 years was 5.83 + SD 1.01 and 63-75 years was 6.01 + SD 0.98 and P value was 0.456 which is not significant as shown in (Table-4).

### Table 1: Age distribution of patients

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Group A (Topical Group)</th>
<th>Group B (Intracameral Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>51-55</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>56-60</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>61-65</td>
<td>7</td>
<td>14.0</td>
</tr>
<tr>
<td>66-70</td>
<td>11</td>
<td>22.0</td>
</tr>
<tr>
<td>71-75</td>
<td>8</td>
<td>16.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>62.34 ± 7.02</td>
<td>63.40 ± 7.49</td>
</tr>
<tr>
<td>P Value</td>
<td>0.467</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2: Gender distribution of patients

<table>
<thead>
<tr>
<th>Gender</th>
<th>Group A (Topical Group)</th>
<th>Group B (Intracameral Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>24</td>
<td>48.0</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
<td>52.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>
The standard surgical procedure for cataract surgery nowadays is phacoemulsification with intraocular lens (IOL) implantation; that gives the excellent visual results. A clear and unobstructed view of intraocular structures is required throughout phacoemulsification operation. Sufficient pupil dilation not only provides the surgeon with access to the lens, but it also prevents many complications, such as posterior capsule rupture and loss of nucleus.10

Phacoemulsification starts with pupil dilation in order to good visualization of opaque lens. This is usually achieved by topical and/or intracameral administration of anti cholinergic agents, sympathomimetic mydriatic agents, or both, with the most common used being cyclopentolate, tropicamide, and phenylephrine.11 These regimens, however, have disadvantages such as slow onset of dilation, which increases the time before surgery can begin,12 and adverse ocular and systemic effects, which are especially important in high-risk groups e.g. children, hypertensive patients.13 In addition, their effect has a tendency to dissipate during surgery.14

Lidocaine is an anti arrhythmic drug as well as an effective local anesthetic agent. It acts by blocking sodium channels, leading to inhibition of membrane potential. Intracameral injection of non-preserved lidocaine is used widely for local anesthesia and relief of discomfort in cataract surgery.15 Lidocaine causes no additional inflammation or endothelial cell loss, and studies confirm its safety.16 Lincoff et al report the effect of lidocaine on iris paralysis and mydriasis. They found the pupil dilated after accidental intraocular injection of lidocaine without administration of a mydriatic drug. They reported immediate pupil dilation after intracameral injection of non preserved lidocaine 1% in previously undilated phakic eyes during trabeculectomy.17 Cionni et al. used intracameral lidocaine injection to induce mydriasis in phacoemulsification without the administration of a mydriatic drug. They reported immediate pupil dilation after intracameral injection of non preserved lidocaine 1% in previously undilated phakic eyes during trabeculectomy.17 Cionni et al. used intracameral lidocaine injection to induce mydriasis in phacoemulsification without the administration of preoperative dilating eye drops. However, they added epinephrine to the infusion solution during routine procedures to maintain pupil dilation.18

Our study has shown that topical mydriatic produced greater pupillary dilatation than injection of 0.3 ml of non preserved lidocaine 1% injected into the anterior chamber at the beginning of surgery provides satisfactory pupil dilation for safe phacoemulsification. Mean increase in pupil diameter was 3.70 ± 0.69 mm in topical mydriatic group than 2.40 ± 0.97 mm in intracameral group than. In this study, no mydriatic drug was added in the infusion fluid in either group. Nikeghbali et al who compared topical mydriatic with intracameral lidocaine. Mean pupil dilation was 4.52 ± 0.08 mm in the intracameral group and 4.06 ± 0.09 mm in the topical group. (P = .001).19 In a similar study by Khokhar et al, the mean pupil dilation was 4.52 ± 0.08 mm in the intracameral group and 4.06 ±
Mean increase in Pupillary Diameter with Intracameral Injection of 1% Lidocaine and Topical Mydriatic during Phacoemulsification of

0.09 mm in the topical group.⁹ (P=.001). In a study by Lundberg et al in his study has shown that xylocaine alone caused mean 4.9 ± 0.6 mm dilatation. Compared to cyclopentolate in which pupil size increased 1.3 ± 0.6 mm (P<.001).²⁰

The injection of intracameral lidocaine has advantages over topical mydriatics. It shortens the time takes for the pupil to dilate preoperatively, does not have systemic topical mydriatic side effects, and provides better pupil dilation as well as a simultaneous anesthetic effect for phacoemulsification.

However, our study did not show clearly how long the pupil dilation lasts after an intracameral lidocaine injection. Therefore, we recommend future studies of the duration of pupil dilation after intracameral lidocaine injection and a comparison of its effect with the effects of other intracameral mydriatics.

CONCLUSION

There is greater increase in mean pupil diameter by topical mydriatic than intracameral injection of 1% lidocaine during phacoemulsification cataract extraction.

REFERENCES
ABSTRACT

Objective: To compare the efficacy and safety of fornix based with limbus based conjunctival flaps in eyes undergoing primary trabeculectomy with MMC in POAG& PXG.

Design: Randomized control trial.

Setting: Department of Khyber Institute of Ophthalmic Medical Sciences, Hayatabad Medical Complex, Peshawar, from 1st April 2011 to 1st April 2012.

Methodology: Forty eight eyes of 42 patients were randomized into fornix based (FB) and limbus based (LB) groups. Primary trabeculectomy with MMC augmentation was performed by a single surgeon, on eyes in both the groups diagnosed as having POAG or PXG. MMC was used in a dose of 0.2 mg/dl for 2 minutes. Preoperative and postoperative IOP were noted to together with any adverse events during surgery and during study follow up. SPSS version 17 was used for data analysis. Follow up were done on 1st, 7th day, 30th day and 90th day.

Results: Mean presenting IOP with medication was 24mmHg in FB and 27mmHg in LB group. Success rate (IOP <20mmHg without medication) was 100% in FB and 96% in LB and this difference was statistically insignificant (P value < 0.5). In our study the frequency of over-filtration was 58% (average for both groups i.e. 45% for LB and 33% for FB) at 7th post-operative day and then decreased to 20% for each group at 90th day. Difference between two groups regarding control of IOP and safety of the procedure was not statistically significant (P value < 0.5) at final follow up. The frequency of hypotony was higher in FB group as compared to LB group (37 vs. 25%) at 1st post-operative day. At final follow up, the number of eyes with hypotony decreased significantly but it was still 8% noted for FB group compared to 4% for LB (P value < 0.5%). Serious complications like blebitis and endophthalmitis were not noted in any case of our study.

Conclusion: There is no statistically significant difference between the two types of MMC augmented primary trabeculectomies in terms of intraocular pressure control. Both surgical techniques are safe and effective to treat glaucoma (POAG and PXG).

Key words: Trabeculectomy; fornix based conjunctival flaps; limbus based conjunctival flap; MMC; Mitomycin C.

INTRODUCTION

Cairns was the first to introduce the original description of trabeculectomy in 1968 (a guarded filtration surgery). He used limbus based conjunctival flap (LBCF) i.e. with incision deep in the fornix and base at the limbus. Lunts in 1980 modified the trabeculectomy by fornix based conjunctival flap (FBCF) i.e. incision at the limbus with the base in the fornix. He claimed that his approach was technically easier and offered better visualization during scleral flap construction. In 1980s several studies were performed which compared the two flap designs for their intraocular pressure (IOP) reduction efficacy and complication profile but the results were conflicting. With the introduction of anti-scaring agents especially Mitomycin-C (MMC) in trabeculectomy and their more frequent use in early 1990s, long lasting successful filtrating blebs were achieved compared to trabeculectomies without MMC. But MMC proved to be a double edge weapon and increased the incidence of over filtration, shallow anterior chamber, leaking blebs and hypotony related complications at the cost of long lasting IOP control.

There is no statistically significant difference between fornix based and limbus based conjunctival flaps in eyes undergoing primary trabeculectomy with MMC in POAG& PXG., in terms of intraocular pressure control. Both surgical techniques are safe and effective to treat glaucoma (POAG and PXG).

Henderson et al reported that the FBCF group had significantly more leaks than LBCF(65% in fornix based compared with 24% in limbal based). Alwitry et al found no difference between the two in terms of IOP control, complications and need for secondary interventions and antiglaucoma medication. Recently the popularization of antimetabolites has accentuated
controversy and the difference between the two approaches.

Dr. PT Khaw in his “Moorefield safe trabeculectomy technique” holds that there is no difference in the two flap designs in terms of intraocular pressure control and complications but he strongly favored fornix based technique for its fast and easy construction, good intra operative exposure, formation of diffuse filtering blebs and less incidence of thin avascular cystic bleb formation. A recent major review article concluding comments are almost the same. Majority of the surgeons have now shifted to fornix based approach however significant proportion still adhere to limbus based technique especially those who are afraid of early post-operative leaks. What is needed, is to conduct further studies, comparing the two flap designs, thus helping to evolve a standardized surgical technique which is preferable in terms of IOP control and at the same time is safe enough to avoid sight threatening complications of trabeculectomy (which still remains as a gold standard surgical technique for most types of glaucoma).

The use of MMC in patients with high risk of bleb failure is a tradition all over the world but it is also now more frequently being used in primary trabeculectomies in eyes without high risks. To our knowledge the data is lacking or very limited regarding MMC use in our local population. Therefore we aimed to determine which technique of primary trabeculectomy with augmented MMC use would be more preferable in terms of its success and safety profile. This study was designed to determine the preferable technique of performing trabeculectomy with MMC use in glaucomatous eyes with open angles.

MATERIALS & METHODS

Forty eight eyes of 42 patients of both genders aged more than 35 years, having either Primary Open Angle Glaucoma (POAG) or Pseudoexfoliation Glaucoma (PXG) were randomly divided into fornix based and limbus based groups. Eyes which were excluded, had previous trabeculectomy or cataract surgery done, eyes with history of conjunctival manipulation either surgical or traumatic between 9 to 3 o’clock position around the limbus like periortomy for retinal re-attachment surgeries, eyes with preoperative co-morbidities which can affect IOP level like uveitis, retinal detachment and eyes undergoing trabeculectomy with intra-operative complication of premature entry into anterior chamber (AC) before MMC application were also excluded. Patients underwent thorough ophthalmological examination including visual acuity (VA) with Snellen’s chart, IOP check up with Goldman tonometer (3 times with 6 hours interval a day before the surgery without antiglaucoma medications), anterior chamber angle examination with Goldman mirror. Anterior segment slit lamp examination after dilatation of pupil. Posterior segment examination by slit lamp biomicroscopy with 78D Lens, with special emphasis for cup/disc ratio (both vertical and horizontal) and asymmetry between the eyes. Humphery visual field was done to record any glaucomatous damage.

Primary trabeculectomy was done by a single experienced ophthalmologist well experienced in both the techniques of surgery. In fornix based trabeculectomy conjunctiva was incised from 11 O’clock to 1 O’clock at limbus and then dissection was done towards the fornix while in limbus based an incision, 10 mm wide and 8mm deep in the fornix was given followed by dissection up to limbus. MMC was applied in a concentration of 0.2mg/dl for 2minutes after scleral flap construction. Patients were followed on 1st, 7th, 30th and 90th day. Success was defined as IOP of 7-20mmHg without IOP lowering medications. An IOP of equal to or less than 6mmHg was declared as hypotony while an IOP of less than 8 mmHg with a formed bleb and with or without shallow AC was defined over filtration.

RESULTS

Total of 48 eyes of 42 patients were included in the study, 24 eyes were grouped into limbus based (LB) and 24 eyes into fornix based (FB) trabeculectomy. Eleven eyes (22.9 %) had pseudo exfoliation glaucoma while 37(77%) cases had POAG. There were 18(75%) male and 6(25%) female in FB group while 17(71%) male and 7(29%) female in LB group. Mean age of patients in FB group was 56.75±10.79 years while that of LB group was 55.25±11.59.

Mean presenting log MAR visual acuity for FB group is 0.417±.868 and for LB 0.408±.827. Mean IOP at presentation and at various follow up visits is given in the Table 1. Mean and percent reduction in IOP is shown in Table 2. Trabeculectomy failed in just 1 eye (2.08%) belonging to LB group and it had IOP of 30 mmHg at final follow up visit. Rest of the cases had IOP less than 20 at all follow up visits without antiglaucoma medications. Over filtration at different follow up visits is shown in Table 3. Hypotony at all follow up visits is summarized in Table 4. Hypotony didn’t lead to hypotony related maculopathy at any stage in any of the eyes in any group. One eye in limbus based group had bleb leakage at 7th postoperative day. It was from incision site and probably related to ocular massage advised for flat bleb on 1st post-operative day. It resolved with bandage contact lens. At 1st post-operative day, 2(8%) cases of LB group showed hyphema of ≤1/4th.
anterior chamber height. It resolved on next follow up visit. One case, (4%) of hyphema (1/4th category) was observed in FB group at 7th post-operative day. It resolved without complications on next follow up visit.

Table 1: Mean Intra Ocular Pressure: Limbus versus fornix based MMC augmented trabeculectomy.

<table>
<thead>
<tr>
<th>Follow up visit</th>
<th>FBCF (n=24) IOP (mmHg) mean±SD</th>
<th>LBCF (n=24) IOP (mmHg) mean±SD</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre operative IOP</td>
<td>24.12 ± 7.81</td>
<td>27.75 ± 7.81</td>
<td>0.205</td>
</tr>
<tr>
<td>1st post op day</td>
<td>9.75 ± 7.74</td>
<td>10.67 ± 7.64</td>
<td>0.682</td>
</tr>
<tr>
<td>7th post op day</td>
<td>8.7 ± 14.96</td>
<td>9.38 ± 5.27</td>
<td>0.656</td>
</tr>
<tr>
<td>30 post op day</td>
<td>9.89 ± 2.62</td>
<td>9.83 ± 3.96</td>
<td>1.000</td>
</tr>
<tr>
<td>90th post op day</td>
<td>10.25 ± 2.46</td>
<td>12.13 ± 4.68</td>
<td>0.091</td>
</tr>
</tbody>
</table>

MMC Mitomycin, FBCF: Fornix Based conjunctival flap, LBCF: Limbus Based Conjunctival flap, SD: Standard Deviation, n: Number; IOP: Intraocular Pressure, mm Hg: millimeter of mercury.

Table 2: Mean reduction in IOP (limbus versus fornix based MMC augmented trabeculectomy)

<table>
<thead>
<tr>
<th>Follow Up</th>
<th>Mean IOP reduction</th>
<th>95% C.I.</th>
<th>p-value</th>
<th>Mean IOP reduction (LBCF)</th>
<th>95% C.I.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>day 1</td>
<td>14.38</td>
<td>9.84-18.91</td>
<td>.000</td>
<td>17.8</td>
<td>11.66-22.51</td>
<td>.000</td>
</tr>
<tr>
<td>7th day</td>
<td>15.42</td>
<td>11.39-19.45</td>
<td>.000</td>
<td>18.38</td>
<td>13.03-23.73</td>
<td>.000</td>
</tr>
<tr>
<td>30th day</td>
<td>14.29</td>
<td>10.98-17.60</td>
<td>.000</td>
<td>17.9</td>
<td>12.05-23.78</td>
<td>.000</td>
</tr>
<tr>
<td>90th day</td>
<td>13.88</td>
<td>10.32-17.43</td>
<td>.000</td>
<td>15.67</td>
<td>9.78-21.47</td>
<td>.000</td>
</tr>
</tbody>
</table>

MMC: Mitomycin, FBCF: Fornix Based conjunctival flap, LBCF: Limbus Based Conjunctival flap, SD: Standard Deviation, n: Number; IOP: Intraocular Pressure, CI: Confidence Interval, mm Hg: millimeter of mercury.

Table 3: Over filtration: Comparison between limbus versus fornix based MMC trabeculectomy

<table>
<thead>
<tr>
<th>FOLLOW UP</th>
<th>GROUP</th>
<th>TOTAL</th>
<th>P-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LBCF</td>
<td>FBCF</td>
<td></td>
</tr>
<tr>
<td>1st DAY</td>
<td>11(45%)</td>
<td>8(33%)</td>
<td>19(39%)</td>
</tr>
<tr>
<td>7th DAY</td>
<td>14(58%)</td>
<td>11(45%)</td>
<td>25(52%)</td>
</tr>
<tr>
<td>30th DAY</td>
<td>8(33%)</td>
<td>9(37%)</td>
<td>17(35%)</td>
</tr>
<tr>
<td>90th DAY</td>
<td>5(20%)</td>
<td>5(20%)</td>
<td>10(20%)</td>
</tr>
</tbody>
</table>


Table 4: Hypotony: Comparison between limbus versus fornix based MMC trabeculectomy

<table>
<thead>
<tr>
<th>FOLLOW UP</th>
<th>GROUPS n(percentage)</th>
<th>TOTAL n(percentage)</th>
<th>P-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st DAY</td>
<td>9(37%) 6(25%)</td>
<td>15(31%)</td>
<td>0.534</td>
</tr>
<tr>
<td>7th DAY</td>
<td>7(29%) 7(29%)</td>
<td>14(29%)</td>
<td>1.000</td>
</tr>
<tr>
<td>30th DAY</td>
<td>3(12%) 3(12%)</td>
<td>6(12%)</td>
<td>1.000</td>
</tr>
<tr>
<td>90th DAY</td>
<td>2(8%) 1(4%)</td>
<td>3(6%)</td>
<td>1.000</td>
</tr>
</tbody>
</table>


DISCUSSION

Two types of conjunctival flaps can be constructed in trabeculectomy, one with incision deep in the fornix with base at the limbus the so called limbus based conjunctival flap and the other with incision at the limbus and base at the fornix i.e. fornix based conjunctival flap. Our study was to compare these two conjunctival flap techniques of trabeculectomy. It was a prospective randomized trial with a sample size of 48 eyes and minimum follow up of 90 days. Primary trabeculectomies with MMC augmentation were carried out by a single experienced surgeon, in patients with either POAG or PXG. MMC was used in a dose of 0.2mg/ml in spite of the fact that the eyes had no apparent risk factors for bleb failure. This was in contradiction to the general assumptions where MMC application is linked with patient’s risk factors for bleb failure. This was in contradiction to the general assumptions where MMC application is linked with patient’s risk factors for bleb failure.

There was no statistically significant difference between the two techniques in terms of IOP control (p value >0.05). This finding is in agreement with the findings of previous studies related to IOP control in limbal based versus fornix based trabeculectomy. Most of these studies addressed trabeculectomies augmented with intra operative antifibrotics. To the best of our knowledge there are four studies which compared fornix with limbus based conjunctival flaps in trabeculectomy surgery with MMC augmentation. But except one study, all the other studies compared both flap designs in combined trabeculectomies with cataract surgery. The wound healing response is thought to be different in eyes having combined procedures. Moreover the construction of internal sclerotomy is different in combined procedures. In spite of these differences our results regarding IOP
control are comparable to these studies.\textsuperscript{16,21} The lowering of the IOP was excellent with both procedures, 100\% of the eyes having IOP less than 15mmHg without medication in FB group while 95\% eyes achieved similar result in LB group. The drop in the mean IOP compared to preoperative IOP was statistically significant for both the groups i.e. 15.63 mmHg (confidence interval of 9.78-21.47) for LB and 13.88mmHg (95\% confidence of 10.32-17.43) for FB. However there was no statistically significant difference between the two groups. This is again in accordance with above mentioned studies.\textsuperscript{16,23}

In our study, the frequency of over filtration was too high i.e. 29.5\% for FB and 32.5\% for LB group (average of 1\textsuperscript{st} and last follow up). In the 1\textsuperscript{st} week it was 39\% for FB and 45\% for LB but decreased to 20\% at last follow up visit for both the groups. Interestingly hypotony didn’t lead to maculopathy in any of these eyes. Three eyes (12.50\%) in FB and 1 eye (4.16\%) in LB group developed choroidal detachments. In all these cases choroidal detachments resolved with conservative management without leading to any further complications. This high incidence of over filtration was probably due to concentration (0.2mg/ml for 2 min) of MMC in cases which had no risk factors for failure. We recommend that in primary trabeculectomies with no risk factors the concentration of 0.1 mg/ml with application time of 2 minute or 0.2mg/ml for 1minute, may be more appropriate and may help to reduce the frequency of over filtration.

Since the frequency of hypotony dropped from 30\% on 7\textsuperscript{th} day to 6\% at 90\textsuperscript{th} day we can assume that in spite of early over filtration and hypotony, the application of MMC in patients without risks for bleb failure would lead to better controlled IOP further down the course with reduced persistent complications. Longer follow up would be needed to prove our above mentioned hypothesis.

One case (4.16\%) in the FB group showed leak on 7\textsuperscript{th} post-operative day. It was from conjunctival incision site and was most probably related to ocular digital massage advised for flat bleb observed at 1st postoperative day. It resolved with bandage contact lens without leading to further complications. The incidence of leakage was much less in our study i.e. 4\% in FB and no leak in LB. Alwitry et al reported an incidence of 11.5\% in LB and 25.8\% in FB.\textsuperscript{11} The lower incidence of leakage in our study was probably due to involvement of single experienced surgeon (trainees were not involved) and the inclusion of primary trabeculectomies without risk factors for failure (having healthy conjunctiva where better stitching was possible.) Moreover we sutured the tenon’s layer separately in addition to conjunctiva whereas Alwitry et al stitched the conjunctiva with single running 10/0 vicryl.\textsuperscript{11} Henderson et al reported an overall incidence of 59\% leakage (65\% in FB and 24\% in LB).\textsuperscript{10} Again the selection of low risk cases and additional separate suturing of Tenon’s appears the possible reasons of low incidence of leakage in our study. In our study serious complications like blebitis and endophthalmitis didn’t occur in any group.

In conclusion primary trabeculectomy with MMC whether performed limbal based or fornix based technique is safe and effective for intraocular pressure control. The use of MMC in eyes without risk factors for failure is associated with high frequency of over filtration in early postoperative period with more controlled IOP later on. Similar results are achieved with both flap designs in terms of IOP control. Low dose of MMC would give better IOP control later on at the expense of excessive drainage and hypotony in the early post-operative period.

**CONCLUSION**

There is no statistically significant difference between the two types of MMC augmented primary trabeculectomies in terms of intraocular pressure control. Both surgical techniques are safe and effective to treat glaucoma (POAG and PXG).

**REFERENCES**

11. Alwitry A, Patel V, King AW. Fornix vs. limbal based...
Limbus vs Fornix based Conjunctival Flaps

Frequency of Hypermetropia associated with other Eye Diseases in Children 1-16 Years of Age

Iftikhar Ahmed FCPS¹, Jahanzeb Durrani M.S², Abid Ali B.Sc³ Saeeda Malik B.Sc⁴, Nabila Sharif B.Sc⁵

ABSTRACT
Objective: To find the frequency of hypermetropia associated with other eye diseases including astigmatism, amblyopia, anisometropia, squint including and myopia. To assess and treat the patients with these findings having age group of 1-16 years.

Material & Method: The research study was conducted at District Headquarters Hospital, Haripur. We considered a sample size of 100 patients, assessed and corrected them through cycloplegic refraction and then confirmed through subjective refraction. Multiple variables were taken in this study, they included age of the patient, gender of patient, visual acuity, cover test, Hirschberg reflex, extra ocular muscles motility, types of refractive error, range of hypermetropia, and astigmatism correction, presence of anisometropia, amblyopia and existence of squint. Full correction given to all those patients who had refractive errors, exercises were given to those who had convergence insufficiency. Full time or partial time patching was also given to those patients who had any type of amblyopia.

Results: Among 100 patients, 25(25%) were mild, 53(53%) were moderate and 17(17%) were severely hypermetropic. Associated with hypermetropia 25(25%) were mild, 55(55%) were moderate and 12(12%) were severe astigmatic patients. out of these 100 patients 13% had not any refractive error except convergence insufficiency. Amblyopic patients were 39%, 33% were simple amblyopic, 58% were refractive amblyopic, 2.5% were squint amblyopic and 5.1% were anisotropic amblyopic patients. 61% patients were anisometropia (out of this 48% were simple anisometropia, 19% were compound anisometropic, 11% were mixed anisometropia and 21% were compound astigmatic anisometropia patients. 35% patients were squinting (among this 62% were tropia, 34% were phoria and 2.8% were hypertropia and 2% were myopic patients).

Conclusion: To delay the correction of refractive error among children, may lead to severe loss of vision associated with amblyopia, squint, anisometropia. By proper assessment, treatment and visual aid, children easily regain their normal visual state if they have not any congenital association or serious ocular pathology.

INTRODUCTION
Individuals with uncorrected hyperopia may experience: blurred vision, asthenopia, accommodative dysfunction, binocular dysfunction, amblyopia, strabismus. Early detection of hyperopia may help to prevent the complications like strabismus and amblyopia in young children. In individuals of any age, it can contribute to ocular discomfort and visual inefficiency. In younger children aged 7-8 years, 29.7% had hyperopia, whereas 14 to 15 years old of children had 128 (17.3%) hyperopia. The distribution of myopia was slightly different from hyperopia. The prevalence of myopia was observed to be progressively higher with increasing age.

MATERIAL & METHOD
We considered a sample size of 100 patients, assessed and corrected them through cycloplegic (objective) refraction and then refined their correction through subjective refraction. Multiple variables were taken in this study, these included age of the patient, gender, visual acuity, cover test, Hirschberg reflex, extra ocular muscles motility, type of refractive error, range of hypermetropia, range of astigmatism, correction, presence of anisometropia, amblyopia and existence of squint. Full correction given to all those patients who had refractive error. Exercise were given to those who had convergence insufficiency. Full time or partial time patching after full correction given to those patients who had any type of amblyopia.

RESULTS
On presentation, among 100 patients 25(25%) were mild, 53(53%) were moderate and 17(17%) were severe Hypermetropic. Associated with hypermetropia 25 (25%) were mild, 55 (55%) were moderate and 12 (12%) were severe astigmatic patients. Out of these 100 patients 13% had not any refractive error except convergence insufficiency. Amblyopic patients were 39% (out of this 33% were simple amblyopic, 58% were refractive amblyopic, 2.5% had squint with amblyopic and 5.1% were anisotropic amblyopic patients). 61% patients were anisometropia (out of which 48% were simple anisometropia, 19% were compound anisometropia, 11% were mixed anisometropia and 21% were compound astigmatic anisometropia patients). 35% patients had squint (among this 62% were tropia, 34% were phoria and 2.8% were hypertropia). 2% were myopic patients.

