Ocular Morbidity among Paediatric Population at a Tertiary Eye Care Hospital in Southern Odisha

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ABSTRACT

BACKGROUND

According to world health organisation childhood blindness is a priority and significant component of its vision 2020 programme. It has been estimated that there are 1.4 million blind children worldwide. This study aimed to identify the causes of ocular morbidity in children attending a tertiary eye centre in southern Odisha.

METHODS

This is a retrospective study conducted in our hospital between August 2017 and July 2018. A total of 636 patients was evaluated, and the data were tabulated in MS Office Excel and analysed. All children who attended the OPD during the study period were included and children whose parents did not give consent for examinations were excluded.

RESULTS

Refractive error was found to be the most common cause of ocular morbidity (38.05%), followed by allergic conjunctivitis (21.38%), and oculosporidiosis (rhinosporidiosis) (7.70%). Among the congenital anomalies, congenital cataract topped the list.

CONCLUSIONS

The most common cause of ocular morbidity were refractive errors and allergic conjunctivitis. Among the other causes, most of the diseases were either avoidable or preventable. So, proper health education in the community is a must to prevent the ocular morbidities in children.

KEYWORDS

Ocular Morbidity, Paediatric, Refractive Error

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BACKGROUND

Ocular morbidity is defined as the spectrum of eye disease which include both visually impairing and non-visually impairing conditions experienced by a population. Study of ocular morbidity in paediatric population is important because some conditions like refractive error, congenital cataract and retinoblastoma are treatable while Vitamin A deficiency is preventable. Delay in diagnosis may result in irreversible visual loss and in case of retinoblastoma, potential death. It also affects the ability to learn, adjustment in the society and development of the personality of a child.[1]

Visual disability are one of the most common disabilities to affect children. Blindness in children attributes for one-third of the economic cost of blindness even though it accounts for less than 4% of the overall magnitude.[2] It is the second largest cause of blind-person years, following cataract. There are 1.4 million blind children globally and the numbers are increasing every day. 73% of them live in low-income countries.[3] About 7 million suffer from low vision, and 10 million children have a correctable refractive error causing visual handicap.[4]

India has an estimated 320,000 blind children, which is much higher than any other country in the world.[5] Estimated National Prevalence of Childhood Blindness or Low Vision in our country is 0.80/1000.[6] Around 30% of the paediatric blind population lose their eyesight before the age of 20 years.[7]

Data on ocular morbidity is important to know the magnitude of problem and determine the social, biological or environmental risk factors involved. It can also help in planning and establishment of targeted screening and awareness programmes to decrease the modifiable risk factors. So, this study and early diagnosis and treatment of ocular diseases in paediatric population is important to prevent the child from being handicapped as well as reducing the economic burden on the society.

The aim of this study is to determine the ocular morbidity among children less than 15 years of age in southern Odisha.

METHODS

This is a retrospective study conducted in the Departments of Ophthalmology, and Paediatrics, of MKCG MCH, Odisha. All paediatric patients 0-15 years of age attending the Ophthalmology OPD (Referred / Self reporting) during the period August 2017 to July 2018 were included in the study.

Exclusion Criteria

- Incomplete data.
- Uncooperative child.
- Children whose parents did not give consent for Direct/Indirect ophthalmoscopy.

Data Collection and Analysis

Data was collected from the records in the case files of children who attended the eye OPD during the study period. Information was collected about the demographic details (especially age, gender), duration of illness and type of ocular disease. The data was tabulated in MS Office Excel sheet and analysed.

