

SPECTRUM OF CHILDHOOD EYE DISEASES IN A RURAL MEDICAL COLLEGE- A RETROSPECTIVE STUDY

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ABSTRACT

BACKGROUND

Eye disorders in children with different presentations come to Ophthalmology OPD. Early detection and treatment of ocular morbidity is important. This study aimed to detect the prevalence and pattern of common ophthalmic problems in paediatric age group, in a rural based tertiary care hospital.

MATERIALS AND METHODS

Study design was observational, retrospective review of all children less than 12 yrs. old, who came to the rural based Chengalpattu Government medical college Ophthalmology OPD, between September 2015 and May 2016. Data collection and analysis was based on the age of presentation of both sexes (newborn (0-28 days), infants (1 year), preschool (1-5 years), school going (above 5 years)) from rural and semi-rural areas and diagnosis were analysed using graph pad prism 5.0. 'P value' less than 0.05 was considered statistically significant.

RESULTS

During the study period, out of total 2520 OP cases (100%), 230 children (10.95%) were evaluated. The male: Female ratio was 1.1:1. The children from school going age constituted the largest group, male (48.4%) & Female (51.5%) (p<0.001). Children from semi-rural area constituted (55%) and rural area constituted (45%). Defective vision (26%) was the common complaint, eye discharge accounts for (20%), and lid swelling accounts for (11.3%). Common conditions were refractive error (26%), Conjunctivitis (20%), Lid Inflammations (11.3%), and Injuries for (10.3%). Refractive Error was common in females (53.3%) and in school going children (60%). Myopia (85%) was the common refractive error. Conjunctivitis was seen more in males (52.17%) and less in females (47.8%). In pre-school age group conjunctivitis was common.

CONCLUSION

The common childhood eye diseases observed in our study is refractive error. This has led to poor scholastic performance in school and absenteeism. Health Education & Environmental Hygiene will help in managing most of these eye disorders.

KEYWORDS

Amblyopia, Children, Bacterial Conjunctivitis, Ocular Morbidity.

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BACKGROUND

Childhood eye disorders constitute a sizeable number in the ophthalmic outpatient. Children with eye ailments need early intervention to prevent morbidity. Visual disability can lead to poor scholastic performance, dropouts from school, decreased personality development. Childhood blindness is an important public health problem in developing countries due to its social and economic implications. Prevalence of

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childhood blindness in India is 0.8/1000 by using the correlation between under five projected to morbidity rate and prevalence.¹ Regional burden of childhood blindness varies from country to country. Common childhood disorders in developing countries like India are avoidable blindness like Vitamin A deficiencies, Measles, Ophthalmia Neonatorum, Retinopathy of Prematurity. Refractive errors are common cause of visual impairment in children.² In western countries Strabismus, Amblyopia, Injuries, Refractive errors are some common problems noted in school going children.

The variation in pattern of diseases and statistics put forth by studies like this provide useful feedback information for achieving the goals like Vision 2020. The Study was done to find out the prevalence and pattern of common ophthalmic problems in children. The result of this study will help in estimating the burden of pediatric eye disorders in the rural setup and help in planning and establishing

pediatric ophthalmology services in rural based tertiary care hospitals, which will help in reducing the disability years of every child remaining blind.³

MATERIALS AND METHODS

All children aged 12 years and less who reported to the ophthalmology outpatient department of the Chengalpet Govt Medical College hospital was retrospectively analysed. Children who came for medical checkup and had no eye symptoms were excluded from the study. This hospital is a tertiary care hospital serving the rural and semirural areas of Chengalpattu and Kancheepuram. All children presenting to the clinic will undergo full ophthalmic evaluation done by qualified ophthalmologist. V/A (unaided) was assessed by using Snellen's chart, colour blindness checked by using Ishihara's chart, axis deviation was assessed by cover/uncover test and torch light examination was done for the school going children. Other necessary investigations will be done before commencement of treatment. Interdisciplinary consultation will be done wherever necessary.⁴

The age at presentation, sex, clinical diagnosis and age at onset of symptoms were determined from medical records. The disorders were grouped by age as Newborn (0-28 days), infants (up to 1 year), Preschool (1-5 year) and School going (5-12 year). Data were stored and analysed using graph pad prism 5.0. All the data expressed as mean + or – SEM, were analysed by chi-square test to compare variables and P value less than 0.05 was considered statistically significant.

RESULTS

During the study period we evaluated 230 children who sought ophthalmic treatment in outpatient. Out of total cases 2520 (100%), 230 (9.12%) were children. Figure 1 shows the age group and sex distribution of children. There were 114 (49.5%) females and 116 (50.43%) males, resulting in a male - female ratio of 1:1.1 with marginal male preponderance. School children formed the major group (86%) of which 96 male children (48.4%) and female children 101 (51.1%) ($p < 0.001$). Higher prevalence of eye disorders among school health children is similar to study conducted in Shimla by Gupta. M et al.