DISCUSSION

In our study, among 100 patients 25(25%) were mild, 53(53%) were moderate and 17(17%) were severely hypermetropic. Associated with hypermetropia 25(25%) were mild, 55(55%) were moderate and 12(12%) were severe astigmatic patients. Out of these 100 patients 13% had not any refractive error except convergence insufficiency. Amblyopic patients were 39%, 33% were simple amblyopic, 58% were refractive amblyopic, 2.5% were squint amblyopic and 5.1% were anisotropic amblyopic patients). 61% patients were anisometropia (out of this 48% were simple anisometropia, 19% were compound anisometropia, 11% were mixed anisometropia and 21% were compound astigmatic anisometropia patients). 35% patients had squinting (among this 62% were tropia, 34% were phoria and 2.8% were hypertropia) 2% were myopic patients.

Prevalence of hyperopia and associations with eye disorders in 6-12-year-old, S. Jenny M. Ip, Jie Jin Wang, Dana Robaei, Kathryn A. Rose, Annette Kifley, Paul Mitchell found the common eye conditions including amblyopia, strabismus, abnormal convergence, and reduced stereopsis were all substantially found to be more frequent in children with moderate hyperopia than in children without significant ametropia. Most of refractive errors can be easily corrected with spectacles and because visual impairment can have a detrimental impact on education and mental development in a child’s life, cost-effective strategies to eliminate this easily treatable cause of visual impairment are warranted. In 2% studies of normal Finnish school children, the frequency of amblyopia ranged between 1-8 and 12%. 

CONCLUSION

To delay the correction of refractive error among children may lead to severe loss of vision associated with amblyopia, squint, anisometropia. By proper assessment, treatment and visual aid, children easily regain their normal visual status if they have not any congenital association or serious ocular pathology.

REFERENCES
2. Wikipedia the free encyclopedia-extra ocular muscles, Anisometropia.
5. Eyetopics.com-astigmatism.
8. Dr. Vivek Trivedi & Dr. Sandip Zalawadiya* Dr. Janardan V. Bhatt ** Dr Tapaswi Pawar***, Dr Bhavana Kupmavat*** Interns,* Intern doctors ** Prof. at Nagar School of Optometry and Associate Prof. of physiology, **Assistant Prof. of P & SM Smt NHL Mun Medical College Ahmedabad 380006. Prevalence of Refractive Errors in Children (Age Group 7-15Years) Of Rural and Urban Area of Gujarat: A Population Based Study.
Nd YAG Laser Hyaloidotomy for the Treatment of Premacular Subhyaloid Haemorrhage

Muhammad Tariq FCPS1, Shafqat Ali Shah FCPS2, Abdul Salam Arif FCPS3

ABSTRACT

Aims & Objectives: To determine the efficacy and visual outcome of Nd YAG Laser hyaloidotomy for Premacular Subhyaloid Haemorrhage.

Study Design: Hospital based prospective study.

Setting & Duration of The Study: The study was conducted at Layton Rahmatulla Benevolent Trust (LRBT) Hospital Karachi and Akora Khattak Nowshera and Mardan Medical Complex Teaching Hospital, Mardan, KPK from 1st July 2006 to 31st Dec 2015.

Material & Methods: All the patients were examined in the outpatient department of Layton Rahmatulla Benevolent Trust (LRBT) Hospital Karachi, Layton Rahmatulla Benevolent Trust Secondary Hospital Akora Khattak, Nowshera and Mardan Medical Complex Teaching Mardan, Mardan. Complete history and clinical examination was done including Visual Acuity, Optic nerve functions, Macular functions, Slit lamp examination, applanation tonometry, Fundus examination and systemic examination. Patients with follow up of 6 week were included in the study. All the findings were recorded on a pre-designed pro forma and analyzed by SPSS Version 17.

Results: A total of 41 eyes of 40 patients were subjected to Nd Yag Laser hyaloidotomy. Males were 25 (60.9%) and females were 16 (39 %). In 31 out of 41 eyes, the Visual Acuity improved to normal or near normal. In 2 patients, VA improved to 6/24 and in 2 eyes it improved to 6/36 and in 1 eye it improved to 6/60. In 4 eyes there was no improvement in visual Acuity.

Conclusion: This is a simple, safe, effective and cost effective technique for pre macular subhyaloid heamorrhage.

Key words: Premacular subhyaloid heamorrhage, Nd YAG Laser, hyaloidotomy, visual acuity, visual improvement, effective, safe, cost effective.

INTRODUCTION

Haemorrhages from the small retinal vessels, are contained within this tissue (intra-retinal haemorrhages). They assume a characteristic appearance according to their location, conforming to the anatomical configuration of the layer in which they lie. When they lie in the nerve fiber layer they are striate or flame-shaped: rounded or irregular when in the deeper layers.

When the bleeding arises from a large vessel its spreads between the surface of the retina and the vitreous ( preretinal or subhyaloid haemorrhages) such haemorrhages usually occur in the neighborhood of the macula and may be large. Preretinal subhyaloid heamorrhage is a serious vision threatening complication of advance diabetic eye disease.1

Premacular subhyaloid haemorrhage is at first round and then assumes a crescent shape which demarcates the level of posterior vitreous detachment.

Nd Yag Laser hyaloidotomy is an effective, simple, safe and even cost effective in fresh premacular subhyaloid hemorrhage. It is a successful alternative to vitrectomy since it is a low risk procedure with short recovery time. It also avoids the complications associated with vitrectomy.

The upper margin being straight owing to the effect of gravity and assumes boat shape appearance. The retinal vessels are hidden from the view in the affected area. The upper part gradually become lighter in color, an appearance generally attributed to the sinking of the red corpuscles. Subhyloid haemorrhage can be idiopathic or associated with several systemic and ocular diseases e.g. proliferative diabetic retinopathy1,2, valsalva maneuver3,4 macroaneurysm, age related macular degeneration, trauma, posterior vitreous detachment, central retinal vein occlusion, branch retinal vein occlusion, blood dyscrasias, aplastic anemia5 which can even occur with dengue fever.6

Neodymium-Yttrium Aluminum Garnet (Nd: YAG) Laser which was modified for ocular use in the late seventies, is now an integral part of all ophthalmic clinics around the world. Nd: YAG Laser is

Nd YAG Laser hyaloidotomy for the Treatment of Premacular Subhyaloid Haemorrhage

Muhammad Tariq FCPS1, Shafqat Ali Shah FCPS2, Abdul Salam Arif FCPS3

ABSTRACT

Aims & Objectives: To determine the efficacy and visual outcome of Nd YAG Laser hyaloidotomy for Premacular Subhyaloid Haemorrhage.

Study Design: Hospital based prospective study.

Setting & Duration of The Study: The study was conducted at Layton Rahmatulla Benevolent Trust (LRBT) Hospital Karachi and Akora Khattak Nowshera and Mardan Medical Complex Teaching Hospital, Mardan, KPK from 1st July 2006 to 31st Dec 2015.

Material & Methods: All the patients were examined in the outpatient department of Layton Rahmatulla Benevolent Trust (LRBT) Hospital Karachi, Layton Rahmatulla Benevolent Trust Secondary Hospital Akora Khattak, Nowshera and Mardan Medical Complex Teaching Mardan, Mardan. Complete history and clinical examination was done including Visual Acuity, Optic nerve functions, Macular functions, Slit lamp examination, applanation tonometry, Fundus examination and systemic examination. Patients with follow up of 6 week were included in the study. All the findings were recorded on a pre-designed pro forma and analyzed by SPSS Version 17.

Results: A total of 41 eyes of 40 patients were subjected to Nd Yag Laser hyaloidotomy. Males were 25 (60.9%) and females were 16 (39 %). In 31 out of 41 eyes, the Visual Acuity improved to normal or near normal. In 2 patients, VA improved to 6/24 and in 2 eyes it improved to 6/36 and in 1 eye it improved to 6/60. In 4 eyes there was no improvement in visual Acuity.

Conclusion: This is a simple, safe, effective and cost effective technique for pre macular subhyaloid heamorrhage.

Key words: Premacular subhyaloid heamorrhage, Nd YAG Laser, hyaloidotomy, visual acuity, visual improvement, effective, safe, cost effective.

INTRODUCTION

Haemorrhages from the small retinal vessels, are contained within this tissue (intra-retinal haemorrhages). They assume a characteristic appearance according to their location, conforming to the anatomical configuration of the layer in which they lie. When they lie in the nerve fiber layer they are striate or flame-shaped: rounded or irregular when in the deeper layers.

When the bleeding arises from a large vessel its spreads between the surface of the retina and the vitreous ( preretinal or subhyaloid haemorrhages) such haemorrhages usually occur in the neighborhood of the macula and may be large. Preretinal subhyaloid heamorrhage is a serious vision threatening complication of advance diabetic eye disease.1

Premacular subhyaloid haemorrhage is at first round and then assumes a crescent shape which demarcates the level of posterior vitreous detachment.

Nd Yag Laser hyaloidotomy is an effective, simple, safe and even cost effective in fresh premacular subhyaloid hemorrhage. It is a successful alternative to vitrectomy since it is a low risk procedure with short recovery time. It also avoids the complications associated with vitrectomy.

The upper margin being straight owing to the effect of gravity and assumes boat shape appearance. The retinal vessels are hidden from the view in the affected area. The upper part gradually become lighter in color, an appearance generally attributed to the sinking of the red corpuscles. Subhyloid haemorrhage can be idiopathic or associated with several systemic and ocular diseases e.g. proliferative diabetic retinopathy1,2, valsalva maneuver3,4 macroaneurysm, age related macular degeneration, trauma, posterior vitreous detachment, central retinal vein occlusion, branch retinal vein occlusion, blood dyscrasias, aplastic anemia5 which can even occur with dengue fever.6

Neodymium-Yttrium Aluminum Garnet (Nd: YAG) Laser which was modified for ocular use in the late seventies, is now an integral part of all ophthalmic clinics around the world. Nd: YAG Laser is
a photodisruptive laser in which Nd is active medium supported by YAG to achieve high concentrations of Nd ions. Nd: Yag Laser has a wave length of 1064 nm, infra red radiation. It is invisible and paired with helium neon aiming beam to produce red light for focusing. At the point of focus the increased concentration of power strips electrons from atoms creating plasma which is often called micro-plasma. The micro-plasma expands rapidly, creating shockwaves and pressure wave that mechanically disrupt tissue.

The Nd: YAG laser is a powerful continuous wave laser which is usually used Q-Switched mode when treating the eye. The application of the Q-switched mode Nd: yag. Laser for drainage of a premacular sub hyaloid haemorrhage in the vitreous was first described by Faulborn in 1988.9 One year later, Gabel and co-workers treated three eyes with sub internal limiting membrane haemorrhage by the same technique.10 Q Switched, fundamental mode Nd: Yag Laser is applied to the dependent part of subhyaloid haemorrhage with subsequent drainage of blood into the vitreous cavity and ultimately clearing the visual axis.

The Nd: Yag Laser Hyaloidotomy for premacular subhyaloid haemorrhage is performed more safely than vitrectomy because the eye needs not to be opened and the procedure can be performed even without topical anaesthesia. In addition, the procedure is less expensive and requires a shorter post operative recovery. The ease of performance of laser hyaloidotomy probably explains the increase in popularity of Yag laser hyaloidotomy. Therefore where available, Yag laser hyaloidotomy appears to present a viable alternative to surgical vitrectomy for the definite treatment of premacular sub hyaloid haemorrhage.

MATERIAL & METHODS

We included 41 eyes of 40 patients of premacular subhyaloid haemorrhage in the study. All the patients were thoroughly examined. Patients of the age group of 15 to 60 years and both sex were included in this study. Out of these patients 25 were male (60.9%) and 16 were female (39%). All the patients were examined in the outpatient department of Layton Rahmatulla Benevolent Trust (LRBT) Hospital Karachi, Layton Rahmatulla Benevolent Trust Secondary Hospital Akora Khattak, Nowshera NWFP and Mardan Medical Complex Teaching Hospital, Mardan. Complete history and clinical examination was done including Visual Acuity, Optic nerve functions, macular functions, slit lamp examination, applanation tonometry, fundus examination and Systemic examination. Patients with follow up of 6 week were included in the study. All the findings were recorded on a pre-designed proforma and analyzed by SPSS Version 17.

In this study, visual improvement was defined as an increase of three lines or more on a Snellen visual acuity chart. Success of the laser procedure was defined as visual improvement within one month and no further need to clear the vitreous using surgery.16

Technique: It is clear that no single set of laser energy is appropriate for all types of laser hyaloidotomy or for all patients. The laser energy needs to be adjusted intra operatively. In our experience the following set of parameters is generally successful.

- Spot size 50 Microns (usually fixed)
- Power 1.9–11.5 mj
- No. of shots 3–5

RESULTS

A total of nineteen patients presented with diabetic retinopathy and premacular subhyaloid haemorrhage with visual acuity from counting finger to hand movement. The haemorrhage size varied from 3 to 12 disc diameter. The origin of the bleeding appeared to be from retinal neovascularisation. Twelve patients were already treated with Pan-retinal photocoagulation. Hyaloidotomies were made at the inferior margin of the haemorrhages. One day later, VA were improved to 6/24 – 6/60 except in five eyes. In two eyes, vision remained hand movement due to dense vitreous haemorrhage. In another two eyes, vision also remained hand movement due to non drainage of subhyaloid haemorrhage. One week later, VA was improved to 6/12 – 6/24 in 14 patients, except five patients. In two patients, dense vitreous haemorrhage persisted and in another two hemorrhage did not drain. At their last visit, VA was between 6/9 – 6/12 14 patients, 6/60 in 1 patient.

A total of seven patients presented with premacular subhyaloid haemorrhage, caused by valsalva retinopathy with visual acuity 6/60 – CF and area of haemorrhage was 3 – 8 disc diameter. Nd:Yag Laser was applied at the inferior border of haemorrhage. One day later VA improved to 6/9 – 6/18 in 7 eyes and haemorrhage was almost cleared. At their last visit, VA improved to 6/6 in 6 patients and 6/9 in one eye.

A total of six eyes presented with premacular subhyaloid haemorrhage caused by trauma with VA CF and area of haemorrhage was 3 – 7 disc diameter. On first post operative day VA was improved to 6/9 in three eyes and 6/36 in two eyes. After one week VA improved to 6/6 in four eyes with no blood and 6/36 in two eyes with macular damage. At last visit VA was improved to 6/6 in four eyes and 6/24 and 6/36 in one eye each with macular scar. A total of three eyes presented with subhyaloid haemorrhage caused by
macroaneurysms. VA ranged from 6/60 to CF. At first post operative day VA acuity improved to 6/6 and at last visit VA acuity remained 6/6 with no haemorrhage.

A total of two eyes presented with idiopathic premacular subhyaloid haemorrhage with VA 6/60–CF and haemorrhage size 5 – 6 disc diameter. They improved to 6/6 at last visit. A total of two eyes presented with premacular subhyaloid haemorrhage caused by Dengue fever with VA 6/60 in right eye and CF in left eye and haemorrhage size 5 – 6 disc diameter. They improved to 6/6 in the right eye and 6/18 at last visit. A total of five eyes presented with premacular subhyaloid haemorrhage caused by blood dyscrasias, aplastic anemia, branch and central retinal vein occlusion in one eye each respectively. VA varied from 6/60 to CF and haemorrhage size from 3 – 5 disc diameter.

At first post operative day VA improved to 6/9 in blood dyscrasias and 6/36 in BRVO. After one week VA was the same and at last visit, improved to 6/6 in blood dyscrasias and 6/24 in BRVO. At first post operative day VA improved to 6/24 in aplastic anemia. After one week VA improved to 6/12, and improved to 6/6 on last visit. At first post operative day VA improved to 6/9 in blood dyscrasias and 6/18 in BRVO. After one week VA was the same and at last visit, improved to 6/6 in blood dyscrasias and 6/12 in BRVO. On first post operative day, Premacular subhyaloid haemorrhage caused by central retinal vein occlusion, VA improved to 6/60. After one week, it improved to 6/36 and it remained the same at the last visit.

**Table 1: Etiology of premacular hemorrhage (N=41)**

<table>
<thead>
<tr>
<th>Etiology</th>
<th>No. Of Eyes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes mellitus</td>
<td>19</td>
<td>46.3%</td>
</tr>
<tr>
<td>Valsalva</td>
<td>7</td>
<td>17%</td>
</tr>
<tr>
<td>Trauma</td>
<td>6</td>
<td>14.6%</td>
</tr>
<tr>
<td>Macroaneurysm</td>
<td>3</td>
<td>7.3%</td>
</tr>
<tr>
<td>Idiopathic</td>
<td>2</td>
<td>4.87%</td>
</tr>
<tr>
<td>Blood dyscrasias</td>
<td>1</td>
<td>2.43%</td>
</tr>
<tr>
<td>Aplastic anemia</td>
<td>1</td>
<td>2.43%</td>
</tr>
<tr>
<td>Branch retinal vein occlusion</td>
<td>1</td>
<td>2.43%</td>
</tr>
<tr>
<td>Central retinal vein occlusion</td>
<td>1</td>
<td>2.43%</td>
</tr>
</tbody>
</table>

**Table 2: Pre laser visual acuity (N=41)**

<table>
<thead>
<tr>
<th>Visual Acuity</th>
<th>No. of eyes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/60- counting finger 1M</td>
<td>29</td>
<td>70.73%</td>
</tr>
<tr>
<td>Counting finger 1M - hand movement</td>
<td>12</td>
<td>29.26%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Nd: YAG laser is mainly used for anterior segment procedures like anterior and posterior capsulotomy and iridotomy for angle closure glaucoma. Nd: YAG membranotomy are done when vitreous membranes are away from the retina. Although Membranotomy carries complications which include retinal or choroidal hemorrhages, retinal hole, and vitreous hemmorhage. There are more chances of retinal or choroidal injury when the fundamental beam mode is focused closer than 3 to 5 millimetres from the retina. Gabel et al speculated that the dense premacular haemorrhage shielded the under lying retina from laser induced damage.

Laser hyaloidotomy is a technique for the treatment of premacular subhyaloid haemorrhage which achieves the same results as surgical vitrectomy. In Nd YAG hyaloidotomy, posterior hyloid face of hemorrhage is pictured by means of a pulsed Yag Laser. It enables the drainage of entrapped pre macular subhyaloid blood in the vitreous. Hence the visual axis is clear blood settles in the vitreous gel.

Nd YAG laser hyaloidotomy has many advantages over vitrectomy. It is safe, effective, cost effective and causes little discomfort. It does not need retrobulbar or general anesthesia and is performed as an outpatient procedure with short recovery time. The risks of intraocular complications like cataract, glaucoma, retinal detachment and infection are avoided.

For this study, visual improvement was defined as an increase of three lines or more on a Snellen visual acuity chart. Success of visual improvement was defined as visual improvement within one month and no further need to clear the vitreous, using surgery.

By this definition, drainage of premacular

**Table 3: Post laser visual acuity (N=41)**

<table>
<thead>
<tr>
<th>Post laser VA</th>
<th>No. of eyes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6</td>
<td>15</td>
<td>36.58%</td>
</tr>
<tr>
<td>6/9-6/12</td>
<td>17</td>
<td>41.46%</td>
</tr>
<tr>
<td>6/24</td>
<td>2</td>
<td>4.87%</td>
</tr>
<tr>
<td>6/36</td>
<td>2</td>
<td>4.87%</td>
</tr>
<tr>
<td>6/60</td>
<td>1</td>
<td>2.43%</td>
</tr>
<tr>
<td>No improvement</td>
<td>4</td>
<td>9.75%</td>
</tr>
</tbody>
</table>

**Table 4: Causes of non improvement of vision (N=4)**

<table>
<thead>
<tr>
<th>Complication</th>
<th>No. of eyes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistent vitreous hemorrhage</td>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>Non drainage</td>
<td>2</td>
<td>50%</td>
</tr>
</tbody>
</table>
Nd: YAG Laser Hyaloidotomy for the Treatment of Premacular Subhyaloid Haemorrhage

Subhyaloid haemorrhage into the vitreous with Nd: YAG Laser succeeded in 36 out of 41 eyes. 36 patients enjoyed visual improvement of treated eyes at the last follow up examination of 6 weeks. In the remaining five eyes visual acuity remained poor because of diabetic macular edema (CSMO) in three, persistent vitreous hemorrhage and failure of drainage of blood into the vitreous in one patient each.

It is clear that no single set of laser energy is appropriate for all types of laser hyaloidotomy or for all patients. The laser energy needs to be adjusted intraoperatively. In our experience the power is 1.9-11.5mJ and number of shots can be from 3-5. Patients with fresh premacular subhyaloid hemorrhage. Require a lower energy as compared to persistent prolonged subhyaloid hemorrhage. An opening with laser should be made in anterior surface of premacular subhyaloid hemorrhage as its experience margin of dependent part, away from the fovea to minimize the risk of foveal damage and away from retinal vessels to prevent bleeding. Failure to perform hyaloidotomy occurred in 4 eyes of our patients. This is in accordance with the result of Raymond and Ezra et al. Michael W Ulbag et al reported failure of drainage of blood into vitreous in one eye (5%) in his study. The reason was a clotted blood of premacular subhyaloid hemorrhage of 35 days duration despite 2 visible punctures at the surface of hemorrhage. This is in accordance with Mansour. Gable et al believed that failure was due to either incomplete perforation of the hematoma’s anterior membrane by insufficient pulse energy or the presence of clotted blood at the time of treatment.

Persistent vitreous hemorrhage in 2 eyes occurred in our study and required vitrectomy. Michael W Ulbag et al reported an incidence of 4 cases in 21 eyes (19%) and required vitrectomy.

CONCLUSION

This technique is simple, safe, effective and cost effective in fresh premacular subhyaloid hemorrhage. It is a successful alternative to vitrectomy since it is a low risk procedure with short recovery time. It also avoids the complications associated with vitrectomy.

REFERENCES

5. Ranganath A, Mariatos G, Thakur S. bilateral macular...
Nd YAG Laser Hyaloidotomy for the Treatment of Premacular Subhyaloid Haemorrhage


International Key Messages

» Approximately 285 million people worldwide live with low vision and blindness.

» Of these, 39 million people are blind and 246 million have moderate or severe visual impairment.

» 90% of blind people live in low-income countries.

» Yet 80% of visual impairment is avoidable which means either that is preventable or treatable (4 out of 5 people have avoidable visual impairment).

» Restorations of sight, and blindness prevention strategies are among the most cost-effective interventions in healthcare.

» The number of people blind from infectious causes has greatly reduced in the past 20 years.

» An estimated 19 million children are visually impaired.

» About 65% of all people who are visually impaired and 82% of those who are blind are aged 50 and older, while this age group comprises only 20% of the world’s population.

» Increasing elderly populations in many countries mean that more people will be at risk of age-related visual impairment.
SHORT COMMUNICATION

Low Vitamin-D Levels Risked to Macular Degeneration
(Genetics of Age-Related Macular Degeneration)

*Vitamin-D Levels may modify risk genes for macular degeneration.*

*avoiding sun as dangerous as smoking*

Prof. Cedric Annweiler MD, Ph.D, Angers University Hospital In France & Amy Millen, Associate Professor of Epidemiology and Environmental Health University, Buffalo’s School of Public Health.

*Edited by: Dr. Madiha Durrani FRCS, Canada*

Adults with the lowest concentrations of circulating 25-hydroxyvitamin D had the highest risk for age-related macular degeneration (AMD), according to a new systematic review and meta-analysis published in *Maturitas*. The findings strengthen the idea that there might be a link between vitamin D deficiency and AMD, notably at the late stages of the disease (*P* = 0.002),” writes Cedric Annweiler. It may therefore be possible that correction of vitamin D deficiency could improve the prognosis of AMD.

The researchers identify 11 studies that met their selection criteria. The criteria included observational or interventional studies and outcomes based on data about AMD diagnoses and circulating vitamin D concentration. Among the studies, seven were cross-sectional, one was a case series, one was a case-control study, one was a retrospective longitudinal cohort study, and one was a discordant sibling cohort. They ranged in size from 65 to 17,045 participants, from 31 to 1440 participants had AMD. The researchers categorized AMD as a whole, early or late. All the studies had been published since 2007.

A meta-analysis of three studies, including 1126 participants with macular degeneration and 8206 without, found that those with macular degeneration had circulating vitamin D levels an average 15% (95% confidence interval 41% to 11%) lower than those without macular degeneration, but the difference was not significant (*P* = .272). In a second analysis, those in the highest quintile of circulating vitamin D levels had the lowest odds of AMD compared with those in the lowest quintile. Those with the highest vitamin D levels had 83%, lower odds of AMD (odds ratio [OR], 0.83; 95% CI, 0.71 - 0.97) and 47% lower odds of late AMD (OR, 0.47; 95% CI, 0.28 - 0.79) compared with those with the lowest levels.

In addition, participants with less than 50 nmol/L circulating vitamin D had more than twice the odds of late AMD (OR, 2.18; 95% CI, 1.34 - 3.56) than those with higher concentrations. However, this association dropped out of significance when all AMD cases, regardless of stage, were considered (OR, 1.26; 95% CI, 0.90 - 1.76). Although the authors argue for the possibility that low vitamin D levels may contribute to AMD, they state that vitamin D deficiency may not fully explain development and worsening of the condition. Further, it is unclear whether vitamin D supplementation would be protective against developing AMD.

They also acknowledge that no validated theory currently exists that can fully explain an association between circulating vitamin D levels and late-stage AMD, and that lower vitamin D levels may result from macular degeneration.

In this scenario, the primary abnormality would be low vision due to AMD, followed by related loss of functional autonomy, reduction in dietary intakes and sunlight exposure, which can ultimately cause vitamin D deficiency. The authors explain, “This hypothesis, although not invalidated by the single longitudinal study reported here, was yet not supported by the fact that most [ORs] used here were adjusted for body mass index and/or for season/sunlight exposure time/recreational physical activity.”

Diet, exercise, smoking, and genes interact in AMD risk.

**Vitamin D may play key role in preventing macular degeneration:**

According to Amy Millen’ research shows women with two risk alleles and low D status are more likely to have the age-related macular degeneration. Vitamin D has been studied extensively in relation to bone health as well as cancer. Vitamin D plays a
significant role in eye health, specifically in the possible prevention of age-related macular degeneration, or AMD or among women who are more genetically prone to this disorder. However, there appear to be many other ways that adequate nutrition can support eye health. If you’re at high genetic risk for AMD, having a sufficient vitamin D status might help reduce your risk.

Macular degeneration affects more than 10 million Americans—more than cataracts and glaucoma combined—according to the American Macular Degeneration Foundation. Researchers analyzed data compiled on 1,230 women ages 54 to 74 who participated in the Carotenoids in Age-related Eye Disease Study (CAREDS). Human skin can synthesize vitamin D when exposed to ultraviolet light, Millen explains. However, for many people, 15 to 30 minutes a day with 10 percent of their skin exposed might be sufficient. In winter months, when there is a lower solar angle, sun exposure may not be not sufficient to maintain blood level for people. Dietary sources of vitamin D include fortified foods such as milk and fatty fish like salmon and mackerel.

