

Common Ocular Pathology in Paediatric Age Group (8-15 Years) in Rural and Backward Community of Assam

Harsh Vardhan Singh¹, Dileep Kumar², Iva Rani Kalita³, Shubhra Das⁴, Himanto N. Hazarika⁵

ABSTRACT

Introduction: The worldwide prevalence of childhood blindness is estimated to be 1.4 million with India being the largest inhabitant of blind children. The prevalence of childhood blindness in India is estimated to be 320,000, out of which 40-50% belongs to treatable causes. As the knowledge of the prevalence and causes of ocular morbidities among children in backward community plays important role in planning and evaluation of preventive and curative services for children, our study was aimed to evaluate common ocular pathology in children of age group 8–15yrs in rural and backward community of Assam.

Material and methods: Total of 1244 children (aged 8-15yrs) belonging to rural and backward community were screened for ocular pathologies including congenital cataract, uncorrected refractive errors, corneal opacity etc. through community outreach camp. Of which 92 children with some form of ocular pathologies were further evaluated. Comprehensive ocular examination including slit lamp, cycloplegic refraction and fundus evaluation were done. IOP measurement and gonioscopic evaluation in cases of suspected glaucoma were performed.

Results: Ocular diseases like ocular trauma, allergic conjunctivitis, adnexal infection and refractive errors were commonest conditions in rural group as compared to urban group with uncorrected refractive errors, conjunctivitis, cataract, strabismus being more common.

Conclusion: Preventable childhood ocular diseases with potentially blinding effects are more common in rural population. Proper education will further reduce preventable blindness of these groups of rural backward population.

Key words: Childhood Ocular Pathology, Childhood Blindness, Childhood Ocular Morbities

of community awareness, ignorance and harmful traditional practices among these community. Lack of education and lack of easy accesibility of health services also plays as a contributing factors.

As the knowledge of the prevalence and causes of ocular morbidities among children in backward community plays important role in planning and evaluation of preventive and curative services for children, our study was aimed in analysing the prevalence and proportion of various ocular morbidities in rural and backward community of Assam.

MATERIAL AND METHODS

The study was community based, cross-sectional study, carried out for 3 months from Sept 2016-Nov 2016 in Four villages belonging to backward community, selected randomly from Nagaon and Dhubri districts of Assam. The study was approved by the ethical committee of GMCH. Consent for the study were obtained from the parents of respective participants. Total of 1244 children of age group 8-15years (77.4% coverage) were screened for presence of ocular morbidities. Out of these 1244 children, 92 cases were having some form of ocular morbidities. These 92 cases were further evaluated in Regional Institute of Ophthalmology, GMCH.

Inclusion criteria: All Children of Age group 7–15 years.

Exclusion criteria: those whose parents refused to participate in the study.

Proper history and screening for presence of any ocular morbidities was done using flashlight. Visual acuity assesment using Snellens chart, refractive error evaluation using cycloplegic refraction, dilated fundus evaluation of posterior segment pathology using direct ophthalmoscope

INTRODUCTION

The worldwide prevalence of ocular morbidity is estimated to be 272.4 million, out of which 42.7 million (15.68%) belongs to visual blind group with vision <6/60 in better eye and 1.4 million blind belongs to paediatric age group.¹

India is home to the largest number of blind children in the world with estimated 320,000 blind children. Ironically, 40-50% of these cases, blindness can either be prevented or treated.²

The prevalence of blindness and ocular morbidity varies from 0.3/1000 and 17/1000 children respectively in affluent regions to 1.5/1000 and 94/1000 children respectively in the poorest communities in various studies in India.³

Higher incidence of childhood blindness and ocular morbidity in rural and backward community can be explained by lack

¹Post Graduate Trainee, Regional Institute of Ophthalmology, Guwahati, ²Consultant Ophthalmologist, ³Post Graduate Trainee, Regional Institute of Ophthalmology, Guwahati, ⁴Associate Professor, Regional Institute of Ophthalmology, Guwahati, ⁵Assistant Professor, Regional Institute of Ophthalmology, Guwahati, India

Corresponding author: Dr. Harsh Vardhan Singh, Flat A4C, Pragjyotis Apartment, Anand Nagar By lane 3, Bhangagarh, G.S.Road, Guwahati, Assam – 781005.

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were done by trained optometrist.