RESULTS

Sl. No.	Disease	Total No.	Male	Female
		636	346 (54.40%)	290 (45.59%)
1.	Refractive Error	242 (38.05%)	131	111
2.	Allergic Conjunctivitis	136(21.38%)	76	60
3.	Rhinosporidiosis	49 (7.70%)	31	18
4.	VKC	48 (7.54%)	29	19
5.	Trauma	31 (4.87%)	19	12
6.	Conjunctivitis/Sclera/Cornea	24 (3.77%)	9	15
7.	ROP	23 (3.61%)	11	12
8.	Bitot's Spot	22 (3.45%)	08	14
9.	Congenital Cataract	17 (2.67%)	09	08
10.	Squint	12 (1.88%)	05	07
11.	Orbital Cellulitis	10 (1.57%)	06	04
12.	Iris Coloboma	07 (1.10%)	04	03
13.	Anophthalmos	06 (0.94%)	02	04
14.	Retinoblastoma	05 (0.78%)	04	01
15.	Corneal Opacity	03 (0.47%)	01	02
16.	Trachoma	01(0.15%)	01	0

Table 1

Sl. No.	Age Group	Frequency
1.	0 – 4 Years	124 (19.51%)
2.	5 – 9 Years	242 (38.03%)
3.	10 – 14 Years	270 (42.46%)

Table 2

Sl. No.	Duration of Illness	
1.	Less than 1 month	247(38.84%)
2.	1-3 months	243 (38.24%)
3.	3-6 months	138 (21.70%)
4.	More than 6 months	8 (1.22%)

Table 3

A total of 636 paediatric patients attended our OPD out of which 54.40% (346) were males and 45.59% (290) were females. 19.51% (124) were within 0-4 years of age, 38.03% (242) were 5-9 years old and 42.46% (270) were 10-14 years old which was maximum. Duration of illness was less than 1 month in 38.84% (247) patients, 1-3 months in 38.24% (243) patients, 3-6 months in 21.70%(138) patients and more than 6 months in 1.22% (08) patients.

Refractive error was the most common ocular morbidity accounting for 38.05% (242) cases and males and females were affected in equal proportion. Allergic conjunctivitis (21.38%) was the second most common condition. This was followed by Rhinosporidiosis and VKC constituting 7.70% and 7.54% of the cases respectively. Blunt trauma with or without hyphema accounted for 4.87% of the cases, which was mostly due to cricket ball followed by bamboo stick injury. Conjunctivitis and other infective conditions accounted for 3.77% with females being affected more than males. Vitamin A deficiency disorder was found to be 3.45%, which was quite high and once again females were affected more in comparison to males. Among congenital anomalies, congenital cataract was a significant cause of ocular morbidity followed by iris coloboma.

DISCUSSION

Ocular morbidity in children affects the ability to learn, adjustment in society, and development of personality.[1] Hence, early identification and prompt treatment is needed to avoid any effect on development, quality of life and education of the child. The causes of ocular morbidity differ across countries and various regions in the same country due to difference in geographic, environmental and socio economic background.

In our study, majority of the children who attended OPD for consultation (42.46%) were in the age group 10 to 14 years. This was similar to the finding of Onakpoya et al.[2] There was a rise in ocular morbidity with age which correlated with the findings of Kumar et al.[3] This could be because elder children are able to express their problems more clearly, hence the reporting is higher. Younger children are unable to or fearful of expressing themselves so the disease can go unnoticed and unreported. Other causes include greater cumulative effect of long standing diseases and greater exposure to infectious agents in older children. However, the study by Chandana Chakraborti et al found higher frequency of consultation in the age group 6-10 years (38.87%).[4] This does not match with our study.

In our study proportion of males (54.40%) was higher in comparison to females (45.59%) which is similar to study done by Sethi S et al[5] where 60.6% were male and 39.1% were female. This may be due to gender bias in seeking health care in our society. However, there was great variability and no established pattern in male to female ratio with respect to specific eye diseases.

Figure 1

In this study, refractive error was the most common cause of ocular morbidity (38.05%). This result was comparable with Gupta et al,[8] who also found refractive error (22%) was the most common disorder. Desai et al[6] also reported a similar prevalence of 20.8%. But the Kariapatti paediatric eye evaluation project[7] and study by Kumar et al[3] showed a lower prevalence than present study, which was 0.55% and 5.4%, respectively. This may be due to the lifestyle changes, reading habits and nutritional status in urban paediatric population as compared to rural population in the other studies mentioned above.

