ABSTRACT: A retrospective study on Congenital Cataract (CC) was performed between October 2015 to May 2016 during ophthalmological consultation at different hospitals of Lahore. The aim of this research was to determine the incidence of lens extraction, nystagmus and blindness in congenital cataract patients in Lahore. The diagnosis of Congenital Cataract (CC) was done with the help of ophthalmologists by using visual acuity test, Snellen chart, ophthalmoscopy biomicroscopy and slit lamp examination. In this study, 180 congenital cataract patients were identified from 36000 patients with different eye anomalies and prevalence of CC was 5.0/1000 population. According to gender the incidence of CC was greater (n = 138) in males as compared to females (n = 42). The average age of incidence of CC patients was 7.5 years. The prevalence of blindness, lens extraction and nystagmus in these CC patients was about 15% (n=27), 42.8% (n=77) and 42.2% (n=76) respectively. People with CC are diagnosed late in life and therefore have difficulty in accepting the results caused by CC. This will be particularly valuable in providing awareness among affected individuals and let them know proper treatment of diseases which ultimate reduce the total burden of disease.

Key words: Blindness, Congenital Cataract, Lens Extraction, Nystagmus, Predominance

INTRODUCTION

“Eyes are most important to the soul”. This previously well-established proverb focused on natural structure of eyes and its critical role in perception and visions (Qu, 2014). Proper functioning of human visual system depends on focusing of light by lens on retina. Any abnormality in lens construction and function leads to vision loss (Oles and Oles, 2012). World Health Organization (WHO) categorize vision loss as low vision (6/60≤VA<6/18 100≤VF<200), severe vision impairment (3/60≤VA<6/60...
50≤VF<100) and profound vision impairment (VA< 3/60, VF<50). These are contemplated as authentic (Shah et al., 2011). Lens malformations especially Cataract is a major reason of impaired vision present in more than half of all cases worldwide (Ahmed et al., 2014).

The word Cataract is originated from a Greek word “kataraktes” meaning something that is rushing down. Cataract is characterized as Blurred, and non-transparent lens (Shiels and Hejtmancik, 2013). Due to cataract, visual deterioration is usually progressive and painless and do not show any typical features. The signs include blurry vision, fade color vision, poor night vision, and multiple image formation. The other factors such refractive index errors (43%), untreated congenital cataract (22%) also participates in visual loss or impairments in all over the world.

Overall due to cataract in 191 million individuals vision reduced, 10.8 million people became blind and 35.1 million were visually impaired (Khairallaah et al., 2015). In developing country of Pakistan predominance of blindness is 0.9% reported by the national visual impairment survey. Corneal scarring in cataract disease leads blindness with predominance of 29.4% and 11.8% in Northwest Ethiopia and Pakistan respectively (Asferaw et al., 2017). Heralded by the accomplishment of sequencing of the human genome, the last decade has seen an exponential rise in gene identification for many diseases.

Disorders associated with Congenital Cataract are quite common and there are more than 200 syndromes are reported for Cataract (Gillespie et al., 2014). Managing congenital cataract is considered as a great challenge and the most important part of managing CC is surgery. It is important that surgery must be performed soon in case of congenital visually significant cataract because it may lead to irreversible amblyopia if left untreated. The surgery timing is necessary as the effects on visual development and surgical risks should be balanced. The techniques for the management of pediatric cataracts, different methods for the calculation of intraocular lens (IOL) power and for the implantation of IOL have been developed and advanced steadily. Nystagmus can be stated as recurring, involuntary movement of eyes generated by slow drifts. It involves sinusoidal slow phase oscillations generally known as pendular nystagmus or alternating slow drifts commonly known as jerk nystagmus. The present study was conducted to find the occurrence of nystagmus, lens extraction and blindness associated with congenital cataract in Lahore, Pakistan. This will be particularly valuable in providing awareness relevant to the affected individuals and their families and let them know the proper diagnosis of the disease.

**MATERIALS AND METHODS**

Patients of Congenital Cataract
between the age group of ≤1-15 years old were examined by visiting different hospitals of Lahore (Mayo Hospital, Mughal Eye Hospital, Layton Rehmatullah Benevolent Trust Hospital, Services Hospital, Alehsan Hospital, Children Hospital and Ganga Ram Hospital). Performa's having information about the name, address, age, gender; nystagmus, visual acuity, lens extraction and disease status were distributed in unit of Congenital Cataract. The variables examined were age, gender, visual acuity including light perception, blindness, nystagmus and lens extraction.

Diagnosis of Congenital Cataract was done with the help of ophthalmologists by using visual acuity test and slit lamp examination. For patients too young who can't read Snellen's chart, they were analyzed by torch test and their response to light was analyzed. If they did not show any response they were considered blind. All this examination was performed by trained and experienced ophthalmologists. Data was collected and compiled. Statistical analysis was done using chi-square test and was used for comparison between different age groups and was considered significant at P≤0.05.

RESULTS

In the study of 36000 cases with different eye ailments, 180 cases of Congenital Cataract were identified. Out of 180 cases, 76.67% (n=138) were male and 23.33% (n=42) were female affected with CC. In this study incidence of blindness, Lens extraction, and nystagmus was 15% (n=27), 42.8% (n=77) and 42.2% (n=76) respectively (Fig 1).

