Research Paper

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A Study of Spectrum of Childhood Eye Diseases, At A Tertiary Care Hospital in South India

Medical Science

KEYWORDS : Pediatric ocular disorders, South India, Allergic conjunctivitis, Refractive errors.

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ABSTRACT

BACKGROUND:

Eye diseases are important cause of medical consultation in children, with the spectrum varying in different localities. This study aimed to determine the spectrum of childhood eye diseases in a tertiary hospital serving rural and semi-rural communities.

METHODS: All patients aged 15years and younger who presented to the ophthalmic O.P, GGH, Guntur. A.P, India, between November 2006 and December 2008 are evaluated prospectively.

RESULTS: A total of 5977 children attended the Ophthalmic O.P constituting 17.4% of total cases, which is 34,340. There are 53.12% males and 46.8% females, resulting in male : female ratio of 1.1: 1. The highest frequency is recorded among school going children. ie, between 6-10 years, constituting 39.3% of the patients. In the present study, the most common category of diseases is of refractive errors, constituting 20.3% of total cases, followed by the diseases of the conjunctiva (12.7%). Rarely, tumors of the eye are identified as a cause of blindness, constituting 1% of total cases.

CONCLUSION:

Appropriate health education and school health programs to detect refractive errors are very essential and therefore prevent poor performance in school.Ocular infections need prompt and adequate management to bring symptoms under control and prevent potentially blinding complications.

Introduction:

Impaired vision from birth or in early childhood can have a profound impact on a child's development, restricting participation in social, physical and educational and later, employment opportunities. Childhood blindness is second only to cataract blindness in terms of "blind years"(1*).* The spectrum of ocular problems varies from country to country and even from region to region in the same country. It may be due to environmental , climatic , racial, socio-economic and literacy factors*(2.).* In United States, strabismus, amblyopia and optical problems impacting visual acuity are the most common ocular problems seen among school going children.(3).Refractive errors(25.7%), eye injuries(13.3%) and corneal inflammation (12.5%) were the leading causes of childhood eye morbidity reported 12 years ago in Nigeria.(4). Meanwhile, trachoma (33.7%), refractive errors(6.3%) and non-trachomatous conjunctivitis(5.9%) were the most common childhood eye disorders reported in Ethiopia. (5).

In both developed and developing countries, the majority of vision loss is either preventable or treatable.

Data on the pattern of presentation of childhood eye diseases serve as a useful template for planning eye care for children in a given region.

This study is conducted to determine the spectrum of childhood eye diseases, presenting to the department of Ophthalmology, at Government General Hospital, Guntur, Andhra Pradesh.

Materials and Methods:

The Ophthalmic department at GGH, Guntur serves as a referral center for the rural and semi-rural communities of south coastal districts of Andhra Pradesh in India. It also provides primary and secondary eye care services to self reporting patients.

All patients aged 15years and younger who presented to the ophthalmic O.P, GGH, Guntur. A.P, India, between November 2006 and December 2008 are evaluated prospectively.

At the first visit, all patients have a full ophthalmic evaluation carried out by a consultant Ophthalmologist.

Data on age at presentation, gender, onset of disease and diagnosis are recorded and analyzed to determine the spectrum of the pediatric eye diseases.

The children included in the study are followed up to complete cure or rehabilitated and those who presented for medical check –up and had no eye disorders are excluded from the study.

Basing on these exclusion and inclusion criteria, 300 children are evaluated further and followed up.

Visual acuity is assessed by considering age of the child using Landolt's broken ring chart, Snellen's test type tumbling E charts are used for children who are able to follow the test. Those who are not able to follow, counting fingers is considered. In case of very young children quantity of fixation and following of light is used to assess the visual acuity.

Ocular examination is done using torch and loupe followed by slit lamp examination. Fundus examination is done using a direct ophthalmoscope and indirect ophthalmoscopy is done wherever indicated.

Intraocular pressure measurement , when indicated is done with a schiotz tonometere, under general anesthesia if required.