Macular degeneration has been found to be strongly associated with genetic risk. Among many genes linked to AMD, one of the strongest is a specific genetic variant (Y402H) in the complement factor H gene, called CFH for short. This gene codes for the CFH protein that is involved in the body’s immune response to destroy bacteria and viruses.

People who have early AMD develop drusen, lipid and protein deposits that build up in the eye. Your body sees this drusen as a foreign substance “CFH is one of the proteins involved in this response. We see more AMD in people who have certain variants in the gene which encodes a form of this CFH protein that is associated with a more aggressive immune response.” Vitamin D shows promise for protecting against macular degeneration because of its anti-inflammatory and anti-angiogenic properties; anti angiogenic refers to slowing the growth of new blood vessels, often seen in late stages of AMD.

Our thinking was, if a person’s vitamin D status is better, would it reduce the immune response to drusen? We wanted to understand if the association between vitamin D and AMD differed depending on a person’s genetic risk for AMD. Although the odds of having AMD was higher in women who were deficient for vitamin D, with 25(OH)D levels below 12 ng/mL (30 nmol/L), increasing vitamin D levels beyond 12 ng/mL.
The Orderly Loss of Visual Field in Glaucoma

INTRODUCTION

Chronic Glaucoma is a misunderstood disease since given a separate entity in the 1850s. There are many conflicting views of glaucoma but on one issue we have complete agreement: the million or so nerve fibers (NFs) in the optic nerve head (ONH) are always being destroyed in an orderly sequence starting with the most peripheral NFs and ending with the most central. If NFs had been destroyed randomly, then the role of perimetry in glaucoma would be redundant as the visual field (VF) would be erratic and meaningless. The perimetry for glaucoma is mainly performed in finding isolated scotomas in the paracentral area (10 to 20 degrees from the fixation point) which occur in the early stages of glaucoma. These isolated scotomas coalesce to form superior and inferior arcuate scotoma starting from the blind spot and ending nasally on the horizontal raphe.

Although the paracentral scotomas are important in early glaucoma diagnosis, the real pathognomonic feature of glaucoma is that the NFs are invariably being destroyed from peripheral to central, in an orderly tandem sequence, which ironically is rarely discussed. For any glaucoma theory to prevail, it must incorporate the issue of orderly loss of NFs, otherwise it will be invalid. In the context of orderly loss of NFs, all the prevailing glaucoma theories such as cupping, posterior bowing of lamina cribrosa (LC), the direct effect of raised intraocular pressure (IOP), enhanced sensitivity of LC to IOP, neurodegeneration, and others become invalid since none of them can explain the orderly loss of NFs in glaucoma. In fact, there is no direct biological mechanism to accomplish the phenomenon of orderly loss of NFs in glaucoma. Therefore, it is proposed that there should be a mechanical way for the orderly loss of NFs even though that mechanical scenario may have resulted from the biological effect of raised IOP on some important component of the ONH.

The sinking of ONH and severance of NFs corroborate with the orderly loss of NFs - the pathognomonic feature of glaucoma. The sinking of the ONH is due to the biological effect of raised IOP on the border tissue of Elschnig resulting in chronic ischemia and its atrophy. The sinking of the LC - a mechanical scenario will result in the orderly severance of NFs from peripheral to central. The NFs are being severed, not atrophied in glaucoma.

Correspondence: 560 W. Putnam Ave. Suite No. 6 Porterville, CA 93257, USA. Tel: 559.781.7482, Fax: 559.781.8446, Email: hasnain40@sbcglobal.net

Received: April 2016 Accepted: June 2016
This presentation will discuss the current glaucoma theories in context of orderly loss of NFs and hypothesizes that the ONH is sinking (mechanical scenario) and as a result the NFs are being stretched and severed against the scleral edge, starting with the most peripheral NFs and ending with most central in an orderly tandem sequence corroborating both with the arrangement of NFs in the ONH and with the glaucomatous field defects.

**Discussion**

Before we discuss the current glaucoma theories it is imperative to talk about the arrangement of NFs in the retina and ONH and the way the glaucomatous VF are produced.

1. **Arrangement of NFs in the retina and ONH**
   
   **First**, one million or so NFs in the retina are arranged in layers superficial to deep. **Second**, the most central NFs originate closest to the disc, lie most superficial (closest to vitreous) and exit from the most central part of the disc. In contrast, the most peripheral NFs originate from the most distant retina or farthest from the ONH, lie deepest (closest to sclera) and exit closest to the edge of the scleral opening. **Third**, the NFs originating from the nasal retina proceed directly to the nasal part of the ONH. **Fourth**, the NFs originating from the nasal aspect of the macular area (macular fibers) proceed directly to the temporal part of the ONH. The NFs originating from the temporal macular area and peripheral retina arch above and below the macular fibers to reach the superior and inferior poles of the ONH respectively, known as the arcuate or bundle NFs.

2. **Glaucomatous Visual Field Defects**

   Although the study of VF in glaucoma was started by Von Graefe (1855) who observed sectorial field defects in glaucoma, it was Jannik Peterson Bjerrum (1889) who improved perimetry using tangent screen and found that earliest glaucomatous VF defect was the comet shaped enlargement of blind spot known as Bjerrum’s sign. His pupil Ronne found comet defect becoming arcuate shaped and ending nasally at the horizontal raphe known as Ronne’s nasal step. Although the peripheral NFs are destroyed first, the peripheral VF loss is not helpful in glaucoma diagnosis due to normal variation in the extent of peripheral VF. Furthermore, VF contraction can occur in other diseases as well such as cataract. The most diagnostic glaucomatous VF is the occurrence of isolated scotomas in the paracentral area (10 to 20 degrees). The isolated scotomas become enlarged and ultimately coalesce to form superior and inferior arcuate scotomas—together known as the ring scotoma. In addition to paracentral scotomas, the peripheral VF loss is also extending to the central 10 degrees area which is retained until the end stage of glaucoma. Although we have no consensus regarding the etiology of glaucomatous VF, it is established that the NFs in glaucoma are invariably being destroyed in a predictable orderly sequence, never haphazardly. I believe the orderly loss of NFs is perhaps the only lead we have in discovering the pathogenesis of glaucoma. Therefore, we will analyze the prevailing glaucoma theories in the light of orderly loss of NFs and thus be able to either approve or reject them.

3. **Can cupping of ONH cause orderly loss of nerve fibers?**

   The term cupping was given 160 years ago, when ophthalmologists with help of the newly invented ophthalmoscope by Von Helmholtz (1851), found the ONH of glaucoma subjects cupped instead of normally being flat. It was assumed the ONH had become cupped due to atrophy and shrinkage of the NFs resulting from the force of raised IOP. Since then, the term cupping became synonymous with glaucoma. Instead of verifying the validity of the cupping concept, one hundred years later (1960s), the term cup-to-disc ratio was introduced giving further credence to the cupping concept.

   **What is cupping of the ONH?**

   There are two contradictory definitions of glaucomatous cupping. First, the physiological cups starts enlarging concentrically in response to raised IOP. Second, the lamina cribrosa starts bowing posteriorly due to raised IOP. We will discuss both aspects of glaucomatous cupping:

   **What are physiological cups?**

   The physiological cups of various sizes are produced due to varying degree of atrophy of Bergmeister’s papilla - a tuft of hyaloid vessels giving nutrition to the lens in fetal life. This remnant tissue is identified histologically as the central connective tissue meniscus (CCTM) lying superficially on the surface of the NFs of the ONH. The CCTM appears as a central whitish depressed area, forming the base of the physiological cup. The bigger the size of the CCTM, the larger the cup/disc ratio. Some subjects have no CCTM, so they don’t have physiological cups.

   Some researchers describe ONH with physiological
cups as doughnut shaped, meaning all the NFs are present only in the so-called peripheral ‘neuroretinal rim’ whereas the central cupped area is a hole, devoid of nerve fibers. The aforementioned doughnut shaped configuration of the ONH is a misconception since there is no histology available depicting such an arrangement of NFs in any glaucomatous ONH or otherwise. The histology of all ONHs reveal that NFs are present all the way to the center of LC underneath the CCTM and there is no empty space in the ONH.

**Regarding the enlargement of the physiological cup:** why should a fibrous tissue enlarge in response to raised IOP, especially concentrically defying laws of physics. The fibrous base of the physiological cup is not enlarging but breaking as will be discussed later in this presentation.

**What is the posterior bowing of the lamina cribrosa?**

It is hypothesized that in response to raised IOP, the LC begins to bow posteriorly. The bowing of LC causes distortion of the holes of LC, resulting in pinching of NFs and impediment of the axoplasmic flow leading to the death of retinal ganglion cells (RGCs).

There are many arguments against bowing of LC. First, it is difficult to comprehend that a multilayered rigid connective tissue plate, densely packed with NFs is so flimsy that it will bow posteriorly with a rise of just 10 mmHg of IOP, but not bow in cases of acute glaucoma where IOP becomes extremely elevated to 70 and above. There is no acute cupping occurring in acute glaucoma. On the other hand, it has been well documented that there is migration of LC in the very early stages of glaucoma. So, how is it possible that a detached LC could bow posteriorly while migrating posteriorly?

Even if agreed that LC is bowing posteriorly, then the central most NFs should be destroyed first according to the arrangement of NFs but in actuality the peripheral NFs are being destroyed first and central last. Furthermore, the posterior bowing of the LC cannot corroborate with the orderly, one by one, loss of NFs starting with most peripheral NFs and ending with most central. The NFs are fastened in bundles in the pores of LC so their individual separation is not possible for orderly destruction of NFs to occur. In view of afore-mentioned the LC could not be the site of injury and the term cupping appears mistakenly given 160 years ago.

4. **Can the direct role of IOP cause orderly Loss of NFs in glaucoma?**

It is difficult to comprehend that raised IOP acting directly on densely packed NFs in the ONH could result in their orderly loss in glaucoma. Therefore, the raised IOP acting directly on the NFs can be ruled out as a cause of glaucoma.

5. **Can enhanced sensitivity of LC to IOP be a cause of normal tension glaucoma?**

It is hypothesized that in some subjects the LC is unduly sensitive to IOP either due to inherent vascular insufficiency or due to structural abnormalities of LC, so the LC bows posteriorly even with normal range (10 to 21 mmHg) IOP level resulting in normal tension glaucoma (NTG). **Argument against:** if someone was born with structurally weak LC, then that subject should have developed NTG in early childhood, not after age 50 or more.

6. **Can neurodegeneration cause the orderly loss of NFs in glaucoma?**

It is hypothesized that glaucoma is a neurodegenerative disease similar to Parkinson’s and Alzheimer’s. But, in every neurodegenerative disease, the neurons are being destroyed randomly, whereas in glaucoma, the nerve fibers or their RGCs are invariably being destroyed in an orderly sequence.

For glaucoma to be a neurodegenerative disease, RGCs will have to first predict the impending glaucoma so they could start apoptosis (self-destruction) in an orderly sequence - an unlikely scenario. Therefore, in view of orderly destruction of NFs, glaucoma cannot be a neurodegenerative disease.

7. **Can atrophy of NFs result in their orderly loss?**

Glaucoma is defined as an optic neuropathy implying that NFs are being atrophied or shrunken in size. Atrophy of cells of an organ always occurs randomly but never in an orderly sequence. However, in glaucoma the NFs are always being destroyed in an orderly sequence, never randomly. The orderly loss of NFs should rule out the atrophy of NFs occurring in glaucoma.

8. **Why are the NFs being destroyed in an orderly sequence?**

There is no biological mechanism such as raised IOP, acting directly on the NFs or their RGCs can result in their orderly destruction. Therefore, there should be a mechanical way causing the orderly loss of NFs. It is proposed that LC starts sinking in the scleral canal (mechanical scenario) due to
The Orderly Loss of Visual Field in Glaucoma

atrophy of the border tissue of Elschnig (BT). The systemic perfusion pressure supplying the BT and IOP are opposing forces. Normally, the perfusion pressure supplying the BT should be higher than IOP for healthy maintenance of the BT. However, if the situation is reversed, either by IOP becoming elevated due to an ocular problem or the perfusion pressure supplying the BT becomes lower than the IOP due to systemic problems such as chronic hypotension, then even normal range IOP (10 to 21 mmHg) will act as high IOP for that subject and compress perfusion of the BT. This will induce chronic ischemia and atrophy of BT so NTG will ensue. Therefore, it is the IOP becoming higher than the perfusion pressure of the BT, resulting in both HTG and NTG. (Figure 1).

As the LC sinks, the peripheral NFs, being closest to the scleral edge are stretched and broken first. As a result, the next in line fiber will move towards the scleral edge and also get severed (Figure 2). The severance of NFs leads to further sinking of LC due to loss of anchorage provided by the NFs as roots anchor a tree. The cascade of severance of NFs and sinking of LC would become self-propagated and continue until all the NFs have moved in an orderly tandem fashion to the scleral edge and become severed. This may explain the unstoppable nature of glaucoma despite maximum lowering of IOP. The severed segments undergo phagocytosis, thus creating excavation (empty spaces) that we may be interpreting as cupping. The sinking of the LC and severance of NFs can corroborate with their orderly loss in glaucoma.

9. **Do we have evidence of sinking LC and severance of NFs?**

It has been well documented that LC starts migrating posteriorly from the early stages of glaucoma. The progressive thinning of the RNFL and empty retinal spaces are due to severance of NFs. The notching at the poles of the ONH is due to severance and depletion of the arcuate fibers at the point of their entry. Why are the arcuate scotomas produced? All the temporal fibers (macular, superior and inferior arcuate) are being severed simultaneously. However, the arcuate fibers being fewer in number, are depleted earlier resulting in the sharply defined arcuate scotoma.

Notching at the poles of ONH, is the excavation occurring between the NFs. At the time of notching, the arcuate scotoma will appear - a confirmatory sign of glaucoma. The so called “floor effect” when OCT cannot measure any further thinning of RNFL is due to the fact that the entire RNFL has been severed and depleted so there are no more NFs left to be thinned. The histology of the end-stage glaucomatous disc reveals an empty crater left over after the severance and phagocytosis of NFs erroneously known as 100% cupped ONH.

[10] The splinter hemorrhages on the margin of ONH are due to severance of smaller vasculature, meeting the fate of NFs.

**CONCLUSION**

The sinking of ONH and severance of NFs corroborate with the orderly loss of NFs - the pathognomonic feature of glaucoma. The sinking of the ONH is due to the biological effect of raised IOP on the border tissue of Elschnig resulting in chronic ischemia and its atrophy. The sinking of the LC - a mechanical scenario will result in the orderly severance of NFs from peripheral to central. The posterior migration of LC from the initial stages of glaucoma has been well documented. The empty crater as revealed by the histology of end-stage glaucomatous disc is the proof that depletion of NFs have occurred due to their severance. In summary, the NFs are being severed, not atrophied in glaucoma.

**REFERENCES**

5. Yang H. Optic Nerve Head Lamina Cribrosa Insertion Migration and Pialization in Early Non-Human Primate Experimental Glaucoma. Poster Presentation ARVO meeting May 03.
9. Hasnain SS. Scleral edge, not optic disc or retina is the primary site of injury in chronic glaucoma. Medical Hypothesis 2006; 67(6): 1320-1325.
Vaso-occlusive disorder of the Central Retinal Vein: Urbanization Impact

Prof. Marianne Shahuvaryan M.D, Ph.D, D.Sc, (Medicine)

Department of Ophthalmology, 8th Hospital,
Yerevan State Medical University, Republic of Armenia

ABSTRACT

Background: Vascular occlusion of the retinal vein is the most common cause of retinal vascular pathology after diabetic retinopathy with potential life-changing complications. Central retinal vein occlusion (CRVO) is a major cause of sight loss and even blindness. Although it is more common in the middle-aged and elderly population, no age group is immune to it. Despite being recognized in the 19th century there are still gaps in understanding the etiology and pathogenesis of vaso-occlusive disorder of the central retinal vein. This obviate the need for continued research on the subject and to identify patients location influence in central retinal vein occlusion.

Methods: The study was a clinic-based case-control study included 408 patients with a clinical diagnosis of CRVO and 566 controls, all aged 21 years and older. A person was qualified as a control if he or she was free of retinal vascular diseases. Excluded from case and control groups were persons with severely myopia, vaso-proliferative retinopathy, and intermediate or posterior inflammatory disease. Multivariate logistic regression analysis was used to test potential interactions between the different variables.

Results: It was found a significant positive association of CRVO with urban location and a significant inverse association with rural location in the screening analyses. In multivariate logistic regression analysis urban location, specifically in the capital, remains a risk factor for CRVO even after adjustment for age, sex and systemic disease (odd ratio 2.1; 95% confidence interval 1.44 to 3.11). The likely explanation for this factor is a significantly greater prevalence of systemic hypertension due to stress may exist among the urban population compared with rural population.

Conclusions: The results from this case-control study suggest a relationship between CRVO and urban location. Our data support the potential value of increased awareness on CRVO and underlying systemic hypertension, medical treatment in preventing occurrence of retinal vaso-occlusion.

Key Words: retina, central retinal vein occlusion, pathogenesis, risk factors.

INTRODUCTION

Retinal vein occlusion (RVO) as a vaso-occlusive disorder of the retinal vein is the most common visually disabling disease affecting the retina after diabetic retinopathy in which arterial risk factors are much more relevant than venous factors and is a major cause of vision loss and even blindness.

In a recent analysis of pooled data from population studies worldwide, the overall RVO prevalence was 0.52%, translating to approximately 16 million individuals worldwide affected by RVO. Vaso-occlusive disorder of the retinal vein has the potential for significant vision-related morbidity. The first case of central retinal vein occlusion was reported by Richard Liebreich in 1855. The first case of branch retinal vein occlusion was reported by Theodor Leber in 1877. Although it is more common in the middle-aged and elderly population, no age group is immune to it. The pathogenesis of RVO has varied systemic and local implications. Many case-control studies have examined the clinical features and risk factors in this disorder.

The habitation-region impact suggest a relationship between CRVO and urban location. The study supports the potential value of increased awareness on CRVO and underlying systemic hypertension, medical treatment in preventing occurrence of retinal vaso-occlusion.

Known risk factors for RVO include systemic vascular disease, hypertension, diabetes mellitus, hyperlipidemia and glaucoma. Hypercoagulable states are associated with RVO. These include primary hypercoagulable states with a defect in the physiological anticoagulant mechanism and secondary hypercoagulable states, which are conditions, associated with an increased risk of thrombosis.

Despite being recognized in the 19th century there are still gaps in understanding the etiology and pathogenesis of vaso-occlusive disorders of the central
retinal vein and its branches. This obviates the need for continued research on the subject. It is thus very important to identify new risk factors for the central retinal vein occlusion (CRVO) to develop preventive measures for the disease.

In central retinal vein occlusion the obstruction is located in the central vein, at the level of the optic nerve, so most of the retina is affected (Fig.1). Anatomic features make the central retinal vein vulnerable to occlusion at this location. As the optic nerve and the accompanying central retinal artery and vein pass through the sieve-like connective tissue of the lamina cribrosa, the central retinal vein normally narrows, and the dense connective tissue of the lamina cribrosa limits any expansion of the traversing optic nerve and vessels within. Any thickening of the central retinal artery, which shares a common fibrous tissue sheath with the vein, might easily compress the lumen of the adjacent central retinal vein and start in motion the sequence of events that lead to thrombus formation.

METHODS

The study was a clinic based case-control study of 408 patients with a clinical presentation of central retinal vein occlusion and 566 controls, all aged 21 years and older. All the patients signed an informed consent written in local language. Excluded from case and control group were the persons with severe myopia, vaso-proliferative retinopathy, and intermediate or posterior intraocular inflammatory disease. At the baseline examination blood pressure was measured. A commercially available statistical software package was used for tabulations and statistical analyses.

RESULTS

The mean values of systolic and diastolic blood pressures and the frequencies of hypertension were higher in subjects with CRVO than values in subjects without CRVO. After adjusting for age and sex, higher blood pressure: systolic blood pressure (OR, 8.49; 95% CI, 4.81 to 15.13) and diastolic blood pressure (OR, 9.37; 95% CI, 6.34 to 13.89) were significant risk factors for the development of CRVO. It was found a significant positive association of CRVO with urban location and a significant inverse association with rural location in the screening analyses (Table 1). In multivariate logistic regression analysis urban location, specifically in the capital, remains a risk factor for CRVO even after adjustment for age, sex and systemic disease (odd ratio 2.1; 95% confidence interval 1.44 to 3.11) (Table 2). The likely explanation for this factor is a significantly greater prevalence of systemic hypertension due to stress may exist among the urban population compared with rural population.

| Table 1: Risk factors included in the analysis of CRVO and results from the screening analysis |
|------------------------------------------------|------------------------------------------------|
| Factor | Association with CRVO, direction (p)* |
| Age, years | |
| 21-30 | ↓ (<0.001) |
| 31-40 | ↓ (<0.05) |
| 41-50 | (0.13) |
| 51-60 | (0.13) |
| 61-70 | ↑ (<0.001) |
| Sex | |
| F | ↑ (0.001) |
| Systemic disease | |
| Systemic hypertension (yes/no) & Systolic blood pressure, mmHg | ↑ (0.001) |
| Diastolic blood pressure, mmHg | ↑ (<0.001) |
| Habitation region | |
| Urban location | ↑ (<0.01) |

* Each factor was analyzed in a logistic regression. Direction of association shown only for p<0.05  and  Systolic pressure of 160 mmHg or more, or diastolic pressure of 90 mm Hg or more, or taking antihypertensive medication

Table 2: Or (95% ci) for RVO

| Factor | CRVO/ controls, OR (95% CI) |
| Age, years | |
| 21-30 | 0.03 (0.00-0.18) |
| 31-40 | 0.59 (0.34-1.02) |
| 41-50 | 0.67 (0.39-1.17) |
| 51-60 | 1.38 (0.88-2.17) |
| 61-70 | 2.21 (1.44-3.38) |
It is recognized that hypertension is the key factor in the development of RVO, and that RVO can be the first manifestation of an undiagnosed hypertension. Findings regarding habitation region impact on CRVO incidence, specifically comparative for urban vs. rural are not available. The only study estimating the prevalence of retinal vein occlusions in rural Central India was conducted by Jonas et al. Based on these findings in the rural agrarian low-income population of Central India, RVOs were detected in 0.8% of adults, with central retinal vein occlusions being approximately seven times less common than branch retinal vein occlusions. Main associated factors were higher age, blood pressure, blood urea concentration, and narrow chamber angle.

CONCLUSIONS

The results from this case-control study for the first time highlighted habitation region impact and suggest a relationship between CRVO and urban location. Our data support the potential value of increased awareness on CRVO and underlying systemic hypertension, medical treatment in preventing occurrence of retinal vaso-occlusion.

REFERENCES

ABSTRACT
Objective: To determine the efficacy of post operative intraperitoneal instillation of rupivicaine as an analgesic in patients with laproscopic cholecystectomy
Sample Size: The sample size was 105 in each group using 3.8 ± 1.28 mean pain score with rupivicaine and 3.33 ±1.13 mean pain score with placebo after Laparoscopic Cholecystectomy, 80% power and 95% confidence interval.
Duration of Study: The duration of study was 01 year from 1st January 2013 to 1st January 2014.
Methodology: All the above information along with the demographic details were recorded on predesigned proforma and entered into a computer database.
Results: The total number of patients in group A (intraperitoneal instillation of rupivicaine) and group B (intraperitoneal instillation of 0.9% normal saline/placebo) after Laparoscopic Cholecystectomy were 105, comprising of 11 (10.5%) males and 94 (89.5%) females in group A and 12 (12.40%) males and 93 (88.6%) females in group B. In Group A, there were 50 (47.6%) and 55 (52.4%) patients from the age groups of 20-40 and 41-60 years respectively while in group B there were 44 (41.9%) and 61 (58.1%) patients respectively.
Conclusion: Intraperitoneal instillation of local anaesthetic is an easy, cheap and non-invasive method that provides good analgesia in the immediate postoperative period after laparoscopic surgery.

INTRODUCTION
Gall stones are considered an important cause of morbidity worldwide and have a significant relationship to the female gender.8 The incidence of symptomatic cholelithiasis is reported to be 2.2/1000 USA population with more than 500,000 cholecystectomies performed yearly.9 Laparoscopic cholecystectomy now is considered the primary treatment modality in patients with symptomatic gall stones. Many studies have demonstrated the safety, feasibility and cost effectiveness of laparoscopic cholecystectomy as a day care procedure.9

Usually the Postoperative pain after cholecystectomy is short lived and rarely lasts more than 24 hours but at times it may go up to third post operative day, the intensity of pain is highest in the first 24 hours, after which the severity decreases gradually. In comparison to open cholecystectomy, the intensity of post operative pain is less after laparoscopic cholecystectomy, but there is still moderate to severe pain along with other complications like nausea and vomiting in the first 24 hours.9

Intraperitoneal instillation of local anaesthetic is an easy, cheap and non-invasive method that provides good analgesia in the immediate postoperative period after laparoscopic surgery. Intraperitoneal instillation of rupivicaine provides a good analgesia and decreases the requirement of post operative parenteral analgesia.

Various studies have been carried out on the type and severity of post-op pain after laparoscopic cholecystectomy. One study shows the incidence of post laparoscopic cholecystectomy pain as visceral pain (78.33%), parietal pain (70%) and shoulder tip pain (23.33%).9 This pain can be reduced by the use of local anaesthetics, non-steroidal anti inflammatory drugs and other analgesics as well. Local anaesthetics can be given as epidural, intraperitoneal or as infiltration around the laparoscopic port sites before and after surgery.6

Amongst these intraperitoneal instillation of local anaesthetic or its infiltration around the laparoscopic port sites before and after surgery has been found to be quite effective.7

With the growing trend of LC in our population and the increasing demand for reducing hospital
Efficacy of Post Operative Intra-peritoneal instillation of Rupivicaine as an Analgesic in Patients with Laproscopic Cholecystectomy

Stay to ensure bed availability, effective means of controlling post-operative pain in these patients needs to be established through clinical studies before we are doubtful in advocating their routine use. The current study was aimed to find to compare mean pain scores between intra-peritoneal rupivicaine instillation with placebo in LC.

**MATERIAL & METHODS**

**Study Design:** It was a randomized controlled trial.

**Study Setting:** The study was carried out at Surgical Unit Hayatabad Medical Complex, Peshawar.

**Sample size:** The sample size was 105 in each group using 3.8 ± 1.28 mean pain score with rupivicaine and 3.33 ±1.13 mean pain score with placebo after Laproscopic Cholecystectomy, 80% power and 95% confidence interval.