![Fig. 1: Prevalence of Blindness, Nystagmus and Lens Extraction in Children with Congenital Cataract](image-url)
Incidence of blindness and nystagmus

There were total 42.8% (n=77) patients of lens extraction observed out of which the most significant age group was ≤1 year with 25.97% (n=20) patients having lens extraction and least cases were observed in age of 12-13 years with 2.60% (n=2) patients. In both men and women the prevalence of male patients was greater than females. Women accounted for 15.00% (n=18) cases of the study sample as compared to men 49.17% (n=59). The prevalence of Lens extraction according to age group is explained in Fig 2.

![Distribution of Lens Extraction in Patients of Congenital Cataract According to Age](image)

Fig. 2: Distribution of Lens Extraction in Patients of Congenital Cataract According to Age

In other part of this study out of 120 cases, 12.5% (n=15) patients having both lens extraction and blindness. In both men and women the prevalence of male patients 86.67% (n=13) was greater than females 13.33% (n=2). The most representative group of both lens extraction and blindness is 8-9 years with 26.67% (n=4) and no case was observed in 10-11 year age group. Three age groups ≤1, 2-3, 6-7, 14-15 have same number of cases as 6.67% (n=1) while the age group 2-3 and 10-11 have prevalence about 20% (n=3). The remaining age group 6-7 has 13.33% (n=2) occurrence of both Nystagmus and lens extraction.

In cases of 42.2% (n=76) nystagmus most significant age was 4-5 years with 26.32% (n=20) having nystagmus. Three age groups (10-11, 12-13, 14-15) have same incidence of nystagmus 3.95% (n=3).The incidence of nystagmus according to age group is explained in Fig. 3.). In both men and women, the prevalence of male patients (48.33%) was greater than females (15.00%).
Incidence of blindness and nystagmus

Prevalence of blindness was 15% (n=27) out of which the most significant age was ≤ 1 year having 2.22% (n=6) patients of blindness and only one member (3.70%) of blindness was observed in two age groups (10-11, 14-15) The predominance of blindness according to age group is explained in Fig. 4. The incidence of blindness was observed more in males 60% (n=9) than females 40% (n=6).
DISCUSSION

Human eye lens is most important part of eye that performs various functions. One of most significant role is to focus the light on to the retina, after that various photoreceptors detects the coming light. In our study the average age of CC patients was 7.5 years which are approximately similar to the enrolled with a range of the patient's age 1-3 years in India.

Visual outcomes are largely dependent on the timing of the surgery. Congenital and infantile cataracts, if not treated promptly, lead to profound and irreversible vision loss. Mostly reports preferred elder children treated with intra ocular lens (IOL) implantation while recent research reports concerned children for treated with IOL implantation. (Anna and Ulla, 2002). Visual outcomes are largely dependent on the timing of the surgery. Congenital and infantile cataracts, if not treated promptly, lead to profound and irreversible vision loss. Mostly reports preferred elder children treated with intra ocular lens (IOL) implantation while recent research reports concerned children for treated with IOL implantation (Anna and Ulla, 2002). Better visual outcomes are associated with surgery at an age of 3 to 15 months while normal visual acuity can be obtained by extraction at 6–8 weeks of age along with optical correction (Li et al., 2018) Mean age at the time of surgery is 21.7 ± 2.9 months (Ventura et al., 2013)

Similar gender biased pattern can be observed in other countries where two-third of cataract surgeries were done on boys (Nkumbe et al., 2011; Agarwal et al., 2010). In this study, the occurrence of disease in male patients was greater than females. Women accounted for 15.00% (n=18) cases of the study sample as compared to men 49.17% (n=59).

The term blindness and visual impairment are two different things, patients having blindness have no vision and patients with visual impairment have low vision. Overall 191 million visions reduced, 10.8 million people were blind and 35.1 million were visually impaired due to Cataract (Khairallaah et al., 2015). Pakistan is a developing country and prevalence of blindness is 0.9% reported by the national visual impairment. In the world it was estimated that 38 million children were blind and a further 110 are visual impaired. In our study 23.33% of total CC patients were blind. The blindness cases in our study having more prevalence in age group of 2-3 years and more common in male patients with incidence of 17.5% and prevalence was 2.8/100(≤1-15). In contrast prevalence of blindness per 1000 children according to age in developed countries such as Bangladesh 1.09(0-5), Nepal 0.63(0-14), Malawi 1.1(0-5) and Gambia (0-19) were diagnosed (Wilson et al., 2003).

Person with nystagmus may experience reduced visual acuity. 63.3% of total CC patients had nystagmus in our study. In nystagmus,
eyes make repetitive and involuntary movements which result in less vision.

CONCLUSION

Congenital cataract is more prevalent in males as compared to females and average age of prevalence of CC was ≤1-5. This study will help to reduce the total burden of disease by spreading awareness among affected as well as other individuals and let them know proper treatment of diseases. We also helped some patients in cataract surgery by giving help in consulting with different eye surgeons.

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REFERENCES


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