Gonioscopic examination using a Goldman mirror contact lens and field testing is done by using a Bjerrum's screen wherever necessary.

Color vision is tested with Ishihara's charts. Special investigations are done when deemed necessary.

With provisional diagnosis, appropriate investigations and management are commenced.

The clinical diagnosis is grouped as appropriate diseases present at birth , but not due to birth circumstances are considered congenital.

Results:

During the present study period(from Nov 2006- Dec 2008) a total of 5977 children attended the Ophthalmic O.P constituting 17.4% of total cases, which is 34,340 (Ref table 1). There are 53.12% males and 46.8% females, resulting in male : female ratio of 1.1: 1 (slight male preponderance).

Table 1: Number of patients (>15years) attending ophthalmic OP from Nov 2006- Dec 2008.

Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
2006	301	293	-	-	-	-	-	-	-	-	-	-	594
2007	253	213	243	246	287	190	238	182	213	250	260	264	2839
2008	-	-	298	252	250	177	227	251	261	238	246	345	2544

The highest frequency is recorded among school going children. ie, between 6-10 years, constituting 39.3% of the patients. (Ref table 2).

Table 2: showing age incidence.

Age	No .of cases Total 300	Percentage (%)
Below 1 year	20	6.06%
1-5yrs	68	22.6%
6-10yrs	118	39.3%
11-15yrs	94	31.3%

Table 3: The incidence(%) of the spectrum of eye diseases, in the present study.

Sno	Disease category	Total	Percentage (%)
1	Conjunctiva	38	12.7%
2	Cornea	08	2.7%
3	Sclera	02	0.7%
4	Uvea	05	1.7%
5	Lens	22	7.3%
6	Vitreous , Retina	04	1.3%
7	Lacrimal system	17	5.7%
8	Nutritional deficiency	27	9.00%
9	Lids	20	6.7%
10	Refractive	61	20.3%
11	Injuries & foreign bodies	13	4.3%
12	Orbit	08	2.7%
13	Strabismus	07	2.3%
14	Head ache	59	19.7%
15	Glaucoma	03	1.00%
16	Others	06	2.00%
	Total	300	100%

In the present study, the most common category of diseases is of refractive errors, constituting 20.3% of total cases, followed by the diseases of the conjunctiva (12.7%).

In the diseases of conjunctiva(12.7% of total cases) (Ref table 4), allergic conjunctivitis is the commonest (39.4%), majority of which are diagnosed as spring catarrah and some as phlyctenular conjunctivitis. In the present study , among the diseases of conjunctiva , 24% are acute conjunctivitis and 15.8% are viral conjunctivitis. Also 5.3% of the diseases of conjunctiva are diagnosed as ophthalmia neonatorum and 7.9% are chronic conjunctivitis , followed by 2.6% each of purulent conjunctivitis, angular conjunctivitis and subconjunctival hemorrhage.

Table 4: showing the diseases of conjunctiva

Disease of conjunctiva	12.7%
Acute conjunctivitis	24%
Chronic conjunctivitis	7.9%
Purulent conjunctivitis	2.6%
Viral conjunctivitis	15.8%
Ophthalmia neonatorum	5.3%
Angular conjunctivitis	2.6%
Allergic conjunctivitis (Spring Catarrah(exogenous) + Phlyctenular conjunctivitis)	39.4%
Subconjunctival haemorrhage	2.6%

In the category of diseases of lens(7.3%) , congenital cataract is the most common , constituting 70% of diseases of lens , followed by traumatic cataracts(35%) and a single case of ectopia lentis , in the present study.

Anatomically, among corneal diseases (2.6% of total cases), corneal ulcer is the most common group , constituting 50% of cases, followed by 25% of viral keratitis. Also 1 case each of corneal dystrophy, corneal abrasion and corneal opacity are recorded in the present study.

The diseases of sclera form 0.6% of total cases, all of which are diagnosed as episcleritis.

In the diseases of uvea (1.6% of all cases) , acute iridicyclitis is the commonest , constituting 60% of uveal diseases. Chronic iridocyclitis constitute 20% of cases and also one case of coloboma of iris is encountered.