**Sample Technique:** It was a consecutive (non probability) sampling technique.

**Duration of Study:** The duration of study was 6 months from 1st January to 30th June, 2014.

**SAMPLE SELECTION:**

**Inclusion Criteria:** The following patients were included in the study:

- All patients with chronic symptomatic cholecystitis aged 20 to 60 years.
- Patients of either gender.

**Exclusion Criteria:** The exclusion criteria of was as;

- Patient having diabetes mellitus were excluded as their pain threshold is variable due to diabetic neuropathy.
- Patients who received opioids or tranquilizers for more than one week preoperatively.
- Patients were excluded from the study if the operation was converted from Laproscopic to open cholecystectomy.

The above conditions were confounder and if included, were liable to bias the study results.

**Data Collection Procedure:** All patients with chronic cholecystitis meeting the inclusion criteria were included in the study and were admitted through OPD for further work up. The purpose and benefits of the study was explained to all patients and if agreed upon, a written informed consent was obtained.

All patients were worked up with detailed history and clinical examination followed by routine baseline pre operative investigations including complete blood count, prothrombin time, bleeding and clotting time, LFTs, blood grouping and cross matching, urine routine examination, blood urea and sugar, ECG and serum electrolytes. The patients were randomly allocated in two groups by flip coin method ; Group A & B. Group A was a study group that received 0.75% ropivicaine in a dose of 2 mg/kg diluted in normal saline to make a solution of 50 ml. Instilled intraperitoneally into the gall bladder bed and under surface of diaphragm and Group B was a control group and received 50 ml of 0.9% normal saline instilled intraperitoneally into the gall bladder bed and under surface of right diaphragm. In both groups, infiltration at the port site wounds was done with 5ml of 0.75% rupivicaine.

On the evening before surgery, the visual analogue scale scoring system was explained to all patients. All patients were premedicated with oral diazepam (10 mgs) administered on night prior to surgery as night sedation. All patients were induced and maintained with standard anesthetic technique i.e. induced with bupernorphine (3-4 mgs) and propofol (2 mgs) and tracheal intubation was facilitated with atracurium (0.4- 0.5 mgs/kg). The anesthesia in all patients was maintained with oxygen in air (50%-50%) with Isoflurane supplementation. The muscle relaxation was maintained by the incremental doses of atracurium (0.1mg/kg) as and when required.

Immediately after intubation a nasogastric tube was introduced and stomach contents were aspirated prior to tilting of the patient and nasogastric tube was removed just before extubating the patient. Postoperative pain intensity was assessed using 10 point on VAS. VAS scoring was done at 12th hour. Post operatively, all patients in both groups were kept under observation for at least one day.

All the surgical procedures were conducted by a single experienced surgeon in the capacity of Assistant Professor or above. All the above mentioned information along with the demographic details were recorded on predesigned proforma and entered into a computer database. Strict exclusion criteria was followed to control confounders and bias in the study results.

**Data Analysis Procedure:** Data was analyzed by using a statistical software SPSS version 16.0. Mean ± Standard deviation was calculated for continuous variable like age and pain at 12th hour. Frequency and percentages were calculated for gender. T test was used to compare the pain scores between intraperitoneal instillation of bupivacaine and placebo. P value of ≤ 0.05 was considered significant. Mean pain scores in both the groups was stratified among age and gender to see the effect of modifications. All the results were presented in the form of graphics and tables.

**RESULTS**

The total number of patients in group A (intraperitoneal instillation of rupivicaine) and group B (intraperitoneal instillation of 0.9% Normal Saline/
Efficacy of Post Operative Intra-peritoneal instillation of Rupivicaine as an Analgesic in Patients with Laproscopic Cholecystectomy

Placebo) after Laparoscopic Cholecystectomy were 105, comprising of 11 (10.5%) males and 94 (89.5%) females in group A and 12 (12.40%) males and 93 (88.6%) females in group B. This gender distribution in both groups showed insignificant p value i.e. 0.825(Graph No.1).

In Group A, there were 50 (47.6%) and 55 (52.4%) patients from the age groups of 20-40 and 41-60 years respectively while in group B there were 44 (41.9%) and 61 (58.1%) patients respectively. Age distribution between the 2 groups was insignificant statistically (p=0.244) (Table No.1).

The mean age of patients in Group A and B was 41.14 ±11.06 and 42.69 ±11.22 respectively. A t test failed to reveal a statistically reliable difference between the mean ages of patients in Group A and B; p = 0.314 (Table No. 2).

The mean pain according to Visual Analogue Scale in Group A and B was 3.13 ± 0.83 and 3.44 ± 0.78 respectively at 12th hour after Laparoscopic Cholecystectomy. A t test revealed a statistically reliable difference between the mean pain of patients in Group A and Group B; p = 0.005. (Table No. 3).

The mean and standard deviation of pain in the age group of 20-40 years was 3.06 ± 0.82 and 3.30 ± 0.73 in group A&B respectively at 12th hour of Laparoscopic Cholecystectomy according to Visual Analogue Scale. While in the age group of 41-60 years, it was 3.20 ± 0.85 and 3.56 ± 0.81 in group A and B respectively. A t test failed to reveal a statistically reliable difference of mean pain between the age groups of group A and B; p = 0.767.

According to gender wise distribution of mean pain at 12th hour of Laparoscopic Cholecystectomy according to Visual Analogue Scale, male patients were having mean pain of 2.82 ± 0.87 and 3.00 ± 0.74 in group A and B respectively, while female patients in group A and B were having mean pain of 3.00 ± 0.74 and 3.51 ± 0.77 respectively. A t test failed to reveal a statistically reliable difference of mean pain between males and females patients of group A and B; p = 0.513. (Table No.4).

DISCUSSION

Cholelithiasis occurs in 10% of the population of Western countries and in 17% of the population in Asian countries. Cholecystectomy is currently a frequently performed operation. The most common reason for a cholecystectomy is gallbladder stones.9,10 It is a procedure to be performed as a day case or short stay procedure and therefore, the provision of adequate postoperative pain relief is of considerable importance. Instillation of intraperitoneal LA to reduce postoperative pain has been studied through randomized trials for more than 10 years.11

Our study showed that after the intraperitoneal administration of 50 ml of rupivicaine (0.75%) had useful effects on postoperative pain relief especially in the early postoperative period after Laproscopic Cholecystectomy with the mean pain in the study group significantly reduced as compared to the placebo group (p = 0.036). The mean pain according to Visual Analogue Scale in Group A and B was 3.619 ± 0.676 and 3.837 ± 0.667 respectively. Gender and ages of the patients in both groups were not significant in affecting the mean pain scores according to VAS. A study conducted by A Singh, SK Mathur, VK Shukla also showed that better results can be obtained if rupivicaine is administered along with fentanyl, not only in achieving a more stable analgesia but also a reduction in total rescue analgesic dose consumption.12

In our study, we did not observe any side effects or complications attributable to the local infiltration of rupivicaine intraperitoneally. In fact, we did not measure plasma concentrations of bupivacaine, and the reason for it was that the concentration of rupivicaine used in our study was 0.75% and it was lower than the dose thought to cause systemic toxicity. Rupivicaine concentrations of upto 1% have been used safely and has been shown in many studies.13

CONCLUSION

Intraperitoneal instillation of local anaesthetic is an easy, cheap and non-invasive method that provides good analgesia in the immediate postoperative period after laparoscopic surgery. Intraperitoneal ropivacaine produces postoperative analgesia better
than the instillation of intraperitoneal placebo. So intraperitoneal instillation of rupivacaine provides a good analgesia and decreases the requirement of post operative parenteral analgesia.

### Table No. 1

<table>
<thead>
<tr>
<th>Groups</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>50</td>
<td>44</td>
</tr>
<tr>
<td>% within Groups</td>
<td>47.6%</td>
<td>41.9%</td>
</tr>
<tr>
<td>Count</td>
<td>55</td>
<td>61</td>
</tr>
<tr>
<td>% within Groups</td>
<td>52.4%</td>
<td>58.1%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>% within Groups</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### Table No. 2

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>105</td>
<td>41.1429</td>
<td>11.06921</td>
<td>0.314</td>
</tr>
<tr>
<td>B</td>
<td>105</td>
<td>42.6952</td>
<td>11.22765</td>
<td></td>
</tr>
</tbody>
</table>

### Table No. 3

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>105</td>
<td>3.1333</td>
<td>.83282</td>
<td>0.005</td>
</tr>
<tr>
<td>B</td>
<td>105</td>
<td>3.4476</td>
<td>.78423</td>
<td></td>
</tr>
</tbody>
</table>

### Table No. 4

<table>
<thead>
<tr>
<th>Groups</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Mean</td>
</tr>
<tr>
<td>Pain</td>
<td>&lt;= 40.00</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>41.00+</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>P-value</td>
<td>0.3933</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>P-value</td>
<td>0.1860</td>
</tr>
</tbody>
</table>

REFERENCES

9. Laycock WS, Siewers AE, Birkmeyer CM, Wennberg...


Effect of Grand Multiparity on Maternal Outcome in the Presence of Adequate Antenatal Care

Dr. Nadia Rashid Khan FCPS1, Rukhsana Malik MBBS2, Saima Ayub MBBS3, Aisha Arif FCPS4, Saima Perveen FCPS5

ABSTRACT

Objective: To find out the effect of grand multiparity on maternal outcome in presence of adequate antenatal care.

Study design: Cross Sectional Study.

Place & duration of Study: Gynaecology Department Lady Reading Hospital Peshawar from 1st June 2012 to 1st December 2012.

Methodology: All booked grandmultipara with singleton pregnancy at term admitted to Gynae A Unit, Lady Reading Hospital Peshawar were included in the study. Evaluation was done by detailed history, general physical examination, per abdominal and per vaginal examination and by obstetrical ultrasound. The fetus was assessed for antenatal complications, obstetrical complications, mode of delivery, post partum complications.

Results: 50 patients were included in the study. Mean age was 34 years. n=10(20%) patients had hypertensive disorder, n=2(4%) patients had anaemia and n=38(76%) patients (antenatal) didn’t had any complication. n=4(8%) patients had PIH, n=6(12%) patients had pre-eclampsia. n=4(8%) patients had placenta previa, n=3(6%) patients had placental abruption, n=5(10%) patients had mal-presentation, n=3(6%) patients had obstructed labor, n=35(70%) patients (obstetrical) didn’t had any complications. n=35(70%) had vaginal delivery, n=10(20%) patients had caesarean section and only n=5(10%) patients had vacuum delivery. Maternal mortality was not found in any of the 50 patients.

Conclusion: Grandmultiparity is still a major obstetrics hazard in our setup with its associated increased likelihood of maternal complications even in the presence of antenatal care.

Key words: Grandmultiparity, maternal outcome, antenatal care.

INTRODUCTION:

The term “grand multipara” was introduced in 1934 by Solomon, who called grand multiparas “the dangerous multiparas”.1 In general, the older literature defines “grand multiparity” (GM) as parity >7.2,3 More recent reports select a definition of grand multipara to start from a parity of 5 because the threshold of risks of any obstetric complication, neonatal morbidity, and perinatal death increase markedly at parity ≥5.4,5 It is often considered a clinical entity as pregnancy and delivery in grandmultiparas are at higher risk due to poor antenatal care and advanced maternal age. In developing countries the incidence of grand multiparity all with its complications is still high.5

Grand multiparity women are at high risk of diabetes, hypertensive disorders, anemia and obesity.5 Intrapartum complications most commonly thought to be associated with grand multiparas are uterine rupture, placental abruption, placenta praevia, malpresentation and dysfunctional labour. A postpartum complication typical in the grand multiparas is postpartum haemorrhage, although a slight reduction in the incidence of post-maturity is usual in the grand multiparas. There is significant increase in the caesarean section rate and the most frequent indication for elective caesarean section is breech presentation. There is increase maternal and perinatal mortality.7

Grandmultiparity is a major obstetrics hazard in our setup with associated maternal complications even in the presence of adequate antenatal care. Excellent obstetrical outcome needs active interventions by improving literacy rate, heath care facilities, safe and effective contraception in reproductive health status.

The trend in many recent papers is toward a conclusion that the outcome of grand multiparas is much improved when compared to previous years, especially when mothers receive adequate antenatal care, however, anemia is still a common problem even in developed countries. This could be due to some of the factors already noted, including late or even non-booking of deliveries and low socio-economic status, or even poor spacing of children.6
Grand multiparity should be considered as a high risk pregnancy owing to above hazards and need active intervention by increasing awareness about antenatal care program, improving literacy rate, controlling the fertility rate by safe and effective contraception, reproductive health status and by providing efficient health care facilities to these women at door step.8,9 With access to modern medical care and hospital delivery a favorable outcome can be achieved despite a low socio economic status. Pregnancy and labour should be closely supervised and early intervention arranged if it is not progressing smoothly.

The purpose of my study was to find out the effect of antenatal care on complications, obstetrical complications, mode of delivery and postpartum complications of grandmultiparous women in Lady Reading Hospital Peshawar.

**METHODOLOGY**

All booked grand multiparous mother of any age, with singleton pregnancy at term, free of medical disorders admitted to Gynaec A Unit, Lady Reading Hospital Peshawar, were included in the study. Patients were booked at antenatal clinic. Patients with congenital abnormality, with multiple pregnancies, and with pregnancy of less than 28 weeks were excluded from the study. Evaluation was done by detailed history, general physical examination, per abdominal and per vaginal examination and by obstetrical ultrasound. Data was collected on proforma. The patients were assessed for antenatal complications, obstetrical complications, mode of delivery, post partum complications. The data was entered into SPSS version 10.0. Mean and Standard deviation was being computed for Numerical variables like age where as frequencies and percentage was calculated for categorical variables. All the results were presented in the form of tables.

**RESULTS**

This is a descriptive study of 50 patients of grandmultiparity. Age distribution was analyzed as n=39(78%) patients were found in age ranged 31-40 years and n=11(22%) patients were found in age ranged 20-30 years. Mean age was 34 years with standard deviation ± 3.78. (As shown in Table No 1).

Antenatal complication was analyzed as n=10(20%) patients had hypertensive disorder, n=2(4%) patients had anemia and n=38(76%) patients (antenatal) didn’t have any complication. (as shown in Table No 2).

More over n=4(8%) patients had pregnancy induced hypertension (PIH), n=6(12%) patients had pre-eclampsia. (as shown in Table No 3).

Obstetrical complications was analyzed as n=4(8%) patients had placenta previa, n=3(6%) patients had placental abruption, n=5(10%) patients had mal-presentation, n=3(6%) patients had obstructed labor, n=35(70%) patients (obstetrical) (didn’t had any complications. (as shown in Table No 4).

Mode of delivery was analyzed n=35(70%) had vaginal delivery, n=10(20%) patients had caesarean section and only n=5(10%) patients had vacuum delivery. (as shown in Table No 5).

Regarding Post Partum Complications among 50 patients, it was analyzed that most of the patients n=38(76%) didn’t had any complication while n=8(16%) patients had post partum hemorrhage due to uterine atony, n=4(8%) patients had post partum hemorrhage due to retained placenta. (as shown in Table No 6). Mortality was analyzed as maternal mortality was not found in any of the 50 patients. (as shown in Table No 7).
Table 5: Mode of Delivery (N=50)

<table>
<thead>
<tr>
<th>Mode of Delivery</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forcep Delivery</td>
<td>00(00%)</td>
</tr>
<tr>
<td>Vacuum Delivery</td>
<td>5(10%)</td>
</tr>
<tr>
<td>Caesarean Section</td>
<td>10(20%)</td>
</tr>
<tr>
<td>Vaginal Delivery</td>
<td>35(70%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>

Table 6: Post Partum Complications (N=50)

<table>
<thead>
<tr>
<th>Post Partum Complication</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Partum Haemorrhage, atony</td>
<td>8(16%)</td>
</tr>
<tr>
<td>Post Partum Haemorrhage, Retained placenta</td>
<td>4(8%)</td>
</tr>
<tr>
<td>Post Partum Haemorrhage, Perineal Tears</td>
<td>0(00%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>

Table 7: Maternal Mortality (N=50)

<table>
<thead>
<tr>
<th>Maternal Mortality</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>00(00%)</td>
</tr>
<tr>
<td>Non</td>
<td>50(100%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>

DISCUSSION

Grand multiparity has been considered to be an obstetric hazard both for a mother and fetus. The overall incidence is between 10-30% with higher rates in developing countries where there is large family norm and poor acceptance of family planning methods. Various hazards are associated with grandmultiparity including fetal malpresentation, abruptio placenta, placenta previa, post partum haemorrhage. The incidence of hypertensive disorders, macrosomic (overweight – more than 4 kg) infants is also high. Due to associated risk of grandmultiparity maternal and foetal morbidity and mortality are also increase in these women.

Grand multiparas women are significantly older than women with low parity. The incidence of grandmultiparas at 31–40 years of age was 91.3 in study performed by Shamshad Begum while incidence in my study was 78%. This reveals an older age profile in grandmultiparas. In grandmultiparas hypertensive disorders are found with increased frequency. In my study 20% had hypertensive disorder. The results can be compared with the study of Rayamajhi R et al where it was found to be 19% in booked patients. It is the advanced maternal age, genetic predisposition, vascular disease and renal parenchymal disease which play important role in its development. Social status, race, climate, seasons, maternal dietary habits and obesity are other predisposing factors. In my study increase incidence of intrauterine fetal death and abruptio placentae are due to pregnancy induced hypertension. Our study shows that 8% patients had PIH, 12% had pre-eclampsia and no patient had eclampsia. The same results can be compared with the study of Rayamajhi R et al in which 10% patients had PIH, 14% had pre-eclampsia and only one patient had eclampsia. Anemia in grandmultiparas is due to poverty, malnutrition and frequent pregnancies. There is increase risk of thromboembolism, cardiac failure and infection. The ability of patients to withstand obstetrical haemorrhage is also reduced. In our study 4% patients were anemic. Whereas the study performed by Monjurul Haque et al shows that 5% patients were anemic. Placenta previa is commonly encountered in older grandmultipara women. Maternal age and parity correlate strongly for placenta previa. The incidence of placenta previa in grand multiparas women in my study was 4%. Similar results were shown in the study conducted by Shamshad Bagum in which 5% cases had incidence for placenta previa. Placental abruption represents a potentially serious obstetric problem that tends to threaten fetal viability, neonatal mortality and morbidity and maternal health and well being. There is joint effect of age and parity on placental abruption in grand multiparas. The incidence of placental abruption is 7.07% and in 74% of these patients, hypertension is the causative factors in study done by Demirtas et al. The incidence of placental abruption in our study was 6%.

Various fetal mal-presentation are said to be common in grandmultiparas. Reduced tone of abdominal muscles, pendulous belly, fetal size and congenital abnormalities are usually suspected as causative factors. Failure to predict and manage these malpresentations directly affect the outcome of labour as a results of obstructed labour and operative delivery which increases perinatal mortality, maternal morbidity and mortality. The incidence of malpresentations in the study performed by Rajamajhi R et al is 9% while in my study incidence of malpresentation was 10%.

Obstructed labor results from failure of descent of fetal presenting part in the birth canal for mechanical reasons in spite of good uterine contraction. Cephalo-pelvic disproportion, mal-presentation, mal position and fetal congenital abnormalities are important risk factors for obstructed labor. In grand multiparas, malpresentation is more common than cephalo-pelvic disproportion. The incidence of obstructed labor is
5.6% in study performed by Shamsahad Begum.12 6% had obstructed labor in my study.

Vaginal deliveries were 70%, cesarean sections 20% and vacuum deliveries 10%. Rayamahji R et al found in their study that 73.5% of grandmultiparas had spontaneous vaginal delivery and 5.66% had instrumental delivery and 15.1% underwent cesarean section.13 Similarly the study done by Shamshad Begum shows that 50% deliveries were spontaneous vaginal, 1.6% outlet forceps deliveries and 21.6% were caesarean section.12

There is increase occurrence of post partum haemorrhage in grandmultiparas because uterus tends to remain inert in third stage of labor if faced with minor degree of disproportion. Uterine atony is more common in grand multiparas due to an increase in fibrous tissues and decrease in muscular tissues of uterus. Retained placenta, instrumental deliveries, placenta previa, abruptio placenta, operative deliveries and grand multiparity are associated with uterine atony.11 Our data shows the incidence of post partum haemorrhage due to uterine atony is 12% which is comparable to 11.3% in Nigerian study.2 Our incidence of retained placenta was 4% which is comparable to 5.6% in study by Rayamahji R et al.13 There was no maternal death in our study. Similarly there was also no maternal death in study performed by Rayamahji R et al.13

CONCLUSION & RECOMMENDATIONS

Grand-multiparity is still a major obstetric hazard in our setup with its associated increased likelihood of maternal complications even in the presence of adequate antenatal care. Grand-multiparity itself is not as hazardous as lack of care during pregnancy and delivery. Excellent obstetrical outcome in grand-multiparas needs active interventions by improving literacy rate, health care facilities, safe and effective contraception and reproductive health status.

REFERENCES

External Post Mortem, helping to Diagnose the Cause of Death (an autopsy based study)

Riaz Qadeer MBBS, DMJ1, Robina Salmah Yasmeen M.Phil2, Rizwan ul Haq M.Phil3
Department of Forensic Medicine & Toxicology, Peshawar Medical College, Peshawar

ABSTRACT

Background: Medicolegal autopsy both external and internal gives valuable information about death whether it is natural or unnatural and what is the cause of death.

Study design: This descriptive study is based on autopsy record and provides information regarding cause of death from external appearance of the dead.

Duration of Study: From 1st January 2013 to 23rd May 2013.

Methodology: This study was conducted in the department of Forensic Medicine & Toxicology of Khyber Medical College, Peshawar. Data was collected from the record of autopsies performed from January 2013 to May 2013. It includes all cases referred from urban as well as from rural area police stations of Peshawar district.

Results: Out of total 400 dead bodies sent for medicolegal autopsy 13 were putrefied & were swollen due to accumulation of gases of putrefaction so external post mortem was misleading and cause of death was only determined with the help of forensic science laboratory in 4 out of 13 putrefied bodies. Out of total 400 cases 387 bodies were submitted for autopsy within 24 hours after death. In 7 cases the cause of death could not be determined in spite of autopsy as well as the help of forensic science laboratory. What happened to the dead & how it happened in 380 cases out of 400 was obvious from the external examination of the dead hence external post mortem in 95% cases helps in finding out the cause of death.

Conclusion: Meticulous external examination of the dead if done by the God fearing & expert doctor gives information about the cause of death. Situation of unnatural deaths in Peshawar is alarming and needs the attention of the policy makers. All unnatural deaths can be prevented by improving social justice, education and by increasing psychiatric treatment facilities.

Keywords: Post mortem staining, Autopsy.

INTRODUCTION

Postmortem staining or hypostasis or post mortem lividity means discoloration of skin due to accumulation of fluid blood in the tone less capillaries and small veins of the dependent parts of the body under the action of gravity. It is also called vibeces or suggilation or livor mortis. Blood is a tissue and like other tissues of the body it disintegrate into its components after death.

Autopsy or postmortem is the scientific study of the dead according to the laws of the state. This examination is (1) external as well as (2) internal (study of internal organs of the body). External autopsy is with the dress and without dress. External post mortem without dress gives a lot of information of medico legal importance like color of post mortem staining (color of skin) will be cherry red in case of death due to carbon mono oxide poisoning or bluish black in death due to opium poisoning or brownish in death due to any chemical containing phosphorus which is a component of rat killing paste, wheat preserving pills and fungicide/pesticide spray done by the farmers in their fields. The color of post mortem staining may be bluish green in death due to drowning in gutter or sewerage water. This is due to the formation of hydrogen sulphide gas in the sewerage water & the toxicity and rapidity of action of this gas is comparable to hydrocyanic acid.

External post mortem can help the law in solving the problems related to the cause of death. Preventable causes of death include firearm injuries, road traffic accidents or accidental deaths from exposure to carbon mono oxide poisoning or deaths by throttling garrotting or hanging or by use of drugs of addiction. All these unnatural deaths can be prevented by improving social justice/education, by providing better psychiatric treatment facilities and by accepting the social rights of others.

Fang marks if present helps in diagnosis of death due to snake bite. Crocodile skin or arborescent markings on the skin favor that electrocution is the cause of death. Multiple bruises, abrasions like brush...
burn or fractures are mostly associated with road traffic accidents. Collar of abrasion if present is diagnostic that this is wound of entry caused by a bullet, and the direction / angle at which the bullet hit the body so helping in reconstructing the story by appreciating the relative position of the victim and the assailant. Tattooing if present around the wound proves that it is wound of entry caused by firearm from midrange so it gives information not only about the nature of weapon but also about distance of fire and about the cause of death. Distribution of postmortem staining as on feet, legs, hands and forearms along with ligature mark around neck help to find out whether death was due to hanging or the person was killed and then hanged after death.

**MATERIAL & METHOD**

It is a retrospective descriptive study conducted in the Department of Forensic Medicine & Toxicology of Khyber Medical College, Peshawar where all autopsies are carried out for the district Peshawar. A total of 400 autopsies were performed from 1st January 2013 to 23rd May 2013. All these cases were referred by the police from urban as well as from rural police stations to find out the cause, mode and manner of death or any other crime associated with the death. Autopsy report was issued and a record of each case was maintained. From this record all cases of death having ligature mark around neck, froth in the nose or mouth, having skin color cherry red or brownish or bluish black color were isolated. In a performa information like age, sex, from rural or urban area were noted and the results were analyzed as under.