Refractive errors were the most common disorder seen (26%) followed by conjunctivitis (20%), lid inflammations (11.3%), Injuries (10.86%), miscellaneous (10.43%), cataract (6.5%) and headache (6.08%). Figure 2 depicts the spectrum and frequency of eye morbidities seen. The frequency of pattern of eye diseases varied across the 4 age groups (Table 1). The difference in presentation by age group was more prominent and statistically significant among children with refractive error and conjunctivitis

There were 60 cases (26%) of refractive error among children ($p < 0.001$), while conjunctivitis constituted 46 cases (20%), lid inflammations 26 cases (11.3%), ocular injury 24 cases (10.86%). In pre School children conjunctivitis (3.4%) 8 cases. Table: 2 shows the geographical representation 55% cases were from the

semirural areas and 45% cases were from the rural areas.⁵ ($p < 0.01$).

The incidence of conjunctivitis was higher in older children 78.2% recorded in school children, Lid inflammations more in females 15 cases (57%), males 14 cases (42.3%). Ocular injury males 14 cases (58.33%) and females 10 cases (41.66%). Miscellaneous cases 24 cases, varied from (pterygium-3, pinguecula-3, keratitis-3t, dacryocystitis-3, episcleritis-2, strabismus-2, phlycten-3, Vitamin-A deficiency-2, blepharitis-3, Nystagmus-2.⁵ Cataract. cases (6.5%), males 7 cases (46.66%) and females (53.33%) all the patients had immature cataract (IMC). Headache 14 cases of (6.08%). 53.3% of the children with refractive error were females.⁶

Marginal difference in the prevalence of ocular disease among male and female children in our study is comparable to results of study by Sehgal et al in Delhi (Males 46.1% and females 48.3%).

Refractive error and lid inflammation was common in female children, while conjunctivitis and injury in male children.

DISCUSSION

Childhood disorders presenting to tertiary care hospital need prompt evaluation and treatment to avoid morbidity like visual impairment. Ignorance about the problem and the difficulty experienced in recording visual acuity in children could be the cause for late presentation. In our study, school going children formed the largest group of patients, similar to a study done at Shimla by M. Gupta et al. This could be due to active school health programs in our state and prompt referral by teachers and parents. A similar study reported a different frequency of presentation in preschool age group (<5 years). Pattern of presentation and incidence in diseases varies from region to region, due to environmental, socioeconomic status, nutritional and literacy factors.

Refractive errors was the first common presentation in this study. V. B. Pratap et al reported as the first common eye disorder in heritable disease (65%) in children. In African countries ocular trauma, allergic conjunctivitis were found to be more frequently reported eye disorders.³ The reason for high incidence of refractive error could be genetic influence, practice of marrying close relatives in Indian Culture, poor caring of children, nutrition of children not given proper importance. Probably, parents spend more time in earning their livelihood. Refractive errors is the most common cause of bilateral visual impairment if neglected can lead to amblyopia. Female preponderance of this disorder could be due to poor awareness regarding the problem. Myopia was the common refractive error noted more in female children than males, similar incidence reported by Zhao. J et al. No visual manifestation of this illness externally. Unless a mass screening is done in school or a community at large, poor care for female children. The incidence of this problem is more in school going children is similar to another study reported from La Florida.⁴ Chile by E. Maul et al which was the major cause of reduced vision in school age children.⁴

Most of the time the teachers identify the child's problem, following poor performance in school, unable to see the board and asthenopic symptoms. Because of the hidden nature of the illness and poor awareness of parents, risk of amblyopia is more. Incidence can be reduced by health education of the parents and improving the nutritional status. Early correction of refractive errors by prescription of glasses and free distribution of glasses. Motivation for wearing glasses should be done.

Conjunctivitis

Contributed the 2nd most common presentation in the study, in a similar study by Pratap. V. B, reported conjunctivitis as the first common presentation (32.5%). Since the study was done during rainy season the presentations were more.⁶ Previous presentations of conjunctivitis as the most common ocular surface disorder in children are corroborated by his study. The risk could be due to poor sanitation facilities, poor flood control mechanism. The incidence was more during floods. Poor socio economic status, lack of personal hygiene could be contributing factors. Incidence was more or less same in both sexes. The aetiology of conjunctivitis varied from viral to bacterial, detected by signs and symptoms. Viral conjunctivitis was most common. Similar incidence reported by Amir. A. Anzar et al. Adequate environmental sanitation, health education regarding hygiene.⁶ Because of the communicable nature of the illness, school going children were affected because of crowding in school. Closed sewage system must be implemented.