Allergic conjunctivitis contributed 21.38% in the present study. High prevalence (3-17.5%) of allergic conjunctivitis has been reported in some other studies.[2,9,10] Poor hygiene, polluted and dusty urban environment may lead to chronic allergic conjunctivitis. It may not cause blindness, but it is an important cause of discomfort, resulting in absenteeism from school and frequent hospital visits in children. The third most common cause of ocular morbidity was Rhinosporidiosis at 7.70%. This is higher than studies by Subramyam et al[11] and Anand et al,[12] which showed an incidence of only 0.1%. The incidence in our study is higher because of the habit of bathing in ponds in this area.

The incidence of VKC was 7.54%. Male to Female ratio was seen to be 1.52:1. This tendency has also been confirmed in various other studies with male to female ratios ranging from 4:1 to 2:1 (Neumann et al[13] and Khan et al[14]). Ocular trauma contributed to 4.87% of ocular morbidity in the present study. The most common causes being blunt trauma by ball, penetrating injury while playing with a stick and fingernail injury. Biswas J, et al[15] found ocular trauma was responsible for 12.74% of childhood ocular morbidity. Globally also the frequency of ocular trauma in children is high the reasons being, careless activities, unsupervised play and use of dangerous objects for playing.[16] This can be avoided if the parents take proper precautions and safety measures.

Infective conjunctivitis accounted for 3.77% of the cases which is similar to studies conducted by Kumar et al[3] and Desai et al[5] in urban areas. But studies in rural areas like the studies by Gupta et al[8] and Singh et al[7] show prevalence as 0.8 and 0.9% respectively which does not correlate with our study. This could be due to the unhygienic and overcrowded surroundings and slum dwelling practices in urban areas like ours. Vitamin A deficiency disorder i.e. Bitot's spot was seen among 3.45% of children. Similar finding was observed in study by Singh et al,[17] Vitamin A deficiency in the form of conjunctival xerosis and Bitot's spots was seen in 2.09% children. Gupta et al (1.8%), Kumar et al (4.1%) and Desai et al (5.39%) also reported Vitamin A deficiency in children.[3,8,6] But Prajapati et al reported a higher prevalence rate of 3o%.[18] This variability may be due to lower socio economic and nutritional status of that population.

Lens (congenital cataract) constitute 2.87% of ocular morbidity. It is similar to study by Gupta et al.[19] They require immediate action in the early years of life to prevent blindness. In present study prevalence of ocular motility disorders (squint) is 1.88%, which is similar to prevalence of other studies.[19] Corneal opacity was seen in 0.47% cases. Most were seen to be undernourished. It correlates with the finding of 0.2% in a study by Shakya et al.[20] Trachoma was

seen in only 1 case (0.15%) as trachoma is no longer a significant cause for blindness in our country.

CONCLUSIONS

This study suggests that refractive errors, allergic conjunctivitis, rhinosporidiosis, VKC, infections of eye and adnexa and ocular trauma are important causes of childhood ocular morbidity. They are either treatable or preventable.

Visual impairment because of refractive errors is an important community health problem as it disturbs school performance and damages behavioural and social development of children. So, there is a requirement for school eye screening programs which should include refraction testing and provision of low cost spectacles for the children. Health education activities in schools should be further enhanced where teachers, students, and parents shall be educated about eye care and hygiene in order to curtail childhood eye infections and injuries and ensure early treatment seeking for eye disorders. Teachers can additionally be taught about common eye problems and how to identify them and report to the respective parent/guardian. Referral systems also should be strengthened so that, early detection and intervention will halt the disease progression and also prevent visual disability. Low vision in a child can affect the daily life at school and home and have a negative impact on their future. Hence, by taking such measures, a large number of childhood blindness and visual handicap can be avoided and the socio-economic well-being of the society can be upgraded.

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