**RESULTS**

Most of the cases sent for autopsy were male (89%) were from rural areas (66%) and were in the age group 21 to 30 years (35%). Most of dead bodies (97%) were brought to the hospital for autopsy within 24 hours of death. The results are tabulated as under;

<table>
<thead>
<tr>
<th>S/No.</th>
<th>History of the dead as mentioned in police documents</th>
<th>Findings on external post mortem</th>
<th>Cause of death</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Case of poisoning</td>
<td>Cherry red color of skin</td>
<td>Carbon mono oxide poisoning (Lab. Report confirmed)</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Body recovered from drain</td>
<td>Greenish blue color of skin</td>
<td>Hydrogen sulphide gas which is present in sewerage water</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Body recovered from a canal</td>
<td>Post mortem staining absent</td>
<td>Drowning in running water as the body keep on changing its position in running water</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Hanging with a rope</td>
<td>Postmortem staining mainly present on feet, legs, hands and forearms</td>
<td>Hanging and it was in favor of ante mortem hanging because tardu spots were present on pleura, pericardium &amp; peritonium</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Eating wheat preserving pills</td>
<td>Color of post mortem staining was brownish</td>
<td>Compounds containing Phosphorus (Lab report confirmed)</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Cut wound present on front of neck</td>
<td>A deep incised wound on front of neck by sharp weapon and absent postmortem staining</td>
<td>Homicidal cut throat (in all deaths due to rapid loss of blood, post mortem staining is always absent or is very faint)</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Un-identified emaciated body</td>
<td>Deeply cyanosed body</td>
<td>Opium poisoning (Lab report confirmed)</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>Body recovered from a jungle</td>
<td>Two fang marks present on right side of neck</td>
<td>Snake bite (Lab report confirmed)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Firearm injury</td>
<td>Tattooing present at the wound of entry and Bullet / bullets recovered from the body</td>
<td>Firearm injury</td>
<td>231</td>
</tr>
<tr>
<td>10</td>
<td>Small wounds present on front of neck</td>
<td>Crescent nail marks present on front of neck</td>
<td>Throttling</td>
<td>5</td>
</tr>
</tbody>
</table>
#### DISCUSSION

In our study 89% were males and 66% were from rural areas and majority was in their age group 20 to 30 years. The reason for this is less education in the rural areas, ladies are *parda* observing and the young are more emotional. Most of the dead bodies (97%) were brought to the hospital within 24 hours after death so external post mortem was helpful as color of post mortem staining was cherry red in 4 cases, bluish black in 8 and brownish in 13 cases thus helping in finding out the cause of death was carbon mono oxide poisoning, opium poisoning and phosphorus poisoning respectively. It was also confirmed by the laboratory findings. Post mortem staining is one of the early signs of death as it starts appearing within 1 to 3 hours after death. It is a reliable sign of death. Post mortem staining gives important information of medicolegal importance like (1) information about the position of the body at the time of death and whether this position was changed or not after death. (2) It helps to estimate the time since death as it starts appearing within 1 to 3 hours & gets fixed in 6 to 8 hours after death (3) cause of death can be determined from the color of postmortem staining (4) Distribution of post mortem staining suggest the circumstances or position of the body at the time of death eg. hanging or drowning. It will not appear if the body keep on changing its position as in running water or the cause of death is rapid and severe hemorrhage.

In our study 13 cases out of total 400 were foul smelling and swollen due to accumulation of gases of putrefaction like methane, ammonia, hydrogen sulphide and phosphorated hydrogen. Putrefaction is a late sign of death, is a sure sign of death and it starts within 24 hours after death. The rate of putrefaction depends on cause of death, mode & manner of death and the environment in which the dead body was lying after death.

In Pakistan Police is the in charge of the dead body and is the investigating authority about the death whether it is natural or unnatural. Death may be unnatural but if the concerned police station head officer (SHO) is satisfied that death is natural then he can issue order for burial of the dead. Death may be natural but concerned SHO is not satisfied so he will ask the medical authority for autopsy especially so when the relatives of the dead fail to accept his demands. Dead body is property of the state hence no consent of any one is required for autopsy. People avoid autopsy of their near and dear ones by request or by influence & aim is to save time and money by avoiding lengthy court procedures so the actual number of un-natural deaths is much more than the cases referred for autopsy. People are more interested in taking the revenge hence further deteriorating the law and writ of the state.

#### CONCLUSION

External post mortem along with the help of forensic science laboratory can help the law in solving the problems related to the cause of death. Preventable causes of death include firearm injuries, road traffic accidents or accidental deaths from exposure to carbon mono oxide poisoning or deaths by throttling garroting or hanging or by use of drugs of addiction. All these unnatural deaths can be prevented by improving social justice/education, by providing better psychiatric treatment facilities and by accepting the social rights of others.

---

**Table 1:**

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Area</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rural</td>
<td>66</td>
</tr>
<tr>
<td>2</td>
<td>Urban</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>Cases</td>
<td>400</td>
</tr>
</tbody>
</table>

**Table 2:**

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Identified bodies</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>381</td>
<td>95</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>Cases</td>
<td>400</td>
</tr>
</tbody>
</table>

**Table 3:**

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Male</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>357</td>
<td>89</td>
</tr>
<tr>
<td>2</td>
<td>43</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>Cases</td>
<td>400</td>
</tr>
</tbody>
</table>

**Table 4:**

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Condition of dead body</th>
<th>No. of cases</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fresh</td>
<td>387</td>
<td>97</td>
</tr>
<tr>
<td>2</td>
<td>Putrefied</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Cases</td>
<td>400</td>
<td></td>
</tr>
</tbody>
</table>

**Table 5:**

<table>
<thead>
<tr>
<th>S/No.</th>
<th>AGE</th>
<th>No.</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 to 10 years</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>11 to 20 years</td>
<td>48</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>21 to 30 years</td>
<td>141</td>
<td>35</td>
</tr>
<tr>
<td>4</td>
<td>31 to 40 years</td>
<td>83</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>41 to 50 years</td>
<td>52</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>51 to 60 years</td>
<td>41</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>61 years &amp; above</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>Cases</td>
<td>400</td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


Sensitivity of fine Needle Aspiration vs Core Biopsy in the Diagnosis of Palpable Breast Lesions

Shahid Nisar FCPS¹, Arshad Amin FCPS², Zafar Iqbal FCPS³
Mian Tauseefuddin FCPS⁴, Gulsharif FCPS⁵
Gajju Khan Medical College & Lady Reading Hospital, Peshawar

ABSTRACT

Objective: To evaluate the sensitivity of trucut Biopsy (CB) in comparison the Fine Needle Aspiration Cytology (FNAC) For Preoperative Diagnosis Of Clinically Palpable Breast Lesion.

Study Design: Prospective comparative study.

Place & Duration: It was conducted at Bacha Khan Medical Complex Shahmansoor Swabi from 1st Jan, 2011 to 31st December 2015. A total of 100 cases were included in the study.

Result: Out of 100 cases on FNAC Vs Trucut Biopsy benign cases were 60 Vs 69, Malignant cases were 18 Vs 22 and equivocal cases were 22 Vs 9. Not even a single case was equivocal on histopathology examination which is considered as Gold Standards. False begin cases on FNAC Vs Trucut Biopsy were 9 Vs 5, while false malignant cases were 13 Vs 4. There were neither false positive cases on FNAC nor on Trucut Biopsy. This study shows sensitivity of FNAC Vs TCB for benign lesions is 82.1% Vs 94.5% and for malignant lesions is 66.6% Vs 81.48%.

Conclusion: Trucut Biopsy is more sensitive than FNAC in preoperative diagnosis of palpable breast lesions. It also provides the information about tumor grade, tumor types, receptor status and helps in planning the Neoadjuvant treatment for advanced carcinoma of the breast.

Key Words: Palpable Breast Lesions, Fine Needle Aspiration Cytology (FNAC) Turcut Biopsy (TCB).

INTRODUCTION

Breast lump is one of the common symptoms presenting in surgical outpatient department. These lesion are diagnosed on triple assessment Which comprises of clinical examination, Breast imaging and tissue diagnosis by FNAC or trucut Biopsy. Fine Needle Aspiration Cytology (FNAC) was initially used in triple assessment of Breast lesions in NHB screening program in the UK. Trucut Biopsy (TCB) was introduced in the assessment process of screened detected lesions in late 1990. There are studies where there have been diagnostic difficulties in interpretation of cytological preparation. Therefore a cytological diagnosis may not be possible for as many as 30% patients who undergo such examination. Other disadvantages of FNAC includes that it does not allow distinction between in situ and invasive carcinoma and grade of the tumor cannot be assessed to plan the definitive treatment for early and advanced carcinoma of the breast. Trucut Biopsy of breast lesion provides histological diagnosis, grade of the tumor, tumor types and receptor status. It provides all reliable information to guide the surgeon and oncologist for modern therapeutic strategy and the eventual use of Neoadjuvant Therapy. The objective of our study was to compare the results of FNAC vs. Trucut Biopsy in terms of sensitivity.

Trucut Biopsy is more sensitive than FNAC in preoperative diagnosis of palpable breast lesions. It also provides the information about tumor grade, tumor types, receptor status and helps in planning the Neo-adjuvant treatment for advanced carcinoma of the breast.

METHOD AND MATERIAL

This is an comparative study conducted at the surgical department of Bacha Khan Medical Complex Shahmansoor Swabi from 1st Jan, 2011 to 31st December 2015. A total of 100 cases were included in the study. Patients presenting with palpable breast lump underwent triple assessment including clinical examination, Radiological examination and FNAC. The Patient were referred to pathology department of Khyber medical university where FNAC was done by the pathologists/cytologists.

Trucut Biopsy was performed with trucut needle of 14 gauge and 100mm in size. After aseptic measures a
2% Lignocaine local anesthetic infiltrated over the lump
small 2-3mm incision made with disposable scalpel
to accommodate the tip of the trucut needle. Biopsy
specimen was obtained by means of four successive
insertions with different angulations of needle in the
core of lesion. The tissue was placed in 10% formalin,
sent to histopathologist the results of both procedures
were tabulated and sensitivity were calculated and
compared. All these patients then underwent excisional
biopsy and histopathology reports were received.
This histopathology reports of excisional biopsy were
regarded as gold standard.

**Inclusion Criteria:** We included both male and female
patients who presented to surgical OPD of BKMC
(Bacha Khan Medical Complex) Shahmansoor Swabi.

**Exclusion Criteria:** We excluded those patients who
were already having diagnosed breast lesion and
recurrent breast lesion for example carcinoma. The
variable like sex, side (Unilaterality Bilaterality) and
type of lesion were recorded on already prepared
proforma. The data was analysed using computer
program SPSS Version 10.

- Equivocal report: The test result does not show
whether the lesion is benign or malignant. Excisional
Biopsy is needed for confirming diagnosis.

**RESULTS**

Out of 100 cases on FNAC Vs Trucut Biopsy
benign cases were 60 Vs 69, Malignant cases were 18 Vs
22 and equivocal cases were 22 Vs 9. Not even a single
case was equivocal on histopathology examination
which is considered as Gold Standards. False begin
cases on FNAC Vs Trucut Biopsy were 9 Vs 5, while
false malignant cases were 13 Vs 4. There were neither
false positive cases on FNAC nor on Trucut Biopsy.
Among the benign lesion fibroadenoma was the most
common lesion accounting for 30 cases out of 60 cases
on FNAC and 36 cases out of 69 cases on TCB at was
followed by abscess formation both on FNAC and TCB
the sensitivity of FNAC for benign lesion is = True
Benign/ True Benign + False malignant = 60/60+13=
60/73x100= 82.1% The sensitivity TCB for benign
lesion is = true benign/ true Benign + False malignant=
69/69+4=69/73x100= 94.5%.

Among the malignant lesion, invasive ductal
carcinoma was the most common accounting for 12
cases out of 18 cases on FNAC and 16 cases out of 22
cases on trucut biopsy. It was followed by 3 cases of
lobular carcinoma while medullary carcinoma occurred
in 2 patients and inflammatory carcinoma was found in
one patient on both FNAC trucut biopsy. The sensitivity
of FNAC for malignant lesion is = true malignant/ true
malignant + false benign = 18/18+9=18/22x100= 66.6%
The sensitivity of TCB for malignant lesion is
= true malignant/ true malignant + false benign =
22/22+5=22/27x100= 81.48% The above result shows
sensitivity of FNAC Vs TCB for benign lesion is 82.1 Vs
94.5 and for malignant lesion is 66.6% Vs 81.48%.

**DISCUSSION**

Trucut Biopsy has become a widely used technique
for evaluating palpable breast lesions. This technique
has revolutionized the practice of preoperative
diagnosis of breast lesions in both symptomatic and
screen detected lesions. An equivocal trucut biopsy
seem more valuable clinically than equivocal FNAC
because this lesion carries highly variable risk of
malignancy on subsequent excisional biopsy.

FNAC us cheaper and less invasive but compared
to CB it does not provide all the information necessary
for decision making in the modern management of
Breast cancer. The reported problems of FNAC are
inadequate specimen yield, low sensitivity, relatively
poor performance in certain lesions such as invasive
lobular carcinoma, false positivity and inability to
differentiate invasive from non invasive disease. It
does not provide an assessment of grade and hormone
receptors assay which are important for planning
neo-adjuvant therapy. The above problems could be
dealt some extent by expert cytopathologist but such
expertise is not available in every centre treating breast
cancer. These reasons have led to the introduction and
gradual replacement of FNAC by core biopsy.

The size lesions in our study were comparable
with sizes reported in study conducted by prilgrim
S. Studies where FNAC and Core biopsy were taken
from same palpable lesions and compared are few
but most have found core biopsy to be more sensitive.
The sensitivity for FNAC and Core Biopsy in different
studies were 67% vs. 64% vs. 95% and 90% vs. 97%.

The highest reported sensitivity of 90% for FNA
and for core biopsy is 99%. Some author have found
CB 100% diagnostic while FNAC 89.3% diagnostic
for breast lesions. The results of core biopsy in this
study showed an absolute sensitivity of 84.62% while
complete sensitivity was 100%. This is very close to
the reported in literature. The preferred values for
Core Biopsy suggested by NHSBSP and European
Union are greater than 80% and 90% for absolute
and complete sensitivity respectively. The absolute
sensitivity for FANC in this study was very low i.e.
26.92% in comparison to complete sensitivity i.e. 85.71%
which was close to reported in literature. In this study
both FNAC and Core Biopsy were done without image
guidance which is not always necessary for successful
CB and FNAC in relatively large Palpable lesions.
CONCLUSION

Core Biopsy has potential benefits and is more sensitive than FNAC to give preoperative histological diagnosis tumor grade, receptor status and permits the eventual use of Neoadjuvant therapy for breast lesion.

REFERENCES


ABSTRACT
Objective: Breast lump is most common presentation in most of the breast disease which are usually benign. Fine-needle aspiration cytology (FNAC) of the breast is a minimally invasive yet maximally applied diagnostic method. To study the diagnostic accuracy of FNAC in breast lesions.

Method: All the patients presenting with palpable breast lesions were included in the study. They underwent triple assessment including clinical, radiological and tissue diagnosis by performing FNAC and excisional biopsy.

Study Design: Analytic Study.
Place and Duration: It was conducted at Bacha Khan Medical Complex Shahmanoor Swabi from 1st Jan, 2011 to 31st December 2015. A total of 100 cases were included in the study.

Result: Among the breast lesions that underwent FNAC 60 (60%) were benign, 18 (18%) were malignant and 22 (22%) cases were equivocal while histo-pathology reports showed 73 (73%) benign and 27 (27%) malignant cases. Not even a single cases was equivocal on histopathology examination. False benign cases were 9 (27-18) and false malignant cases were 13 (73-60) on FNAC. There were no false positive cases recorded on FNAC.

Conclusion: FNAC of the breast is simple, cost effective and less traumatic method for diagnosis of clinically palpable breast lump. It is highly sensitive method and can reduce the needs for open biopsies. So FNAC should be used as a routine method for determining the nature of breast lumps.

Key words: FNAC, breast lumps.

INTRODUCTION
Fine-needle aspiration (FNAC) is a simple quick and reliable as well as cheap technique for obtaining diagnostic material. True fine needles for breast aspirations were first introduced in the beginning of 1960s by franzen Zajicek at the Karolinska Hospital in Stockholm. Being an oncologist, Fintroduced standard May-Grunwald Giemsa stains on air-dried smears to allow for rapid interpretation (FNAC of breast; A Smund Berner). Most common symptoms associated with breast lesions reported by women are pain palpable mass, lumpiness without a palpable mass or nipple discharge.

Discrete palpable lump is a problem often presented to surgeons, gynecologists and general practitioners. A breast mass is generally palpable when it exceed 2cm in size. The likelihood of a palpable mass being malignant increases with age.

FNAC of breast is simple, cost effective and less traumatic method for diagnosis of clinically palpable Breast Lump. It is highly sensitive method and can reduce the needs for open biopsies. It should be used as a routine method for determining the nature of breast lumps.

Investigation of a palpable breast lump involves triple assessment which analyses clinical and radiological findings in conjunction with pathologic features (FNAC) for diagnosis as well as to reduce the risk of missed diagnosis to less than one percent. The role of FNAC has been challenged by better overall results attained by trucut biopsy. Trucut biopsy is a reliable diagnostic modality but carries disadvantages in term of a longer turn-around due to the tissue processing time and patient discomfort during the procedure and may result in complications. FNAC has advantages over trucut biopsy in that it uses a smaller needle and thus has a lower probability of causing hematoma and other complications. Accuracy in FNAC can be increased by multiple sampling of appropriate sites by ultrasound guidance and mammographic localization.

1Senior Registrar, Surgery, BKMC Shahmanoor Swabi
2,3Assistant Professors Surgery, BKMC Shahmanoor Swabi. 4Senior Registrar Bacha Khan Medical Complex, Swabi.
Correspondence: Dr. Arshad Amin, FCPS, Senior Registrar, Surgery, BKMC Shahmanoor Swabi. Cell: 0333-9429728, Email: arshadamin50@gmail.com, Res: Moh Bar Khamal Village Manori Bala, Tehsil & District Swabi, KPK.
Received: May 2016 Accepted: June 2016
Role of FNAC in diagnosis of palpable Breast Lesions

FNAC can also be used to diagnose lesion of male breast such as gynecomastia and carcinoma, accessory axillary breast and their lesions and status of axillary lymphnodes thereby reducing the number of open breast biopsy.5

FNAC is cost effective that can be carried out at out-patient department (OPD) it is simple and time saving method, no anesthesia is required and operative risks of surgical biopsy can be avoided and can be repeated as and when necessary. The present study was undertaken to evaluate the diagnostic role of FNAC in a typical Pakistani setup.

METHOD & MATERIAL

This is an analytic study conducted at the surgical department of Bacha Khan Medical Complex Shahmansoor Swabi from 1st Jan, 2011 to 31st December 2013. A total of 100 cases were included in the study. Patients presenting with palpable breast lump underwent triple assessment including clinical examination, Radiological examination and FNAC. The Patient were referred to pathology department of Khyber Medical University where FNAC was done by the pathologists/cytologists. All these patients then underwent excisional biopsy and histopathology reports were received. This histopathology reports of excisional biopsy were regarded as gold standard.

Inclusion Criteria: We included both male and female patients who presented to surgical OPD of BKMC (Bacha Khan Medical Complex) Shahmansoor Swabi.

Exclusion Criteria: We excluded those patients who were already having diagnosed breast lesion and recurrent breast lesion for example carcinoma. The variable like sex, side (unilaterality or bilaterality) and type of lesion were recorded on already prepared proforma. The data was analysed using computer program SPSS Version 10.

RESULT

The total number of patients was 100. Age of the patient ranged from 13 to 70 years with a mean age of 46.12 (+-12.30) The size of the lesion assessed clinically ranged between 2-15 cm with the mean size of 5.33cm (+-2.88) the number of male patients were 6 while females patients were 94 in number.

Among the breast lesions that underwent FNAC 60 (60%) were benign 18 (18%) were malignant and 27 (27%) cases were equivocal while histo pathology reports showed 73 (73%) benign,Tab 1, and 27 (27%) malignant cases Tab.2. Not even a single cases was equivocal on histopathology examination. False benign cases were 9 (27-18) and false malignant cases were 13 (73-60) on FNAC. There were no false positive cases recorded on FNAC.

Among benign lesions fibroadenoma was the most common accounting for 30 cases out of 60 cases. It was followed by abscess formation which occurred in 15 patients out of 60 patients. There were fibrocystic disease in 5 Patients, tuberculosis of breast in one patient, mammary duct ectasia in 4 patients, traumatic fat necrosis in 4 patients and cysto sarcoma phylloides in one patient was recorded. The sensitivity of FNAC for benign lesions is = true Benign/true benign + false malignant = \( \frac{60}{60+13} = \frac{60}{73} \times 100 = 82.1\% \). Among the malignant lesions invasive ductal carcinoma was the most common lesion accounting for 12 patients out of 18 patients. It was followed by 3 cases of lobular carcinoma while medullary carcinoma occurred in 2 patients and inflammatory carcinoma was observed in one patient. False malignant cases were found in 13 patients on FNAC.

The sensitivity of FNAC for malignant lesions is = true malignant/ true malignant + false benign = \( \frac{18}{18+9} = \frac{18}{27} \times 100 = 66.6\% \).

Benign lesions were most common in age group of 21-30 years while malignant breast lesions were common in the age group of more than 50 years.

### Table 1: Benign breast disease diagnosed on FNAC & Trucut Biopsy

<table>
<thead>
<tr>
<th>Disease</th>
<th>FNAC</th>
<th>Trucut biopsy</th>
<th>Histopathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibroadenoma</td>
<td>30</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>Abscess formation</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Fibrocystic disease</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Tuberculosis of breast</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mammary duct ectasia</td>
<td>4</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Traumatic fat necrosis</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cystosarcoma Phylloides</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>60</td>
<td>69</td>
<td>73</td>
</tr>
</tbody>
</table>

### Table 2: Malignant breast diseases diagnosed on FNAC & Trucut biopsy

<table>
<thead>
<tr>
<th>Disease</th>
<th>FNAC</th>
<th>Trucut Biopsy</th>
<th>Excisional Biopsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive ductal Carcinoma</td>
<td>12</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Lobular cell carcinoma</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Medullary carcinoma</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Inflammatory carcinoma</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>18</td>
<td>22</td>
<td>27</td>
</tr>
</tbody>
</table>

DISCUSSION

We have evaluated the pattern of breast lesions as diagnosed through FNAC and observed that benign lesions constituted 60(60%) of cases and malignant cases constituted 18 (18%) cases. Fibroadenoma was the most common diagnosis in benign lesions. Among the malignant lesions, ductal carcinoma was
the commonest diagnosis. Similar observations were made by other researchers. Fibroadenosis was the second common diagnosis among the lesions followed by fibrocystic changes. However, few studies have reported fibrocystic disease as the common diagnosis followed by fibroadenoma.9

We have observed that malignant lesions formed 18 (18%) of the total cases done on FNAC investigations. Similar incidence of carcinoma was found in different authors. But a study done by Mohammed Bdour et al., had reported much higher incidence of carcinomas (41%). High diagnostic accuracy of FNAC in differentiating different breast lesions were also being highlighted in these studies.7,8

We have searched the relationship between age and type of breast lesions and found that benign breast lesions were more common in the age group of 21-30 years, while malignant breast lesions were common in the age group of >50 years. Statistical significant relationship between the two have also been reported earlier.9,10

The frequency of inadequate cases are variable is different studies ranging from 0 to 57.2% depending on various factors. The main causes for inadequate smears may be due to either lack of technical experience in performing FNA preparation, and fixation of smears. FNA of ill-defined masses like or lesions with hyalinization and deeply located lumps may also be contributed to the inconclusive diagnosis.11,12 More over it is widely accepted that FNA is a less traumatic and easy technique than core needle biopsy because we repeated the FNAC in case of inadequate smears without any delay, difficulty, trauma, and getting highly accurate results. This statement is not applicable for open biopsy as it is a time consuming and cumbersome technique which requires fixation, processing, staining and so forth. It is also expensive procedure costing Rs.700 (9.5 USD) as compared to Rs.200 (2.5 USD) for each FNA while it is also expensive in advanced countries. In a study Rubin et al. has mentioned a saving of 1000$ with this cost effective procedures.13 In our study the accuracy of FNA aspiration was increased by repeating the process within 24 hours and was found to be significant. There were many reasons for inadequate smears like size, type of lesions, experience of the technical staff, and cooperation of patients in our study.

Many inflammatory breast lesions create confusion as these are presented as a palpable mass. “Mammographic, sonographic, and magnetic resonance imaging findings may not always distinguish some of the benign lesions like duct ectasia, fat necrosis from a malignant lesion.” Fine-needle aspiration (FNA) is a well-accepted diagnostic modality and procedure for the diagnosis of inflammatory swellings of breasts. We are using this technique in such lesions and results are variably accepted by our consultants and clinicians with varying degrees of acceptance rates, accuracy, and results. Fine-needle aspiration is the most accurate diagnostic modality for these lesions and cell blocks accentuate the reliability of the diagnosis in these benign inflammatory and curable lesions without requirement of excision biopsy or other second-line investigations. In this study, these were reported as benign inflammatory diseases and their histopathologies were followed and were further categorized into different lesions. Cell blocks were prepared after making the required smears and were processed for histopathology.14,15,16

CONCLUSION

FNAC of the breast is simple, cost effective and less traumatic method for diagnosis of clinically palpable breast lump. It is highly sensitive method and can reduce the needs for open biopsies. So FNAC should be used as a routine method for determining the nature of breast lumps.

REFERENCES
Association of Consanguinity, Ethnicity and Addiction with Clubfoot in Pakistan

Abbas Ali FCPS¹, M. Ayaz Khan FCPS²

ABSTRACT
Objective: To determine the association of clubfoot with consanguinity, ethnicity, lunar eclipse and addictions.

Methods: This observational descriptive case series study was conducted from July 2013 to December 2013. All 200 idiopathic clubfoot patients, who reported at Clubfoot Clinic (CFC) were included in the study. A designed questionnaire was used for asking questions from parents on telephone and during their visit to CFC.

Results: Eighty-five (42.5%) patients were born from consanguineous marriage and 115 (57.5%) from non-consanguineous marriage. (p<0.001) 10 out of 115 consanguineous marriage were non-Muslim, who do not marry cousins (p<0.001) Two mothers had a history of smoking during pregnancy, 16 had a habit of chewing Paan (beetle nut and tobacco). None of the mothers had exposure to lunar /solar eclipse.

Conclusion: The Club Foot has a strong association with consanguineous marriages, with heterogenic geographical distribution and family history and no association to exposure with lunar eclipse. Association with addiction (cigarette smoking tobacco chewing and paan), could not be identified due to insufficient data.

Key Words: Clubfoot, Consanguinity, and Prevalence.

INTRODUCTION
The overall incidence reported for clubfoot is 1-7 in 1000 live births.¹ Approximately 80% of them are born in the developing country world.² With generally accepted incidences (1-2:1000) the estimated load of clubfoot in Pakistan, where 5.3 million births occur every year³,⁴, would be 6000–7000 every year i.e 1.4:1000 live births. The Idiopathic Congenital Club Foot (CCF) exhibits male predominance: with male: female ratio of 3.5:1⁵,⁶, and 46% of these have bilateral deformities.⁷ The incidence of Idiopathic CCF varies in different geo-ethnic groups, influenced by multiple endogenous and exogenous Factors.⁸ The investigators report a strong genetic relationship with significant regional heterogeneity but no seasonal variation.⁶⁷⁸⁹

Fischgrund⁹ reports 10 times higher incidence in families of affected individuals than the general population. The consanguinity & ethnicity related question, as well occurrence in next siblings is often asked by parents of CCF patients. This study was therefore conducted to know the possible association of parental consanguinity and ethnicity and additions (paan eating and cigarette smoking) with prevalence of the idiopathic CCF deformity.