Lid inflammations are preventable. If not treated early, can lead to potential serious complication like orbital cellulitis, since it involves the danger area of face it can even produce cavernous sinus thrombosis. Lid inflammation can lead to corneal infection which contribute to one third of eye infection causing blinding scars. Corneal scarring accounts for 6.5% of childhood blindness in India. In African countries corneal scarring accounts for 75% blindness. Common cause of lid infection are habit of rubbing of eyes, dust exposure, allergy and refractive errors. Proper management of lid inflammation, avoidance of precipitating factors, early correction of refractive errors can prevent serious blinding complications and absenteeism from school. Higher incidence noted in school going children were due to straining of eyes in school while reading and writing, dusty environment, allergy, and refractive errors.⁷

Eye Injuries- was another common presentation in this study, which was also noted in other similar studies as 3rd and 4th common presentation.⁵ Similar to other disorders, this was reported more in school going age group. Frequency could be due to the rural background, habit of playing with sticks and stones. Poor parental supervision of children while playing.⁵ Eye injuries remain a major cause for morbidity worldwide. Children are at risk because of their immaturity and ignorance about the hazards. Male children are more commonly affected because of their involvement in outdoor games, aggressive behaviour, adventure seeking.

Similar incidence was reported by Mac Ewen et al. Higher incidence in school going group is reported in similar other studies. Unsafe playing habits make them prone for injuries. Common reported Injuries were varied from blunt injury, abrasion, corneal tear, consistent with another study by Mac Ewen et al. Ignorance and lack of awareness, led to late presentation to eye care treatment, lack of 24 hours facilities, poor postoperative follow up, increased the risk of complications. Prevention of ocular injuries in children remains a challenge. IEC activities to children, parents, teachers, media must be improved. Monitoring of playing activities by parents must be ensured. Alternative safe games must be taught.

Miscellaneous cases formed another common presentation in which various cases like pterygium, pinguecula, keratitis, dacryocystitis, episcleritis, strabismus, phlycten, vit. A deficiency, blepharitis, nystagmus each were recorded in two or three cases.⁷

Cataract was the next common presentation (6.5%), all these patients had immature cataract and they were developmental cataract. Majority were idiopathic similar to the study by Anagha Medsinghe et. al. Cataract affects the neurobiological development of child. Early diagnosis and prompt treatment needed to prevent irreversible amblyopia.⁸

Headache was the 5th common presentation in our study. School children presenting with this complaint is on the rise. Though this is a multi-disciplinary symptom, 75% of the children reported were found to have refractive error. More during reading as reported by King. RA et al. Symptoms improved after correction with glasses. Refractive error presents with asthenopic symptoms like headache, older children reported the symptom as in similar study by LM. Barea et al. This was one of the important cause for absenteeism, aversion to study, which reflected in their school performance.⁹ Identification of these children by teachers and parents helped in treating the problem. School health screening will help in early identification and treatment, supplemented by good nutrition.⁹ Motivation of wearing eye glasses must be ensured. Wrong belief regarding fear of vision following use of glasses must be removed by health education. Very young children, it is a diagnostic challenge because of verbal and language skills and in young children it was non-specific.

The limitation of this study could be overlooking seasonal variation of the ocular diseases, as the study period mainly involved winter month and early summer.

CONCLUSION

Common cause of childhood morbidities and disabilities in our study were refractive error, conjunctivitis, lid inflammations and ocular injuries. These conditions need specialized paediatric eye care for prompt treatment and follow-up. These disorders could lead to poor school performance, poor attention span and visual disability if not treated early. Improving school health services, training teachers, health education of children and parents will help in preventing these disorders and will help in early reporting

and seeking remedial measures. Awareness regarding ocular hygiene should be imparted at school level.

REFERENCES

- [1] Gupta M, Gupta BP, Chauhan A, et al. Ocular morbidity-prevalence among school children in Shimla, Himachal, north Indian. *J Ophthalmol* 2009;57(2):133-138.
- [2] Pratap VB, Lal HB. Pattern of paediatric ocular problems in north India. *Indian J Ophthalmol* 1989;37(4):171-172.
- [3] Zhao J, Pan X, Sui R, et al. Refractive error study in children: results from Shunyi district, China. *Am J Ophthalmol* 2000;129(4):427-435.
- [4] Maul E, Barroso S, Munoz SR, et al. Refractive error study in children: results from La Florida, Chile. *Am J Ophthalmol* 2000;129(4):445-454.
- [5] MacEwen CJ, Baines P, Desai P. Eye Injuries in children: the current picture. *Br J Ophthalmol* 1999;83(8):933-936.
- [6] Azari AA, Barney NP. Conjunctivitis: a systematic review of diagnosis and treatment. *JAMA* 2013;310(16):1721-1729.
- [7] King RA. Common ocular signs and symptoms in childhood. *Paediatr Clin North Am* 1993;40(4):753-766.
- [8] Gilbert C. Worldwide causes of blindness in children. In: Wilson ME, Saunders RA, Trivedi RH, eds. *Pediatric ophthalmology: current thought and a practical guide*. Heidelberg, Germany: Springer-Verlag 2009:47-60.
- [9] Barea LM, Tannhauser M, Rotta NT. An epidemiologic study of headache among children and adolescents of southern Brazil. *Cephalalgia* 1996;16(8):545-549.