In the diseases of the retina (1.33%), 50% of the cases are retinitis pigmentosa, 25% are retinopathy of prematurity and 25% are diagnosed as cases of macular pathology.

Among the category of diseases of lids and Lacrimal system(6.7%) , 66% of cases are chronic dacryocystitis and 44% are acute dacryocystitis.

In the category of nutritional deficiencies (9%), bitot spots are the commonest, constituting 67%; 33.3% are night blindness and also one case of keratomalacia is seen in the present study.

Lastly, the tumors accounted for 1% of the childhood eye diseases during the study period with two cases of retinoblastoma, in which one cases is bilateral and also one case of Rhabdomyosarcoma in a male child, who presented with proptosis at birth(fig , for which subtotal exenteration is done.

Fig – vernal conjunctivitis both eyes

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Fig – left eye- blepharoconjunctivitis with ulceration

Fig – left eye, hypopyon- corneal ulcer

Fig – left eye- chronic dacryostitis with induration and discharge over sac

Fig- bilateral congenital cataract (pre operative), corrected with IOL

Fig traumatic cataract- right eye

Fig – bilateral orbital cellulites.

Fig lid abscess- left

Fig – Proptosis of the left eye at birth (preoperative) and after subtotal exenteration. HPE as Rhabdomyosarcoma.

Discussion:
Eye diseases are important cause of medical consultation in children, with the spectrum varying in different localities. Children have unique problems in terms of ocular morbidities, mainly due to their inability to articulate their problems.

The higher frequency of consultation in older children in this study (ref table 3) may be due to their ability to be more articulate about their problems.

This frequency differs from similar study reporting a higher incidence of consultation in chidren younger than 5years of age. A difference in the spectrum and incidence of eye disorders may account for this. *[6]*

In the present the study, defective vision due to refractive errors, among the children is recorded as the most common cause of eye morbidity, which correlates with a study reported in Ibadan.*[4]* and with the school health services that regularly screen for refractive errors and refer affected children for refractive services.

Refractive errors affect childhood development, given that 80% of learning in children is sight dependant.

In the absence of regular preschool or school eye screening for refractive errors, many children with refractive errors go unnoticed.

In a study reported from North India, allergic conjunctivitis is the most frequently reported childhood eye disease, which in the present study is the second most common cause of eye diseases.[*2].*

In the present study ,among the diseases of conjunctiva, the incidence of allergic conjunctivitis is higher, where no gender differences are observed. Acute conjunctivitis and viral conjunctivitis is also significant number of cases. Two cases of ophthalmia neonatorum are also encountered.

Ocular infections are preventable but challenging causes of blindness, particularly in children given the number of blind years involved.

Among the corneal diseases, corneal ulcers constituted half of the cases followed by viral keratitis. Prevention and prompt treatment of corneal infections is essential, as these may lead to blinding corneal scars. Corneal scarring accounts for 75% of childhood blindness in Africa, with half of these cases involving a history of measles. [7]

In another study , a high frequency of pediatric eye injuries was reported, the reason for which is not clear, but may be because of agrarian nature of the communities, which may predispose the children to injuries from twigs and farming activities.*[8]*

In the present study, among the children with ocular injury (table 4), there is male preponderance, probably because they represent an independent and adventurous group, making them more vulnerable.

Among the category of congenital diseases, congenital cataract is recorded as the commonest cause of vision morbidity and tumors constituted only 1% of cases.

Conclusion:
Appropriate health education and school health programs to detect refractive errors are very essential and therefore prevent poor performance in school.

Ocular infections need prompt and adequate management to bring symptoms under control and prevent potentially blinding complications.

Nutritional deficiencies should be corrected by health education and properly implementing programs like mid day meal for school children, which is central government funded programme in Indian states like AndhraPradesh and Tamilnadu.

Prevention of ocular trauma in children remains a priority by adequate education of children, parents and teachers to ensure adequate supervision at play.

Majority of childhood cataract cases can be managed by intraocular lens implantation.

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