METHODS
This Clinical survey was conducted from July 2013 to December 2013. The data evaluated included demographic data of 200 patients with idiopathic clubfoot deformity with age range between 5 days to 3 years. The total population during the study period were registered in the International Clubfoot Registry (ICR) from Clubfoot Clinic at JPMC & NMI Hospital Karachi, from November 2011 to December 2013 were included in the study. The study was conducted with approval of Institutional review board JPMC and with informed written consent from the parents of affected children. The research assistants MYB and MFA* collected data through a purposive designed questionnaire completed with interview from the parents attending CFC and from few others who did not attended CCF, on telephone. The questions asked were related to consanguinity, immediate relationship of family members having CCF, mother’s eating habits (beetle nut chewing with tobacco) and cigarette smoking during pregnancy, as well as possible exposure to lunar/solar eclipse. The data was also collected for any associated deformities.
**Statistical Analysis:** The data was statistically evaluated through SPSS version 13.0, a statistical package for social sciences. Chi-square test of proportion was employed to determine the association of CCF children born of consanguine marriages and non-consanguine marriages and also to determine the association of CCF children born of non-Muslims who do not marry cousins and non-consanguine marriage in Muslims.

**RESULTS**

Table 1: Demographics and clinical variables (n=200)

<table>
<thead>
<tr>
<th>Variables</th>
<th>No of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>154</td>
<td>77.0</td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>23.0</td>
</tr>
<tr>
<td>Bilateral</td>
<td>113</td>
<td>56.5</td>
</tr>
<tr>
<td>Unilateral</td>
<td>87</td>
<td>43.5</td>
</tr>
<tr>
<td>Right sided</td>
<td>39</td>
<td>45.0</td>
</tr>
<tr>
<td>Left sided</td>
<td>48</td>
<td>55.0</td>
</tr>
<tr>
<td>Sindhi</td>
<td>73</td>
<td>36.5</td>
</tr>
<tr>
<td>Urdu</td>
<td>67</td>
<td>33.5</td>
</tr>
<tr>
<td>Pushtoon/Afghani</td>
<td>23</td>
<td>11.5</td>
</tr>
<tr>
<td>Punjabi</td>
<td>13</td>
<td>6.5</td>
</tr>
<tr>
<td>Blochi</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>Kachi</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>Family history</td>
<td>25</td>
<td>12.5</td>
</tr>
<tr>
<td>Affected brothers/sisters</td>
<td>4/25</td>
<td>16.0</td>
</tr>
<tr>
<td>Mothers</td>
<td>2/25</td>
<td>8.0</td>
</tr>
<tr>
<td>Affected 1st and 2nd cousins</td>
<td>19/25</td>
<td>76.0</td>
</tr>
<tr>
<td>Smoking during pregnancy</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Chewing Paan (Beetle nut &amp; Tobacco)</td>
<td>16</td>
<td>8.0</td>
</tr>
<tr>
<td>Relationship with lunar eclipse</td>
<td>Nil</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Out of 200 Idiopathic CCF patients 77% were male and 23% Female, with male: female ratio of 1:3.9 (p=0.001, chi-square=116.6). Majority was of bilateral CCF 113 (56%) and overall majority were with left sided CCF 48 (55%) (p=0.01, chi-square=6.6), refer Table 1.

Eighty-five children (42.5%) were born from consanguineous marriages and 115 (57.5%) children from non-consanguineous marriages (p=0.002, chi-square=9.0). Out of 57.5% non-consanguine relationship, 10% (8.69%) were non-Muslims who do not marry cousins; 6 (3%) from the Hindu community and 4 (2%) from the Christian community (p=0.001, chi-square=275.5). Only two (1%) mothers had a history of smoking during pregnancy, 16 had a habit of chewing Paan including beetle nut with or without tobacco. None of the mothers of affected children had exposure to lunar or solar eclipse (Table 2).

Table 2: Association with consanguinity, family history and addiction

<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCF Children born of Consanguine Marriage</td>
<td>85/200</td>
<td>42.5%</td>
</tr>
<tr>
<td>CCF Children born of Non– Consanguine Marriage</td>
<td>115/200</td>
<td>57.5%</td>
</tr>
<tr>
<td>CCF Children born of Non-Muslims who do not marry cousins</td>
<td>10/115</td>
<td>8.69%</td>
</tr>
<tr>
<td>CCF Children born out of Non consanguine marriage in Muslims</td>
<td>105/115</td>
<td>91.30%</td>
</tr>
<tr>
<td></td>
<td>p=0.002, chi-square=9.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p=0.001, chi-square=275.5</td>
<td></td>
</tr>
</tbody>
</table>

The regional, linguistic and ethnic origin revealed 73 patients belonged to the Sindhi community, 12 Baluchi, 67 Urdu speaking, 12 Katchi Memon, 13 Punjabi, 23 to the Pashtun/Afgani speaking tribes. Percentage wise the incidence among native of Karachi /Sindh province (Sindhi and Baluchi) (42.5%) was almost the same as Urdu and Kachi speaking community (39.5%) Table:3. Two (1%) cases in the study had associated cleft lip, one (0.5%) had torticollis, and two (1%) had congenital knee dislocation. One (0.5%) of them also had DDH but there were no signs of distal arthrogryposis.

**DISCUSSION**

Hypothetically, etiology of CCF has been attributed to oligo-hydramnios, uterine restriction and arrest of the normal medial rotation of the foot in lateral footdevelopment.\(^1\) However, Ponseti’s\(^1\) studies reproduce more logical evidence that CCF is a “Development malformation”\(^1\), influenced by multifactorial genetic, environmental factors significantly modulated by a genetic mutation.\(^1\) These multifactorial factors leads to developmental aberration in limb bud development\(^1\), that is evident as early as 7 week.\(^1\) The prevalence of Clubfoot is reported lowest in Chinese (0.34 per 1000 per live birth) and highest in Hawaliance and Maoris (7 per 1000).\(^1\) This difference in Clubfoot prevalence across the ethnic populations supports the genetic basis clubfoot pathology.\(^1\) Our finding of heterogeneity in multi-ethnic populace living in Karachi does support the findings of Alvarado\(^1\), Zosia\(^13\), Tachdjian\(^12\), and similar observations made by...
Wallander.6 However; we could not find significant difference in occurrence of CCF among natives of Karachi; Sindhi+Balochi v/s Urdu+Kachi speaking. Regarding association of CCF with heritability our finding (Table 2) are nearly similar to Ukoha7 and Lochmiller8, who significant association CCF with heritability (affected relative), that too varies between populations9,10. Similarly Wynne14 and Chapman18 also reports 24% incidence of CCF in Caucasians families compared to 54% in Polynesians. The association of positive family history with CCF in our study was observed in 12.5% patients and 16% siblings were borne of affected parents having CCF. This incidence is lower than 20-25% relatives having CCF, as reported by Lochnillar9, Wynne14 and Chapman.18

The consanguine marriages in our country are very common among Muslim community, because of high consanguinity rates within Muslim populations; the incidence of Congenital Malformations (CM) in Islamic countries is between 10%-45%.16

In developed countries such as United Kingdom (UK)17 ratio of CM leading to perinatal mortality is 26%-34%; whereas prevalence of CM is very low (3%) in Denmark.18 This study reveals 42.5% parents of CCF children had marriages with first cousin, double first cousin and half first cousins (p=0.002, chi-square=9.0). The ratio of consanguineous marriages in this represented sample (42.5%) is nearly similar to reports from Iran & Turkey (30%-85%)16,19,20 and Alper from Antalya Turkey16 that reports 40.7% consanguineous marriages and very frequent type was between first cousins 16. The effect of consanguinity has been described as an important factor contributing to increased congenital malformations. A recessive gene has been reported to influence the incidence of some inherited diseases.21 This recessive gene may remain hidden for generations and come to light for the first time in an inbred descendant, who carries two copies of a gene that was present in a single copy in the common ancestor of his/her consanguineous parents.21

Similarly various other also reports the significant risk of consanguinity in association with clubfoot, the rates reported are 31%-54%.12,13,21,22,23 The risk of CCF associated with consanguineous marriages in our series is 42.5% versus 57.5% in non-consanguine marriage (p=0.002, chi-square=9.0). This is slightly higher than 31% as reported by Sreenivas22 (UK) and Sahin25 (Turkey 2011). Interestingly, Tayabi21 from our neighboring country Iran reports very low such as 0.16% incidence of Clubfoot in consanguine marriages (25%) and 0.25% in non-consanguine marriages (75%).21 Sahin O25 further elaborates that babies born to first-cousin parents had >4 times the risk of idiopathic CTEV and the risk for those born to distant relatives was 2.9 times higher than for children of unrelated parents.23 Whereas; Kularmi24 reports 30 fold increased risk in siblings of affected parents. The incidence of clubfoot in siblings have also been reported that vary from 29% to 32.5%. Tachdjian15 reports 32.5% incidence in monozygotic twice compared to 29% in dizygotic twins. Ukoha5 reports significantly low (0.02%) incidence in monozygotic twins. Whereas; Wyne DR25 reports higher risk for identical twins than for fraternal twins i.e. 33% versus 3%. These all reports favours the role of genetic factor in clubfoot etiology. Regarding laterality in clubfoot and association with etiological factors, literature is silent. However; significant variation has been reported in literature for bilateralism that vary from 46% to 68%.21,22 However, our incidence of bilateral involvement (56%) (p=0.01, chi-square=6.6) was in accordance to that ratio. Sreenivas21 reports associated congenital malformations with CCF as high as 46.3%, that is very than our findings of 3.5% associated malformations but it was nearly similar to a report from our neighbor Iran, reported by Tayebi.21

CONCLUSION

The variation of the heterogeneity in geo-ethnic population of Pakistan Iran and Turkey supports the statement of Ponseti, Zosia, Tachdjian and Kulkarni that the Clubfoot deformity is a developmental malformation, influenced by multifactorial genetic, environmental factors, modulated significantly by genetic mutation that start affecting in limb bud development, as early as 7th week fetus. The risk of occurrence of clubfoot is higher with consanguinity, in siblings of affected mothers and in families than in families having no incidence of congenital clubfoot deformity. Percentage wise the incidence among Native of Karachi/Sindh province (Sindhi and Balochi) (42.5%) was almost the same as Urdu and Kachi speaking community (39.5%). The study does not prove the association to exposure with lunar eclipse. Whereas; its association with addiction (cigarette smoking tobacco chewing and paan), could not be identified due to insufficient data.

REFERENCES

4. Pakistan Demographic and Health Survey, 2012-2013. National
Petaloid Cataract

A young man complained of progressively deteriorating vision in eye with a history of concussion injury in road traffic accident three months earlier. Vision 20/40, IOP 12 mm Hg. Slit-lamp examination revealed white opacities in the form of decagonal "petals" in that eye. Each petal had a dense margin and was separated by a linear suture line. The fundus and retinal periphery were normal in both eyes. The patient refused surgery. The petaloid cataract is classically seen in patients who have had blunt trauma to the eye.

Curtesy:
Jagat Ram, M.S, Rohit Gupta, M.S
Postgraduate Institute of Medical Education and Research Chandigarh, India
ABSTRACT

Background: Medico-legal autopsy is a valuable source of information about death whether it is natural or unnatural and if un-natural then what is the cause, mode, manner of death, the time since dead or any associated crime with the death.

Study design: This descriptive study is based on autopsy record and provides information regarding cause of death, age, sex of the person and whether from rural or urban area.

Duration of study: From 1st January 2013 to 23rd May 2013.

Methodology: This study was conducted in the department of Forensic Medicine & Toxicology of Khyber Medical College, Peshawar. Data was collected from the record of autopsies performed from January 2013 to May 2013. It includes all autopsy cases referred from urban as well as from rural area police stations of Peshawar district.

Results: Out of total 400 autopsies 71% deaths were due to firearm injuries, 10% due to road traffic accidents, 6% due to bomb blast injuries, 4.5% due to poisoning and 4% due to asphyxia. In all these victim of un-natural deaths 90% were male, 67% were from rural areas and 35% were of age group of 20 to 30 years.

Conclusion: Situation of unnatural deaths in Peshawar is alarming and seeks attention of policy makers. All preventable causes of death can be controlled by providing better education including religious education, by improving social justice and socioeconomic conditions of people and by increasing psychiatric treatment facilities in our hospitals.

Keywords: Firearm injuries, unnatural death, Autopsy, Pakistan.

INTRODUCTION

Medico legal system which solves the problems of legal nature are solved by the judiciary with the help of medical knowledge. In developed country like USA the in charge of this system is a doctor who is a board qualified and submits his report to district attorney for further action. This system is called Medical Examiner System. In Great Briten (UK) called Coroner and the system is named as Coroner System. In Pakistan Modified Continental System is working and in this system the authority is given to the police. The court needs the help of medical knowledge in solving problems related to determination of age, sex, addiction, sexual offences like rape, sodomy, impotence, pregnancy, criminal abortion, infanticide, whether born alive or dead, legitimate or not, full term or premature birth and all other problems related to physical / mental health, death and disposal of the dead or organ transplantation problems like ante mortem drowning or post mortem drowning, ante mortem burns or post mortem burning or first killed and then hanged can be solved by medical knowledge.

Situation of unnatural deaths is alarming in our country, which seeks attention of the Government. This study of medico legal system in a country like ours, always helps the law in controlling the preventable causes of death by improving social, religious and economic conditions of people and by providing better psychiatric treatment facilities. Islam teaches us to be kind, polite and very tolerant to our fellow citizens.

Sudden suspicious unexpected death is an important social problem of legal nature requiring medical help. Inquest is the term used to investigate all sudden unexpected doubtful deaths. Inquest is of two types:

1. police inquest
2. magistrate inquest which is held in cases like exhumation or in deaths occurring by police firing or during investigations by police.

Autopsy or postmortem is the scientific study of the dead according to the laws of the state. It is done by the authorized medical officer on the written request...
of the investigating officer which usually is a police officer not below the rank of assistant sub inspector (ASI). As dead body is the property of the state so no consent of any one is required for medico legal autopsy. Pre requisite for autopsy are (a) injury report as written by the police (b) first information report written by the police i.e. FIR (c) written request for autopsy by the police i.e. the investigating officer.

The dead body speaks provided one can understand as the dead can answer the questions like:
(1) who are you
(2) you belong to which area
(3) what is your age, sex, race, profession and religion
(4) what happened to you
(5) when it happened
(6) how it happened
(7) did you try to defend yourself
(8) any other crime like sodomy or rape committed with you along with the death.

**MATERIAL & METHOD**

It was a retrospective descriptive study conducted in the Department of Forensic Medicine & Toxicology of Khyber Medical College, Peshawar where all autopsies are carried out for district Peshawar. A total of 400 autopsies were performed from 1st January 2013 to 23rd May 2013. All these cases were referred by the police from urban as well as from rural police stations to find out the cause, mode and manner of death or any other crime associated with the death. Autopsy report was issued and a record of each case was maintained. From this record all cases of death having ligature mark around neck, froth in the nose or mouth, having skin color greenish, brown or bluish black color were isolated. In a performa information like age, sex, from rural or urban area were noted and the results were analyzed as under.

### RESULTS

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Cause of death</th>
<th>% age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Firearm injuries</td>
<td>71%</td>
<td>262</td>
<td>23</td>
<td>285</td>
<td>78</td>
<td>207</td>
<td>285</td>
</tr>
<tr>
<td>2</td>
<td>Road traffic accidents</td>
<td>10%</td>
<td>32</td>
<td>7</td>
<td>39</td>
<td>13</td>
<td>26</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>Bomb blast injuries</td>
<td>6%</td>
<td>23</td>
<td>2</td>
<td>25</td>
<td>15</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Poisoning</td>
<td>4.5%</td>
<td>15</td>
<td>3</td>
<td>18</td>
<td>11</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>Undetermined</td>
<td>4%</td>
<td>14</td>
<td>2</td>
<td>16</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>Asphyxia</td>
<td>4%</td>
<td>9</td>
<td>6</td>
<td>15</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>Anaphylactic shock</td>
<td>0.5%</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Post mortem done</td>
<td></td>
<td>357+43=400</td>
<td>132+268=400</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Condition of dead body</th>
<th>No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fresh</td>
<td>387</td>
<td>Body was warm in 73 cases, Post mortem staining was not fixed in 282 cases and rigor mortis was fully developed in 32 cases</td>
</tr>
<tr>
<td>2</td>
<td>Putrefied</td>
<td>13</td>
<td>3 dead bodies were partially showing adipocere formation 7 cases showing marbling and maggots were present in 3 dead bodies</td>
</tr>
<tr>
<td>3</td>
<td>Bullet recovered from the dead body</td>
<td>123 cases</td>
<td>Cause of death was a rifled weapon</td>
</tr>
<tr>
<td>4</td>
<td>Pallets / shots recovered</td>
<td>29</td>
<td>Firearm injury by smooth bore weapon</td>
</tr>
<tr>
<td>5</td>
<td>No bullet or shot recovered on autopsy</td>
<td>133 cases</td>
<td>Cause of death was firearm injury confirmed from empty cartridge found on spot, wound of entry / exit, blackening, corona formation tattooing, flame effect or beveling present or not</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Age</th>
<th>Sex</th>
<th>Cause of death</th>
<th>Mode of death</th>
<th>Laboratory report &amp; Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 years</td>
<td>male</td>
<td>Throttling</td>
<td>Asphyxia</td>
<td>Semen present in the anal swab (sodomy)</td>
</tr>
<tr>
<td>2</td>
<td>11 years</td>
<td>male</td>
<td>Garroting</td>
<td>Asphyxia</td>
<td>Semen present in the anal swab (sodomy)</td>
</tr>
<tr>
<td>3</td>
<td>12 years</td>
<td>male</td>
<td>Gagging</td>
<td>Asphyxia</td>
<td>Semen present in the anal swab (sodomy)</td>
</tr>
<tr>
<td>4</td>
<td>4 years</td>
<td>male</td>
<td>Drowning in sewerage drain</td>
<td>Asphyxia</td>
<td>Color of post mortem staining was greenish (this color was due to hydrogen disulphide also called sewerage gas)</td>
</tr>
</tbody>
</table>
DISCUSSION

Trauma and chemicals (poisons) are mostly the cause of unnatural death. In our study in more than 70% cases, trauma was caused by the use of the most modern weapons like firearm. This result was comparable with the studies done earlier on this topic. Road traffic accidents were the cause of unnatural death in 10% cases. The cause of unnatural death in 20% cases was found to be a chemical (poisons) or by forceful stoppage of the process of breathing by holding the neck by use of one or both hands or by a rope or closure of nose or oral cavity by using pillow or a plastic shopper or by drowning. This is easy method to dispose off any one within seconds as no weapon is needed and in most of cases it provides sufficient time to the culprit to escape and victim is not able to shout or call for help. The victim is unable to resist when he is under the effect of a drug, is physically weak or during sleep or when attacked all of a sudden from behind or when more than two culprits are involved. In a case with history of drowning in sewerage water the color of post mortem was greenish and was in favor of drowning in sewerage drain.

**Autopsy is** (1) external and (2) internal.

External autopsy is with dress and without dress. Thorough examination of the dress provides information like any rent or tear or stain present on dress in addition to age, sex and profession of the victim and the tear if present whether it correspond with the injury or not. Dress is usually spared in suicidal cases and the tear present in the dress may not correspond with the wound in fabricated or self inflicted injuries. The forensic science laboratory can answer the questions whether the stain present on dress is due to semen, urine, vomits or blood and whether red colored stain on dress is due to blood or red ink and if it is due to blood then whether blood is human or of animal origin and whether this is of the victim or of the assailant. Presence of motile or dead sperms in the anal or vaginal swab prove that it is a case of sexual assault and DNA test will help in the identification of the culprit.

Results are comparable with the previous studies done in Peshawar on this topic. In Pakistan Police is the in charge of dead body and is the investigating authority about death whether it is natural or unnatural. Death may be unnatural but if the concerned police station head officer (SHO) is satisfied that death is natural then he can issue order for burial of the dead. In case of suicide as no one is to be punished so no further investigations are required. Death may be natural but concerned SHO is not satisfied so he will ask the medical authority for autopsy thus increasing the workload of hospitals. People avoid autopsy of their near and dear ones and aim is to save time and money by avoiding lengthy court procedures so the actual number of unnatural deaths is much more than the cases referred for postmortem.

**CONCLUSION**

This study will help the policy makers in controlling all the preventable causes of death by improving social justice, education especially the religious education, by improving socioeconomic condition of people and by providing better psychiatric treatment facilities. Islam teaches us that do not loose temper on minor things, respect the social rights of others, avoid drugs of addiction, be sympathetic to juniors and respectful to the seniors and above all trust in GOD and never be disappointed.

**REFERENCES**

3. Firearm injuries a study of 150 cases, Pakistan journal of Medical and Health Sciences 04/2012;6(2);438-440. Arif Rasheed Malik King Edward Medical University, Muhammad Amjad Bhatti, Muhammad Almigr Rana, Attiya Mubarak Khalid.
6. Medicolegal investigation of violent asphyxial deaths - an autopsy based study, Tirmizi SZ, Mirza FH, Paryar HA , J Dow
Inferior dislocation of the IOL in the Posterior Segment

An 83 years old gentleman presented with sudden painless loss of VA in his Lt eye (down to CF). 6 years ago he had undergone uncomplicated cataract surgery in this eye. Examination showed a quiet AC with tremulous iris and fundus examination showed inferior dislocation of the IOL. Dislocated IOLs in the posterior segment can be remarkably well tolerated for extensive periods. I have witnessed one patient who had not one but two dislocated IOLs in the posterior segment and carried on very well with aphakic contact lens for up to 10 years. PMMA do no damage to retina, if left there for years. The patient then became very troubled from the lens edge effect of one of these IOLs and I proceeded to remove both.

Curtesy:
CDr. Imran Akram, FRCS
Pre-operative Pregabalin for Pain relief after Modified Radical Mastectomy (MRM) for Carcinoma Breast

Mujeeb-ur-Rahman FCPS1, Sarzamin Khan MBBS2, Muhammad Asim Khan3
Hussain Jan MBBS4, Prof. Rooh-ul-Muqim FCPS, FMAS5
Surgical E Unit, Khyber Teaching Hospital, Peshawar

ABSTRACT
Objective: To evaluate the efficacy of Pre-operative Pregabalin for pain relief after modified radical mastectomy for carcinoma breast.

Study Design: Descriptive Case Series

Setting & Duration: Department of General Surgery, Khyber Teaching Hospital, Peshawar from April 01, 2014 to September 30, 2015.

Materials & Methods: A total of 132 women diagnosed with carcinoma breast and scheduled for modified radical mastectomy (MRM) who fulfilled inclusion criteria were selected for the study in a consecutive manner. The patients were subjected to MRM with perioperative Pregabalin used and follow up observations were recorded for post-operative pain.

Results: The mean age group of patients in our study was 62 ± 7.8 years. Most of the patients were in the age group above 55 years. Mean postoperative visual analogue scale (VAS) score was 3.09 ± 1.4 with efficacy of Pregabalin as observed was 65.9%. Failure of pain relief happened in 34.1 % of the patients.

Conclusion: The study concludes that Pregabalin has an overall good efficacy statistics for pain relief after modified radical mastectomy (MRM) for carcinoma breast.

Key Words: Pain, Carcinoma Breast, Modified Radical Mastectomy, Pregabalin, Visual Analogue Scale (VAS).

INTRODUCTION
Breast cancer is the most common cause of death in middle-aged women. In 2004 approximately one and a half million new cases were diagnosed world wide. In Pakistan approximately one in every nine Pakistani women is likely to suffer from breast cancer, the incidence in Pakistani women is being 50/100,000. Modified radical mastectomy (MRM) is the most common procedure for operable breast cancer, stage I and II. Several studies have shown that persistent pain after treatment for breast cancer is a common problem, ranging between 25% and 60% depending on measurement, and methods of treatment. The term refers to pain in and around the area of surgery lasting beyond three months after surgery when all other causes of pain such as recurrence have been ruled out. Persistent pain after treatment has a considerable negative influence on quality of life in breast cancer survivors and carries important economic consequences for the healthcare system. The factors that influence the development of postoperative pain are yet to be elucidated. Studies have shown that optimal management of acute post-operative pain may influence the ultimate development of chronic pain.

Pregabalin has an overall good efficacy for relief of pain after MRM for carcinoma breast. It may have good results if used in combination with other drugs, which more studies.

Since moderate to severe postoperative pain is a frequent occurrence after surgery, novel drugs such as Gabapentin and Pregabalin in addition to traditional opioids are administered with the aim of providing superior pain relief at rest and with movement, reducing opioid consumption and opioid-related adverse effects. Studies indicate that both of Pregabalin and Gabapentin have been proven to be meaningfully effective at reducing acute postoperative pain. A recent study concluded that Pregabalin reduces post operative pain after mastectomy.

The current study aims to determine the efficacy of perioperative Pregabalin for relieving pain after MRM for carcinoma breast. This study will be first of its kind in our local population undergoing MRM for Ca Breast. The result of this study will be shared with other local surgeons to encourage further research and to reach some good result for pain relief after MRM.
Pregabalin (3-isobutyl γ- amino butyric acid) is an analog of the major inhibitory neurotransmitter (GABA), but it is not related functionally to it. Like Gabapentin, several times more potent, pregabalin binds pre-synaptically to the α2δ subunit of voltage-sensitive calcium channels, what reduces depolarization-induced calcium influx and release of excitatory neurotransmitters glutamate and norepinephrine. Preoperative administration of a single dose of pregabalin has been shown in few clinical trials to have similar beneficial effects in terms of reduction of postoperative pain scores, anxyolysis and reduction of the consumption of rescue analgesics.

Upon binding to calcium channels, Pregabalin reduce the release of excitatory neurotransmitters to inhibit central sensitization and potentially reducing hyperalgesia.\(^2^9\) However, reports on the efficacy and adverse effect profile of Pregabalin have been conflicting.\(^2^4,2^5,2^6\) Currently, evidence of Pregabalin use for improved analgesia after breast surgery is limited\(^2^3,2^6\) with only few of those reports relating specifically to breast cancer.\(^3^0\) Among these studies Pregabalin has shown varying effectiveness at improving analgesia and decreasing opioid consumption while limiting side effects. There are also discrepancies among these studies about the total dose of Pregabalin and the timing of administration. Accordingly, the optimal timing and dose of Pregabalin administration for pain management, reducing opioid consumption, and patient well-being are unclear.

Current literature also describes a weak relationship between Pregabalin treatment and the intensity of postoperative pain as well as oxycodone consumption. Perhaps some of this inconsistency can be attributed to variability in timing and dosage of Pregabalin administration as well as measurement techniques. While higher doses of Pregabalin have demonstrated lower pain scores and opioid consumption, they have been associated with increases in adverse events.\(^2^7,3^0,3^1\)

**MATERIALS & METHODS**

This descriptive case series study was carried out on 132 women diagnosed with Ca breast and planned for modified radical mastectomy (MRM) in a consecutive manner in department of General Surgery, Khyber Teaching Hospital, Peshawar from April 01, 2014 to September 30, 2015. Prior permission of the hospital ethical and research committee was obtained. All females of age group from 20 to 80 years of the hospital admission were included in the study. Patients with bleeding disorder, clinically advanced cancers (stage III & IV) and who had history of diabetes or Body Mass Index of ≥ 25 were excluded. All the patients were admitted through out patients clinic for the elective procedure. The purpose and benefits of the study was explained to all the patients and a written informed consent was obtained. Detailed history was taken along with careful scrutiny of past medical and surgical records to avoid confounds and possible bias in the study results. Staging was done with the help of clinical examination and CT Scan. Stage I (T\(_{1}\)N\(_{0}\)M\(_{0}\)), Stage IIA (T\(_{2}\)N\(_{0}\)M\(_{0}\) T\(_{0}\)N\(_{1}\)M\(_{0}\) T\(_{1}\)N\(_{0}\)M\(_{0}\)) and Stage IIB (T\(_{2}\)N\(_{0}\)M\(_{0}\) T\(_{2}\)N\(_{0}\)M\(_{0}\)) were included in the study.

All the included patients were subjected to MRM by expert general surgeons. Pregabalin 150mg was given 1 hour before surgery and repeated 12 hours after initial dose in every patient. After surgery all the women were kept under observation for next 48 hours and visual analogue scores(0-10) for pain were measured at 48th post surgical hour to determine the efficacy of Pregabalin. Pain was graded as; no pain (VAS 0), mild pain (VAS 1-3), moderate pain (VAS 4-7) and severe pain (VAS 8-10). Pregabalin was considered effective in patients either with No pain or Mild pain. All the above mentioned information plus name, age, address were recorded on a pre-designed proforma. The data was entered into and analyzed by statistical software, SPSS (version 10) and results were drawn.

**RESULTS**

The mean age of the women was 62 ± 7.8 years with a range of 49-72 years (Table 1). We divided the age in 4 different groups. In age group up to 50 years we had 12.9% of women, in 50 to 60 years age group. We had 20.5% women, in age group 61 to 70 years we had 40.2% women and in the age group 70 years and higher we had 26.5% of women (Table 2).

**Table 1:** Mean age of the sample (n = 132)

<table>
<thead>
<tr>
<th>Age of the patient</th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>132</td>
<td>49.00 – 72.00</td>
<td>49.00</td>
<td>72.00</td>
<td>62.00</td>
<td>7.70866</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2:** Age categories of the sample (n = 132)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50 years</td>
<td>17</td>
<td>12.9</td>
</tr>
<tr>
<td>50 to 60 years</td>
<td>27</td>
<td>20.5</td>
</tr>
<tr>
<td>60 to 70 years</td>
<td>53</td>
<td>40.2</td>
</tr>
<tr>
<td>70 years &amp; above</td>
<td>35</td>
<td>26.5</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 3:** Pain categories of the sample (n = 132)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td>72</td>
<td>72.0</td>
</tr>
<tr>
<td>Mild pain</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Preoperative Pregabalin was utilized in all women subjected to MRM for carcinoma breast. After surgery, all the women were followed up at 48th post operative hour. At this point, the mean visual analogue scale was observed to be 3.09 ± 1.4 (Table 3) On categorizing the pain as per visual analogue scale, we observed that no patient lied in the grade 0 category (VAS 0), 65.9% of patients lied in the grade 1 category (VAS 1-3) and 34.1% of patients were found in grade 2 category (VAS 4-7). (Table 4) As per our definition of efficacy, efficacy of Pregabalin was observed in 65.9% of patients and failure in 34.1% of patients. (Table 5)

We stratified the efficacy of Pregabalin with regards to age groups and found that as the age advances, the efficacy of Pregabalin decreases, which may also be due to more functional effect of surgery, rather than less efficacy of Pregabalin itself (Table 6).

### DISCUSSION

Several studies have shown that persistent pain after treatment for breast cancer is a common problem depending on definition, measurement, and methods of treatment. The term refers to pain in and around the area of surgery lasting beyond three months after surgery when all other causes of pain such as recurrence have been ruled out. Persistent pain after treatment has a considerable negative influence on quality of life in breast cancer survivors and in general has important economic consequences for the health care system. Many potential pre-intra and postoperative risk factors for persistent pain after treatment for breast cancer have been proposed, including young age, pain elsewhere in the body, radiotherapy, and the extent of axillary surgery. Only a few studies, however, have looked at persistent pain in patients five and more years after primary surgery, leaving questions on the natural course of such pain.

Previous chronic pain of any kind is known to be a potential risk factor for persistent pain after other types of surgery. One retrospective study has suggested that women with chronic pain are more likely to develop postsurgical pain after breast cancer surgery. Chronic pain is a common problem and often unnoticed in health care. Previous chronic pain can predispose to persistent post surgery pain through multiple mechanisms, including shared genetic and psychosocial factors. It is also possible that chronic pain may sensitize the pain system facilitating the development of chronic pain after new injury.

The prevalence of persistent post surgical pain (PPSP) three months after surgery for breast cancer (lumpectomy with or without axillary dissection, simple mastectomy or modified radical mastectomy) is 48%. The prevalence of PPSP three months after mastectomy or breast tumor resection with axillary clearance is between 58% and 80%. Greater preoperative ‘state’ scores on the Spielberger State-Trait Anxiety Index (STAI), but neither Beck Depression Inventory (BDI) scores nor Hamilton Depression and Anxiety Rating Scale (HDARS) scores, predict increased risk of clinically meaningful acute pain persisting from 2 to 30 days following breast surgery. Our results suggest that preoperative Pregabalin is effective in reducing pain postoperatively in 65.9% of patients. This is consistent with some previously published Pregabalin research in breast and related surgeries. In one study, the overall mean pain scores at rest were lower in the Pregabalin group than the placebo group at 48 hours post-operatively (P<0.05) and overall efficacy for relieving pain after mastectomy was found to be
78.6% (pain score less than 3 on visual analogue scale). 32 Although these findings are contrary to some reports of limited or no benefit. 25, 27, 28

Current literature also describes a weak relationship between Pregabalin treatment and the intensity of postoperative pain as well as oxy codone consumption. Perhaps some of this inconsistency can be attributed to variability in timing and dosage of Pregabalin administration as well as measurement techniques. While higher doses of Pregabalin have demonstrated lower pain scores and opioid consumption, they have been associated with increases in adverse events. 27, 30, 31 The apparent failure of Pregabalin to improve pain in 34.1% of patients in the current study conflicts with numerous previous reports of improvements in those outcomes with pregabalin. 24, 26, 32 Further, Chaparro et al 33 posit the feasibility of a publication bias towards positive Pregabalin trials and suggest an influence of such partiality on the existing view of Pregabalin therapy. They direct the reader toward three currently unpublished negative trials supported by Pfizer.

Pregabalin is perhaps perceived to have successfully replaced its predecessor, gabapentin, as a potent non-opioid analgesic with a role in multimodal analgesia regimens. While a review of the pharmacokinetics and pharmacodynamics of both drugs has indicated some advantages of Pregabalin, very limited data currently exists comparing the two directly. 33 In an investigation comparing the analgesic efficacy of Pregabalin to gabapentin after hysterectomy, Ghai et al 34 reported that Pregabalin was superior in terms of reducing postoperative analgesic requirements and time to first request for analgesia. In 2012, the same group analyzed the impact of Pregabalin and gabapentin on preoperative anxiety and sedation in women having a hysterectomy and found that Pregabalin is a better anxiolytic and sedative than gabapentin. 34

CONCLUSION

Pregabalin displayed an overall good efficacy statistics for pain relief after MRM for carcinoma breast. More research may be required to generate solid evidence specially if used in combination with other drugs.

REFERENCES

Effect of Grand Multiparity on Fetal Outcome in the Presence of adequate Antenatal Care

Nadia Rashid Khan FCPS1, Aisha Arif FCPS2, Saima Ayub MBBS3
Saima Perveen FCPS4, Rukhsana Malik MBBS5

ABSTRACT

Objective: To find out the effect of grand multiparity on fetal outcome in presence of adequate antenatal care.

Study Design: Cross Sectional Study.

Place & Duration of Study: Gynecology Department Lady Reading Hospital Peshawar from 1st June 2012 to 1st December 2012.

Methodology: All booked grandmultipara with singleton pregnancy at term admitted to Gynae A Unit, Lady Reading Hospital Peshawar were included in the study. Evaluation was done by detailed history, general physical examination, perabdominal and pervaginal examination and by obstetrical ultrasound. The fetus was assessed for antenatal complications, obstetrical complications, mode of delivery and post-partum complications.

Results: A total of 50 patients were included in the study. All 50(100%) of babies were alive. Birth weight of babies was analyzed as 38(76%) of babies had normal birth weight of 2.5-4 kg, 2(4%) of babies had birth weight of <2.5 kg, 5(10%) babies were macrosomic (overweight) and had birth weight more than 4 kg. 2(4%) new born had Apgar Score of <6 and 48(96%) new born had Apgar Score of >6. 5(10%) neonates were admitted in neonatal unit and 45(90%) neonates were not admitted in neonatal unit.

Conclusion: Grandmultiparity is still a major obstetrics hazard in our setup with its associated increased likelihood of perinatal complications even in the presence of adequate antenatal care.

Key words: Grand multiparity, fetal outcome, antenatal care.

INTRODUCTION

Grand multiparous is the term applied to any women having more than 5 children.1 It is often considered a clinical entity as pregnancy and delivery in grandmultiparas are at higher risk due to poor antenatal care and advanced maternal age.2

In developing countries obstetricians are very much anxious about grand multiparity as they are working with inadequate facilities. The grand multipara has almost disappeared in western countries due to advancement of family planning but this problem still exists in developing countries.3 Grand multiparity tends to be more common in low socio economic group.

Grand multiparity is associated with serious consequences to mother, fetus, family and whole society.2 It is considered as a dangerous and high risk clinical entity, as certain complications during the pregnancy, labour and the puerperium are thought to occur with an increased incidence in these women. In terms of the minimal risk concept: the safest babies to have are the second, third and the fourth. The hazards are greater for women in their fifth pregnancy and onwards. Some complications that are classically associated with grand multiparas include abruptio placentae, placenta previa, postpartum haemorrhage, ruptured uterus, macroscopic babies and anaemia.4

Grandmultiparity is a major obstetric hazard in our setup with associated perinatal complications even in the presence of adequate antenatal care. Shorter pregnancy interval, poverty, poor diet, inadequate health care, increase incidence of age related risks and fetal macrosomia (over weight), all predispose grand multiparas to increase hazards.

Pregnancy and delivery in these patients are at high risk due to closely spaced pregnancies, poor antenatal care, advancing maternal age, inadequate diet intake, inadequate health services and lack of effective contraception.2

Grand multiparity should be considered as a high risk pregnancy owing to and need active intervention
by increasing awareness about antenatal care program, improving literacy rate, controlling the fertility rate by safe and effective contraception, reproductive health status and by providing efficient health care facilities to these women at door step.\(^4\) With access to modern medical care and hospital delivery a favorable outcome can be achieved despite a low socio economic status. Pregnancy and labour should be closely supervised and early intervention arranged if it is not progressing smoothly.\(^4\)

**METHODOLOGY**

All booked grand multiparous mother of any age, with singleton pregnancy at term, free of medical disorders admitted to Gynae A Unit, Lady Reading Hospital Peshawar, were included in the study, patients were booked at antenatal clinic, patients with congenital abnormality, with multiple pregnancies, and with pregnancy of less than 28 weeks were excluded from the study. Evaluation was done by detailed history, general physical examination, per abdominal and per vaginal examination and by obstetrical ultrasound. Data was collected on proforma. The patients were assessed for antenatal complications, obstetrical complications, mode of delivery, post partum complications. The data was entered into SPSS version 10.0. Mean and Standard deviation was being computed for numerical variables like age where as frequencies and percentage was calculated for categorical variables. All the results were presented in the form of tables.

**RESULTS**

Age distribution was analyzed as n=39(78%) patients were found in age ranged 31-40 years and n=11(22%) patients were found in age ranged 20-30 years. Mean age was 34 years with standard deviation ± 3.78. (as shown in Table No 1).

Mode of delivery was analyzed as n=35(70%) had vaginal delivery, n=10(20%) patients had caesarean section and only n=5(10%) patients had vacuum delivery. (as shown in Table No 2). Perinatal outcome was analyzed as n=50(100%) of babies were alive. Birth weight of babies were analyzed as n=38(76%) of babies had normal birth weight of 2.5-4 kg, n=2(4%) of babies had birth weight of <2.5 kg and n=5(10%) babies were macrosomic had birth weight more than 4 kg. (as shown in Table No 3).

APGAR score in 5 minutes was observed as n=2(4%) new born had Apgar Score of <6 and n=48(96%) new born had Apgar Score of >6. (as shown in Table No 4).Admission to neonatal unit was noted as n=5(10%) neonates were admitted in neonatal unit and n=45(90%) neonates were not admitted in neonatal unit (as shown in Table No 5).

**DISCUSSION**

Grand multiparity has been considered to be an obstetric hazard both for a mother and fetus. The overall incidence is between 10-30% with higher rates in developing countries where there is large family norm and poor acceptance of family planning methods.\(^5,6\) Various hazards are associated with grandmultiparity including fetal mal-presentation, abruptio placenta, placenta previa, post-partum haemorrhage.\(^2\) The incidence of hypertensive disorders, macrosomic infants is also high. Due to associated risk of grandmultiparity maternal and foetal morbidity and mortality are also increase in these women.\(^4\)

Grand multiparas women are significantly older than women with low parity. The incidence of grandmultiparas at 31-40 years of age was 91.3 in study performed by Shamshad Begum\(^7\) while incidence in

---

**Table No. 1: Age Distribution (N=50)**

<table>
<thead>
<tr>
<th>Age Distribution</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 Years</td>
<td>11(22%)</td>
</tr>
<tr>
<td>31-40 Years</td>
<td>39(78%)</td>
</tr>
<tr>
<td>&gt;40 Years</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
<tr>
<td>Mean and Standard deviation</td>
<td>34 years ± 3.78</td>
</tr>
</tbody>
</table>

**Table No. 2: Mode of Delivery(N=50)**

<table>
<thead>
<tr>
<th>Mode of Delivery</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forcep Delivery</td>
<td>0(0%)</td>
</tr>
<tr>
<td>Vacuum Delivery</td>
<td>5(10%)</td>
</tr>
<tr>
<td>Caesarean Section</td>
<td>10(20%)</td>
</tr>
<tr>
<td>Vaginal Delivery</td>
<td>35(70%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>

**Table No. 3: Baby's Weight(N=50)**

<table>
<thead>
<tr>
<th>Baby's Weight</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macrosomic Babies&gt;4 Kg</td>
<td>5(10%)</td>
</tr>
<tr>
<td>Low Birth Weight &lt;2.5 Kg</td>
<td>2(4%)</td>
</tr>
<tr>
<td>Normal Birth Weight</td>
<td>38(76%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>

**Table No. 4: Apgar Score (N=50)**

<table>
<thead>
<tr>
<th>Apgar Score</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 at 5 Minutes</td>
<td>2(4%)</td>
</tr>
<tr>
<td>&gt; 6 at 5 Minutes</td>
<td>48(96%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>

**Table No. 5: Admission in Neonatal Unit(N=50)**

<table>
<thead>
<tr>
<th>Admission in Neonatal Unit</th>
<th>Booked cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted</td>
<td>5(10%)</td>
</tr>
<tr>
<td>Not Admitted</td>
<td>45(90%)</td>
</tr>
<tr>
<td>Total</td>
<td>50(100%)</td>
</tr>
</tbody>
</table>
my study was 78%. This reveals an older age profile in grandmultiparas.

Various fetal mal-presentation are said to be common in grandmultiparas. Reduced tone of abdominal muscles, pendulous belly, fetal size and congenital abnormalities are usually suspected as causative factors. Failure to predict and manage these mal-presentations directly affect the outcome of labor as a results of obstructed labor and operative delivery which increases perinatal morality, maternal morbidity and mortality. The incidence of mal-presentations in the study performed by Rajamajhi R et al was 9% in booked patients while in my study incidence of mal-presentation was 10%.

Obstructed labour results from failure of descent of fetal presenting part in the birth canal for mechanical reasons in spite of good uterine contraction. Cephalo-pelvic disproportion, mal-presentation, mal position and fetal congenital abnormalities are important risk factors for obstructed labour. Failure to predict and manage these mal-presentations directly affect the outcome of labor as a results of obstructed labor and operative delivery which increases perinatal morality, maternal morbidity and mortality. The incidence of mal-presentations in the study performed by Rajamajhi R et al was 9% in booked patients while in my study incidence of mal-presentation was 10%.

Obstructed labour results from failure of descent of fetal presenting part in the birth canal for mechanical reasons in spite of good uterine contraction. Cephalo-pelvic disproportion, mal-presentation, mal position and fetal congenital abnormalities are important risk factors for obstructed labour. Failure to predict and manage these mal-presentations directly affect the outcome of labor as a results of obstructed labor and operative delivery which increases perinatal morality, maternal morbidity and mortality. The incidence of mal-presentations in the study performed by Rajamajhi R et al was 9% in booked patients while in my study incidence of mal-presentation was 10%.

In our study vaginal delivery were 70%, cesarean section 20% and vacuum delivery 10%. Rayamajhi R et al found in their study that 73.5 % of grandmultiparas had spontaneous vaginal delivery and 5.6% had instrumental delivery and 15.1 % underwent caesarean section. Similarly the study done by Shamshad Begum shows that 50% deliveries were spontaneous vaginal, 1.6% outlet forceps deliveries and 21.6 % were caesarean section.$^8$

In grand multipara perinatal outcome is influenced by all those factors which adversely affect pregnancy and labor and put them in group of dangerous multiparas. Our study shows that all 100% babies were alive and no baby was dead. Study performed by Rayamajhi R et al shows 95.5% babies were alive in booked patients while 4.5% babies were dead thus both results are comparable.$^10$

Our study shows that 76% of babies had 2.5-4 Kg of birth weight and 10% were macrosomic had more than 4kg birth weight. This is comparable with the study of Shamshad Begum in which in booked patients group 75% had 2.5 -4 kg and 9% has more than 4 kg birth weight.$^7$

Our study shows that APGAR score <6 at 5 minutes was low in 4% patients and > 6 at 5 minutes as high in 96% patients same results compared with the study of Shamshad Begum in which in booked patients group APGAR score <6 at 5 minutes was low in 5% patients and > 6 at 5 minutes as high in 95% patients.$^7$

In our study incidence of admission to neonatal unit was 5%. Almost all admissions were due to birth asphyxia which is comparable to incidence of birth asphyxia of 4.58% in booked patients in study performed by Rayamajhi R et al.$^10$

**CONCLUSION**

Grandmultiparity is still a major obstetrics hazard in our setup with its associated increased likelihood of perinatal complications even in the presence of adequate antenatal care. Shorter pregnancy interval, poverty, poor diet, inadequate health care, increase incidence of age related risks and fetal macrosomia all predispose grand multiparas to increase hazards.

**REFERENCES**

ABSTRACT

Objective: To study the efficacy of solifenacin for treatment of overactive bladder in women in terms of frequency to urinate
Study Design: Randomized Controlled Trial (RCT).
Study Duration: Study was conducted from 15th July 2015 to 1st March 2016.
Sample Size: Sample size of the study was 50 patients in each two groups.
Sampling Technique: Non probability consecutive sampling.
Methodology: Appropriate investigations of all the patients were performed. Patients were assigned to the two study groups by blocked randomization. Group A was received tab. Ibret folic OD and group B was received Solifenacin 5mg OD plus tab. Ibret folic OD. Both groups were received the treatment for 04 weeks. Data was collected by using structured proforma. Mean age of the patients were 35.78±9.202 ranging from 20 to 50 year of age and mean age in both groups was 37.54±9.679 ranging from 20 to 50 years in Placebo and 34.08±8.535 ranging from 20 to 50 years in Solifenacin group, out of total 100 patients.

Results: Frequency of urinate from waking in the morning until sleeping at night in placebo group was, 7 or less time was 18(36.0%), 8-14 time 19(38.0%) and 15 or more time was 13(26.0%) while in Solifenacin group was 7 or less time was 13(26.0%), 8-14 time 25(50.0%) and 15 or more time was 12(24.0%) out of 50 patients in each group. Frequency of urinate from sleeping at night until waking in the morning in placebo group was, 0 time 13(26.0%), 01 time 6(12.0%), 02 time was 15(30.0%) and 3 or more time 16(32.0%) while in Solifenacin group was group was, 0 time 14(28.0%), 01 time 12(24.0%), 02 time was 12(24.0%) and 3 or more time 12(24.0%) out of 50 patients in each group. Frequency distribution of efficacy in placebo groups was 18(36.0%) and in Solifenacin group was 32(64.0%) out of 50 patients in each group with chi-square 5.769 and P-value 0.016 Frequency distribution of efficacy between age group was 28(52.8%) in 20 to 35 years and 20(42.6%) in 36 to 50 years out of 100 patients.

Conclusion: solifenacin was clinically effective for relieving OAB symptoms, considering the balance between efficacy, patients’ well-being, and tolerability and integrates four OAB symptoms into a single score and can be a useful for research and clinical practice.

INTRODUCTION

Overactive bladder is a symptom syndrome, which is defined by International Continence Society in its standardization of terminology report as comprising of urinary urgency with or without urge incontinence, usually with frequency and nocturia, in the absence of local or metabolic factors explaining these findings. The prevalence of OAB symptoms estimated in a European study among men and women ≥40 years age was 16.6%. Symptoms suggestive of an OAB often have a profound negative influence on the quality of life. Overactive Bladder symptom combinations are suggestive of urodynamically demonstrable detrusor over-activity, but can be due to other forms of urethrovessical dysfunction. The term overactive bladder can be used if there is no proven infection or other obvious pathology. In the current International Continence Society (ICS) definition of the OAB syndrome, urgency is an obligatory component. This is in line with the opinion regarding the importance of urgency as the driving force behind the other components, frequency, nocturia, and incontinence.

Solifenacin was clinically effective for relieving Overactive Bladder symptoms in view of its efficacy, patients’ well-being and tolerability and integrates four OAB symptoms into a single score and can be a useful drug in clinical practice.

Several studies have described the considerable healthcare costs associated with urinary incontinence. The OAB syndrome is a common symptom complex that affects millions of people worldwide, with an increasing prevalence with increased age. Studies have indicated that OAB has a more negative influence on health-related quality of life than diabetes mellitus,
hypertension or asthma and affects the quality of life of more men and women than depression. In the USA, the estimated total economic cost of OAB was 12.0 billion dollars in 2000. Studies have reported that urinary incontinence alone accounts for approximately 2% of healthcare costs in Sweden.

Drugs recently developed have been subjected to assessment in randomized clinical trials against placebo or in some cases, in head to head comparisons between major competitors in the market. Several antimuscarinic drugs are being currently marketed for the treatment of OAB: oxybutynin, Tolerodine, propiverine, trospium, darifenacin, solifenacin, flavoxate and fesoterodine. Studies done in recent past show that about (62%) improvement in solifenacin group vs (37%) improvement in placebo for Overactive Bladder Symptoms Score. However, a study in US showed that the drugs available for the treatment of OABS in women showed a small degree of improvement in the symptoms and the adverse effects were so significant that they forced the patient to discontinue the therapy. It is this conflict of results that persuaded us to carry out this study.

This study would determine more helpful medical therapy for the treatment of patients of OAB symptoms and decrease the associated sufferings. It would aid in better relief of these patients in terms of their symptoms as well as the economy by exploring relatively cheaper combinations.

MATERIAL & METHODS

Study Setting: The study was conducted in the Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar. A good amount of elective and emergency operations are performed daily. It provides both undergraduate and postgraduate teaching facility. Hospital, drains patients from widespread area i.e. from Afghanistan to extreme south of KPK.

Study Design: Randomized Controlled Trial (RCT)

Study Duration: Study was conducted from 15th July 2015 to 1st March 2016.

Sample Size: Sample size of the study was 50 patients in each two groups.

Sampling Technique: Non probability consecutive sampling.

SAMPLE SELECTION:

Inclusion criteria:
1. Women up to 20-50 years of age.
2. Patient presenting with at least one episode of urinary urgency per week with or without urinary incontinence, urinary frequency at least 7 times daily, nocturia at least 1 episode per night (baseline OABS is ≥3).
3. Duration of symptoms for more than 03 months.

Exclusion criteria:
1. Any underlying cause of over active bladder i.e. Diabetes mellitus, hypertension or obesity.
2. Lower urinary tract symptoms due to any underlying cause i.e. bladder stones, UTI.
3. Post micturation residual urine volume ≥150 ml.
4. Stress incontinence.
5. Known previous pelvic irradiation, or previous or current malignant disease in the pelvic organs.
6. Any medical condition contraindicating the use of antimuscarinic medication (including narrow angle glaucoma and urinary or gastric retention).
7. Neurological conditions (e.g. multiple sclerosis, spinal injury, Parkinson disease, diabetic neuropathy).
8. History of acute urinary retention requiring catheterization.
9. Women of childbearing potential who were pregnant or nursing, intending to become pregnant during the study, or who were not using reliable contraceptive methods were ineligible.
10. Use of drugs intended to treat incontinence, use of any drugs with cholinergic or anticholinergic side effects
11. Pelvic organ prolapse.

DATA COLLECTION PROCEDURE

Steps of Data Collection: After approval from the hospital ethical committee, patients were seen in Urology OPD fulfilling inclusion criteria were recruited for the study. Their detailed history, Physical examination was done to follow strictly the exclusion criteria and control confounders. Appropriate investigations were performed when needed like ultrasound of abdomen and pelvis, for kidney, ureter, bladder, post micturation residual volume, retrograde urethrogram, micturating cystourethrogram, magnetic resonance imaging etc. Written informed consent was taken from the participants before participating in the study. Pretreatment urgency score was calculated and patients assigned to the two study groups by blocked randomization in order to ensure equal allocation owing to the small sample size. Group A received Ibret folic OD and group B received Solifenacin 5mg OD plus tab. Ibret folic OD, Both groups received the treatment for 04 weeks and were called for follow up visit at 04 weeks. Data was collected by using written structured proforma.

Data Analysis Procedure: Data was analyzed by using a computer software SPSS version 10.0. Mean ± SD was calculated for numerical variables like age, baseline OABS scores and change at follow up visit.
Frequencies and percentages were calculated for categorical variables like efficacy. Stratified analysis of outcome variable by age was done. All results were presented as tables and graphs. A change of at least 3 OABs score after treatment was considered as effective and statistical significance of difference in efficacy of both treatment groups were calculated by chi-square test at 5% significance level.

RESULTS
The study was conducted at Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar. A total sample of 100 patients was calculated and divided into two groups, 50 of patients in each two groups. Group A was given a tab. Ibret folic OD and group B was given Solifenacin 5mg OD plus tab. Ibret folic OD. Both groups were advised treatment for 4 weeks and were called for follow-up visit at 4th week to determine the efficacy of Solifenacin vs placebo after 04 weeks of treatment of overactive bladder in female patients.

Descriptive statistics of age of the patients: Mean age of the patients were 35.78±9.202 ranging from 20 to 50 year of age and mean age in both groups was 37.54±9.679 ranging from 20 to 50 years in Placebo and 34.08±8.535 ranging from 20 to 50 years in Solifenacin group, out of total 100 patients as shown in table 1.

Descriptive Statistics of Pre and Post treatment score:

Frequency of urinate from waking in the morning until sleeping at night in both groups:
Frequency of urinate from waking in the morning until sleeping at night in placebo group was 7 or less time was 18(36.0%), 8-14 time 19(38.0%) and 15 or more time was 13(26.0%) while in Solifenacin group was 7 or less time was 13(26.0%), 8-14 time 25(50.0%) and 15 or more time was 12(24.0%) out of 50 patients in each group as shown in table 3.

Frequency of urinate from sleeping at night until waking in the morning in both groups:
Frequency of urinate from sleeping at night until waking in the morning in placebo group was, 0 time 13(26.0%), 1 time 19(38.0%), 15 or more time was 12(24.0%) while in Solifenacin group was, 0 time 14(28.0%), 1 time 25(50.0%) and 15 or more time was 12(24.0%) out of 50 patients in each group as shown in table 4.

Frequency distribution of efficacy between age group:
Frequency distribution of efficacy between age group was 28(52.8%) in 20 to 35 years and 20(42.6%) in 36 to 50 years out of 100 patients with chi-square 1.054 and p-value 0.305 as shown in table 8.

<p>| Table 1: Descriptive Statistics of Age (years) of both groups |
|---|---|---|---|---|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) 100</td>
<td>20</td>
<td>50</td>
<td>35.78</td>
<td>9.202</td>
</tr>
<tr>
<td>Placebo (Ibret folic) 50</td>
<td>20</td>
<td>50</td>
<td>37.54</td>
<td>9.679</td>
</tr>
<tr>
<td>Solifenacin 50</td>
<td>20</td>
<td>50</td>
<td>34.08</td>
<td>8.535</td>
</tr>
</tbody>
</table>

<p>| Table 2: Descriptive Statistics of Pre and Post treatment score |
|---|---|---|---|---|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-treatment Score 100</td>
<td>0</td>
<td>2</td>
<td>1.07</td>
<td>0.537</td>
</tr>
<tr>
<td>Post-treatment Score 100</td>
<td>1</td>
<td>5</td>
<td>2.95</td>
<td>0.857</td>
</tr>
</tbody>
</table>

<p>| Table 3: Frequency of urinate from waking in the morning until sleeping at night in both groups (n=50 each group) |
|---|---|---|</p>
<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo (Ibret folic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 or less</td>
<td>18</td>
<td>36.0</td>
</tr>
<tr>
<td>8-14</td>
<td>19</td>
<td>38.0</td>
</tr>
<tr>
<td>15 or more</td>
<td>13</td>
<td>26.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
<tr>
<td>Solifenacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 or less</td>
<td>13</td>
<td>26.0</td>
</tr>
<tr>
<td>8-14</td>
<td>25</td>
<td>50.0</td>
</tr>
<tr>
<td>15 or more</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<p>| Table 4: Frequency of urinate from sleeping at night until waking in the morning in both groups (n=50 each group) |
|---|---|---|</p>
<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo (Ibret folic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>13</td>
<td>26.0</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>30.0</td>
</tr>
<tr>
<td>3 or more</td>
<td>16</td>
<td>32.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
<tr>
<td>Solifenacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>14</td>
<td>28.0</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>3 or more</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 5: Frequency of sudden desire to urinate which is difficult to defer in both groups (n=50 each group)

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo (Ibret folic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>not at all</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>less than once a week</td>
<td>15</td>
<td>30.0</td>
</tr>
<tr>
<td>once a week or more</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>about once a day</td>
<td>7</td>
<td>14.0</td>
</tr>
<tr>
<td>2-4 times a day</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>5 times a day or more</td>
<td>4</td>
<td>8.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
<tr>
<td>Solifenacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>not at all</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>less than once a week</td>
<td>4</td>
<td>8.0</td>
</tr>
<tr>
<td>once a week or more</td>
<td>13</td>
<td>26.0</td>
</tr>
<tr>
<td>about once a day</td>
<td>14</td>
<td>28.0</td>
</tr>
<tr>
<td>2-4 times a day</td>
<td>8</td>
<td>16.0</td>
</tr>
<tr>
<td>5 times a day or more</td>
<td>5</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 6: Frequency of leak urine because you cannot defer the sudden desire to urinate, in both groups (n=50 each group)

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo (Ibret folic)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>not at all</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td>less than once a week</td>
<td>14</td>
<td>28.0</td>
</tr>
<tr>
<td>once a week or more</td>
<td>14</td>
<td>28.0</td>
</tr>
<tr>
<td>about once a day</td>
<td>5</td>
<td>10.0</td>
</tr>
<tr>
<td>2-4 times a day</td>
<td>5</td>
<td>10.0</td>
</tr>
<tr>
<td>5 times a day or more</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
<tr>
<td>Solifenacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>not at all</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>less than once a week</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>once a week or more</td>
<td>16</td>
<td>32.0</td>
</tr>
<tr>
<td>about once a day</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>2-4 times a day</td>
<td>5</td>
<td>10.0</td>
</tr>
<tr>
<td>5 times a day or more</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 7: Frequency distribution of efficacy between both groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Efficacy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Placebo (Ibret folic)</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>36.0%</td>
<td>64.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Solifenacin</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>60.0%</td>
<td>40.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>48.0%</td>
<td>52.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Chi square</td>
<td>5,769</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.016</td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

The study was conducted at Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar, a total sample of 100 patients was calculated and divided into two groups 50 of patients in each two groups. Group A was given a tab. Ibret folic OD and group B was given Solifenacin 5mg OD plus tab. Ibret folic OD. Both groups were advised treatment for 4 weeks and were called for follow-up visit at 4th week to determine the efficacy of Solifenacin vs placebo after 04 weeks of treatment of overactive bladder in female patients. In our study the mean age of the patients were 35.78±9.202 ranging from 20 to 50 year of age and mean age in both groups was 37.54±9.679 ranging from 20 to 50 years in Placebo and 34.08±8.535 ranging from 20 to 50 years in Solifenacin group, out of total 100 patients. In this study Mean pretreatment score was 1.07±0.535 ranging from 0-2 and mean post treatment score was 2.95±0.857 ranging from 1-5 out of total 100 patients. The efficacy in placebo groups was 18(36.0%) and in Solifenacin group was 32(64.0%) out of 50 patients in each group. This medicine has also been found effective in a similar study.8

In our study urination from waking in the morning until sleeping at night, 7 or less time was 31(31.0%), 8-14 time 44(44.0%) and 15 or more time was 25(25.0%) out of 100 patients. In another study about 36.9% patients had unstable bladder which is close to our results.9 In this study urination from sleeping at night until waking in the morning, 0 time 27(27.0%), 01 time 18(18.0%), 02 time was 27(27.0%) and 3 or more time 28(28.0%). In this study the leaking of urine because you cannot defer the sudden desire to urinate, not at all was 19(19.0%), less than once a week 17(17.0%), once a week or more 30(30.0%), about once a day 15(15.0%), 2 to 4 times a day 10(10.0%) and 5 times a day or more was 9(9.0%). In our study the urinate from waking in the morning until sleeping at night in placebo group was 7 or less time was 18(36.0%), 8-14 time 19(38.0%) and 15 or more
time was 13(26.0%) while in Solifenacin group was 7 or less time was 13(26.0%), 8-14 time 25(50.0%) and 15 or more time was 12(24.0%). The role of anticholinergics in reducing overactive bladder symptoms is also evident from another study.4

Frequency of urinate from sleeping at night until waking in the morning in placebo group was, 0 time 13(26.0%), 01 time 6(12.0%), 02 time was 15(30.0%) and 3 or more time 16(32.0%) while in Solifenacin group was group was, 0 time 14(28.0%), 01 time 12(24.0%), 02 time was 12(24.0%) and 3 or more time 12(24.0%).

Frequency of leak urine because you cannot defer the sudden desire to urinate in placebo, not at all was 9(18.0%), less than once a week 14(28.0%), once a week or more 14(28.0%), about once a day 5(10.0%), 2 to 4 times a day 5(10.0%) and 5 times a day or more was 3(6.0%) while in Solifenacin group, not at all was 10(20.0%), less than once a week 3(6.0%), once a week or more 16(32.0%), about once a day 10(20.0%), 2 to 4 times a day 5(10.0%) and 5 times a day or more was 6(12.0%) out of 50 patients in each group. In this study the distribution of efficacy in placebo groups was 18(36.0%) and in Solifenacin group was 32(64.0%) out of 50 patients in each group. This medicine has also been found effective in a similar study.8

CONCLUSION
As our study and some previous literature showed that Solifenacin was clinically effective for relieving OAB symptoms, considering the balance between efficacy, patients’ well-being, and tolerability and integrates four OAB symptoms into a single score and can be a useful for research and clinical practice.

REFERENCES

Cutaneous Larva Migrans
Cutaneous larva migrans is most commonly caused by cat or dog hookworm larvae. The parasite is typically confined to the epidermis as it lacks the collagenase necessary to break through the basement membrane. Most infections are localized in the lower extremity as it is a common site of larval penetration. The eruption appears to migrate as the larvae move up to a few centimeters daily.

DD: Contact Dermatitis, Paragonimiasis, Myiasis, Loiasis

Meniscal Cysts Associated with Meniscal Tears in Asiatic Population
(An Outcome of Arthroscopic Debridement)

Abbas Ali FCPS¹, M. Ayaz Khan FCPS²

ABSTRACT
Objective: To study the outcome of arthroscopic treatment of meniscal cysts in patients diagnosed with meniscal tears in an Asiatic population.

Methods: The study was conducted from May 2011 to Jan 2014 in 25 patients including 10 male and 15 females with mean age of 30.88 years. Patients were regularly followed up to a minimum period of 6 months ranging from 6-18 months. There were 21 cysts of lateral meniscus and 4 involving medial meniscus.

Results: All patients of meniscal cysts had associated meniscal tears most commonly horizontal tears, which were present in 21 radial tears in 3 and oblique in 1 patient. The mean time to return to work after arthroscopic treatment of cysts were 17.1 days. There were 3 cases of fluid extravasation, 4 cases of knee effusion, 2 cases of portal site pain and one case of locking. There was no case of cyst recurrence. The mean preoperative Tegner activity level in our study was 1.9 and Tegner activity at final follow up was 3.4. The mean Lysholm score before surgery was 63.2 and at final follow up was 93.4.

Conclusion: We concluded that arthroscopic treatment of meniscal cysts is a well-established and effective method of treatment with less complication rate and early return to work.

Keywords: Meniscus; tear; cyst; arthroscopy; decompression.

INTRODUCTION

The menisci are fibro cartilaginous structures lying between tibial and femoral articular surfaces. Though once regarded as vestigial structures that served no function but advances in knowledge of anatomy and functions of the meniscus have led to development of meniscus preserving surgeries because menisci play role in load transmission, shock absorption, joint lubrication and joint nutrition and stability.¹ A meniscal cyst first described by Ebner in 1904 is a focal collection of synovial fluid within or adjacent to the meniscus typically at menisco-capsular junction, most being para-meniscal.² The typical para-meniscal cyst is characterized by an endothelial lining with synovial like contents. Most contain septations and present with lobular appearance.³,⁴ Most of meniscal cysts are seen in young men in their 2nd and 3rd decades. They are 3 to 10 times more common in lateral meniscus than medial meniscus and are usually associated with horizontal cleavage tears.³ Various factors thought to be responsible for development of meniscal cysts include trauma, degeneration with age, developmental inclusion of synovial cells within the substance of menisci or a metaplastic event and displacement of synovial cells into the substance of the menisci through microscopic tears in the fibrocartilage.²,³,⁴

Arthroscopic treatment of Meniscal cysts is a well-established and effective method of treatment with less complication rate and early return to work.

Symptoms consist of pain swelling or both. Small cysts may disappear with the knee joint in flexion (Pissani sign). Classic symptoms of meniscal tear like catching, snapping and giving way may be present when meniscal cyst is associated with meniscal tears.³,⁷,⁸

Treatment of cysts of the meniscus usually requires surgery. Previously meniscal cysts were treated with excision of cyst and total menisectomy but were associated with significant morbidity however recent treatment has been arthroscopic partial meniscectomy and decompression of the cyst.⁹,¹⁰,¹¹,¹²

METHODS

We studied the outcomes of arthroscopic management of meniscal cysts in 25 adult patients of either sex after a minimum follow up of six months ranging from 6 to 18 months. All the knees were stable but asymptomatic. Patients who were having ligamentous laxity, any bony injury around knee, medical contra indications for surgery and conditions where knee arthroscopy will not be possible for example knee ankylosis were excluded from study. Detailed history with particular emphasis on level of sports activity, trauma around knee, duration of pain and swelling
and mechanical symptoms like locking and catching was taken from patients. After thorough examination of knee clinical diagnosis was confirmed by MRI of knees. Knee radiographs AP weight bearing, lateral, notch view and skyline views were done to rule out any bony pathology around knee. Detailed and informed consent was taken from every patient before surgery. The surgery was performed under spinal or general anesthesia in supine position under tourniquet control. Pre operative prophylactic antibiotics were given at the time of induction of anesthesia. A lateral post or leg holder was used to stabilize the leg and to provide valgus stress to open up the medial compartment for visualization and safe instrumentation. Knee was again examined under anesthesia and limb was prepared and draped. Gravity flow of NS into knee was used with inflow connected to the sheath of the arthroscope. Standard portals anterolateral and anteromedial were mainly used for performing the procedure. Accessory portals were used whenever required.

After introducing the arthroscope through the anterolateral portal diagnostic arthroscopy of the knee was performed first. Presence, extent and type of meniscal tear as well as cyst was confirmed. If there was no meniscal tear only arthroscopic decompression of the cyst was carried out. In case of tears it was appropriately dealt with, for example in radial tears it was trimmed to a stable peripheral rim. In case of horizontal tears only the inferior leaf was resected after gently trimming the superior leaf. The cyst was palpated externally to push the cyst material into the joint and decompress the cyst allowing identification of cyst communication. Sometimes a percutaneous spinal needle was passed to identify the cyst tract. Sometimes a motorized shaver was introduced into the cyst to break up loculations to assist in cyst decompression and to stimulate inflammation and scarring of cyst tract. The joint was thoroughly lavaged and portal sites closed. A sterile compressive dressing was applied after removal of tourniquet.

Postoperatively limb was kept elevated and static quadriceps exercises and foot and ankle pumping exercises were encouraged from first post operative day. Physiotherapy was continued and partial weight bearing started within one week progressing to full weight bearing in second week. Patients were followed periodically and final follow up was done at six months using Tegner activity level and Lysholm scoring.

RESULTS

Our patients varied in age from 18 – 50 years with a mean age of 30.8 years. There were 10 males and 15 females. 12 patients had cysts on right side and 13 on left. 8 patients were having history of trauma while in rest there was no history of trauma. Pain was the most common symptom and was seen in 23 patients other signs and symptoms included swelling, locking, tenderness, a positive McMurray’s or Apley’s grinding test, thigh wasting or a positive Pisani’s sign (Table 1).

<table>
<thead>
<tr>
<th>Symptoms/signs</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>23</td>
<td>92</td>
</tr>
<tr>
<td>Swelling</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Locking</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Tenderness</td>
<td>23</td>
<td>92</td>
</tr>
<tr>
<td>Mc Murray’s test</td>
<td>21</td>
<td>84</td>
</tr>
<tr>
<td>Apley’s Compression T-test</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Thigh wasting</td>
<td>18</td>
<td>72</td>
</tr>
<tr>
<td>Pisani sign</td>
<td>16</td>
<td>64</td>
</tr>
</tbody>
</table>

Lateral meniscus was involved in 21 cases and medial meniscus in only 4 cases. Various tears associated with meniscal tears as per their frequency included horizontal, radial, longitudinal, bucket handle and oblique tears (Table 2). The average duration of surgery in our study was 63.2 minutes and average hospital stay was 3.4 days. The average time to return to work was 17.1 days. Postoperative knee effusion was most common complication in our study and was found in 4 patients in our study; other complications included fluid extravasation in 3 portal sites, pain in 2 and locking in one patient (Table 3).

<table>
<thead>
<tr>
<th>Meniscal Tear</th>
<th>No. of Pts</th>
<th>Medial Meniscus</th>
<th>Lateral Meniscus</th>
<th>% age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Tear</td>
<td>21</td>
<td>2</td>
<td>19</td>
<td>84</td>
</tr>
<tr>
<td>Radial tear</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Longitudinal Tear</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bucket Handle Tear</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oblique</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Complications</th>
<th>No of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid extravasation</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Effusion</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Pain (portal site)</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Locking</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

The mean preoperative Tegner activity scale in our study was 1.9 and mean Tegner activity at final follow up after arthroscopic management of meniscal cysts was 3.4. The mean preoperative Lysholm score was 63.2 and at final follow up the mean Lysholm score
was 93.4. At final follow up 88% of patients had good to excellent results, 8% had fair results and 4% poor results.

**Fig 1:** Images showing lateral meniscal cyst (b and c) with disappearance in images (a) and (d); Pisani’s sign.

**Fig 2:** MRI images

**T1:** Image: Coronal section showing Lateral meniscal cyst with tear

**T2:** Section Sagittal image showing medial meniscus cyst with tear

**T2:** Section Axial image of medial meniscus cyst with tear

Coronal image showing meniscal tear with cyst

**T1:** Image: Coronal section showing Lateral meniscal cyst with tear

**T2:** Image showing Lateral meniscal cyst with tear

Sagittal image showing meniscal tear

Axial image showing meniscal cyst

Arthroscopic management of cyst
DISCUSSION

Management of meniscal cysts has evolved over time from excision of cyst and total meniscectomy to minimally invasive procedures like arthroscopic decompression of cyst and partial meniscectomy. Since majority of meniscal cysts are found in young and active adults, treatment should be directed at relief of symptoms with maximum preservation of function and least possible morbidity as well as early return to work. In our study majority of patients presented with pain, which was seen in 92%, swelling in 80% and locking in 24% of patients. Richard et al found in their study that pain was present in 100% and swelling in 83% and locking in no patients while Cosimo et al found pain was present in 98% and swelling in 78%. Barrie et al suggested that lateral meniscal cysts were invariably associated with meniscal tears. Preoperative MRI gives best information regarding site, size, location, meniscal pathology and other co-existing knee problems. Arthroscopic management is standard procedure to deal with cyst as it deals with primary pathology that is meniscal tear. It alleviates knee pain, results in improved knee function and has negligible recurrence besides good patient satisfaction. Horizontal tear was most common type of tear associated with meniscal cysts and was seen in 88% of cases in a study conducted by Campbell et al. In our study all patients of meniscal cysts were associated with meniscal tears and horizontal cleavage tears were the most common type of meniscal tear associated with meniscal cysts and was seen in 84% of patients, 12% had radial tears and 4% oblique tear. Glasgow et al also found that all of their patients had meniscal tears and 69 out of their 72 patients had horizontal tears. Barrie et al suggested that lateral meniscal cysts were invariably associated with meniscal tears. Preoperative MRI gives best information regarding site, size, location, meniscal pathology and other co-existing knee problems. Arthroscopic management is standard procedure to deal with cyst as it deals with primary pathology that is meniscal tear. It alleviates knee pain, results in improved knee function and has negligible recurrence besides good patient satisfaction.

In our study 68% of patients were atraumatic whereas only 32% of patients were traumatic. Ferrer Roca et al also found in their study that 75% of their patients were having no history of trauma. Parison, Lan et al found history of trauma and associated pain in majority of cases and arthroscopic partial meniscectomy along with decompression of cyst with no recurrence of cyst. Extravasation of fluid, which was seen in 3 patients, was managed by compression bandage and limb elevation. In all the three patients it subsided within one week. Persistent effusion was seen in 4 patients and was managed by limb elevation, restriction of activities, NSAIDS and effusion subsided over 3-4 weeks. We found portal site pain in one patient and locking in one patient. There was no recurrence of cyst in our study. Most of our patients started weight bearing within 2-4 days and full weight bearing and range of motion exercises in by 2 weeks. Patients were encouraged return to work by 3 weeks and sports by 4-6 weeks. M M S Glasgow et al reported few complications with 20% of patients had slower recovery than usual after arthroscopic surgery. One patient had cyst recurrence and one patient developed synovial fistula in their series. Deliwal Ujjival H. et al described a modified suture technique designed for the vertical repair of the anterior horn of meniscus after arthroscopic decompression of a large meniscal cyst. 4 out of 9 patients in their study needed repair because menisci were unstable after decompression. They found that if the size of the meniscal detachment from peripheral capsule is more than 2cm the meniscus should be repaired to prevent instability. They found that modified outside in suture technique had advantage of easier penetration of capsule by spinal needle and this technique yields anatomic reduction and provides good coaptation. 88% of patients in our study had good to excellent results at final follow up 8% had fair and 4% poor results. Glasgow et al had good to excellent results in 89% of patients, fair in 4 and poor in 7%.

CONCLUSION:

We concluded that arthroscopic treatment of meniscal cysts is a well-established and effective method of treatment with less complication rate and early return to work.

REFERENCES

Hypopyon and Klebsiella Sepsis

A Diabetic person aged 49, reported with blurred vision and generalized weakness. He had elevated levels of creatinine, liver enzymes, and bilirubin. He had already received treatment for infection caused by Klebsiella pneumoniae associated with bilateral renal cortical abscesses. The visual acuity of was "light perception." The slit-lamp examination showed the presence of hypopyon with posterior synechiae and fibrinous exudates covering the anterior lens capsule. The funduscopic examination revealed dense vitritis. These findings were suggestive of endogenous endophthalmitis. The inflammation resolved but was complicated with vitreous condensation. B-scan ultrasonography suggested an inferior tractional retinal detachment, for which pars plana vitrectomy with silicone-oil injection was performed. After 10-week follow-up visit, the patient’s visual acuity in the affected eye had improved to 4/200. K. pneumoniae is a rare notorious cause of endogenous endophthalmitis, especially among patients of Asian descent with diabetes, associated with primary liver abscesses. The visual acuity at presentation and early antibiotic treatment are important determinants of disease outcomes.

Curtesy:
Osama M. Mustafa
Alfaisal University, Riyadh, Saudi Arabia

Patricio M. Aduriz-Lorenzo, M.D.
Dubai Hospital, Dubai, UAE.
Dear Prof. Durrani

Thank you very much for sending me the latest issues of the Ophthalmology Update, which I have read with a great interest. Taken into account a gender issue I am also proud of outstanding Pakistani scientist Prof. Nergis Mavalvala. My cordially congratulations to you on the authoring of new book, The Emergence of Muslim Homeland with a special chapter on Durrani Empire! Wishing you continued fruitful, prosperous work, warmest regards,
Prof. Marianne
Republic of Armenia

Dear Professor Yasin Durrani

Salaams! I received April-June issue of ophthalmology Update. I was very happy to read the editorial about Glaucoma Hypothesis which you have so nicely presented. I feel humbled with this honor and don’t have enough words to thank you. Please keep me in your prayers, you are blessed by Allah. With many thanks and profound respects.

Dr. Syed S. Hasnain M.D.
Porterville, CA 93257 USA
Tel: 559.781.7482

---

Where All Ophthalmologist Meet:
Discover New Ideas, Latest Trends and Hottest Topics

Participate at one place:
Be Energized & Get Inspired where experts and thought leaders shape our profession
Visit: www.ophthalmologyupdate.com
Dear Doctor,

Your Quarterly ‘Ophthalmology Update’ is being regularly published from Islamabad since 1998. The subscription of the journal expires by 31st December every year and needs to be renewed immediately.

Since the journal is fully indexed with Pakistan Medical & Dental Council (PMDC) and Higher Education Commission of Pakistan (HEC) & EBSCO as a standard scientific journal entirely devoted to Medical Sciences and to the welfare of visually handicapped; it highlights the most current research, scientific articles, reviews and interesting case reports in Medicine especially in the field of Ophthalmology with updated information around the world.

The journal is being subscribed by the doctors practicing in the field of Medicine, Ophthalmologists, postgraduates, the health professionals and they are making full use of scientific material in it. The doctors serving in your institutions can contribute their research papers, thesis, articles and interesting case reports for publication in the journal. The journal is being published on a beautiful English Matt paper by a first class printer of the country.

Fresh and renewed annual subscription of the journal is Rs.800/- which is very nominal and can be remitted through money order/cheque/bank draft, preferably on line transfer to A/C: 145-20620-714-126749 maintained at Summit Bank (Code: 145), Markaz F-10, Islamabad in the name of Ophthalmology update, to be forwarded at 267-A, St: 53, F-10/4, Islamabad. Single copy of the journal is supplied to the principal author on complimentary basis, however additional copies can be had on payment of Rs.200/- per copy.

In-time renewal of subscription will ensure regular and uninterrupted supply of the journal at your doorstep. Our sole motto is SERVICE TO MEDICINE and we assure you of our fullest cooperation with highest considerations for regular and well-in-time supply of the journal. Wishing you good health, happiness and a prosperous life. With profound regards.

Subscription Manager

SUBSCRIPTION FORM

Name: Prof/Dr/Mr/Mrs.............................................................................................................................................

Institution........................................................................................................................................................................

Address............................................................................................................................................................................

Phones: Hospital/Clinic/Res......................................................................................................................................

Cell .................................................... E-mail..........................................................

Amount Money Order/Cheque/ On Line..................................................................................................................

(Annual Subscription Rs. 800/-, for 2 years Rs. 1500/-, for 5 years Rs. 3500/-, Single Copy Rs. 200/-

Dated.................................................. Signature ..............................................