All children diagnosed to have ocular morbidities during screening were further evaluated. Thorough ocular examinations including Snellen's visual acuity assessment, cycloplegic refraction, slit lamp examination, direct and indirect ophthalmoscopic evaluation were done. IOP measurement and gonioscopic evaluation were performed in cases of suspected glaucoma.

STATISTICAL ANALYSIS

The data obtained was analysed with Microsoft Excel using SPSS version 21 and descriptive interpretation of data was done in the form of percentages.

RESULTS

A total of 1244 children of age 8–15 years were examined for ocular morbidity with mean age of 11.26 ± 2.52 years, out of which 725 were Male and 519 were female child with M:F ratio of 1.4:1. The children were further grouped into: Group I (7–9 years), Group II (10–12 years), and Group III (13–15 years). Age group and sex-wise distribution of children having ocular morbidity was carried out. Overall prevalence

| Age group (7-15years) | No. of children with Ocular morbidities (n=92) | Percentage |
|-----------------------|--|------------|
| 7-9years | 26 | 28.3% |
| 10-12years | 39 | 42.4% |
| 13-15years | 27 | 29.3% |
| | N=92 | |

Table-1: Age wise distribution of ocular morbidity in study population.

| Category | Number of cases (n=92) | Percentage |
|-------------------|------------------------|------------|
| Functional | 26 | 28.3% |
| Adnexal | 24 | 26.0% |
| Anterior segment | 26 | 28.3% |
| Posterior segment | 12 | 13.0% |
| Globe and orbit | 4 | 4.4% |

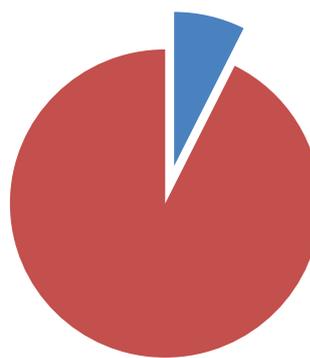
Table-2: Prevalence of various categories of ocular morbidities

| Vision | Numbers | Percentage |
|----------------|---------|------------|
| Normal | 39 | 42.4% |
| Low vision | 43 | 46.7% |
| Visually blind | 10 | 10.9% |

Table-3: Showing percentage of ocular morbidity cases with impaired vision

| Common ocular morbidities | Number | Percentage |
|--------------------------------|--------|------------|
| Uncorrected R/E | 21 | 22.8% |
| Corneal opacities | 18 | 19.5% |
| Traumatic/Congenital cataract | 17 | 18.5% |
| Vit. A def. | 09 | 9.8% |
| Amblyopia | 04 | 4.3% |
| Glaucoma(congenital/secondary) | 04 | 4.4% |

Table-4: Showing commonest treatable causes of visual impairment in the study



■ Ocular morbidity (7.4%)
■ No ocular morbidity (92.60%)

Figure-1: Prevalence of Ocular morbidity among study population.

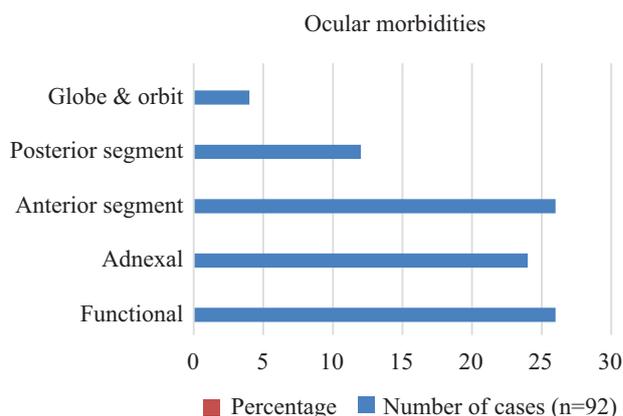


Figure-2: Prevalence of various ocular morbidities.

of ocular morbidity in the study was found to be 7.4%, that is 92 children out of 1244 study participants were having some form of ocular morbidity. On age group wise categorisation, maximum ocular morbidities were seen in Group II (Table 1). Based on the etiology, ocular morbidities were further categorised into:

- 1. Functional** – uncorrected refractive error, Amblyopia, strabismus and nystagmus.
- 2. Adnexal** – Lid anomalies (predominantly congenital or acquired ptosis, lid coloboma, meibomitis), NLDO (congenital), tumours like dermoid, epidermoid etc.
- 3. Ant. Segment** – conjunctiva (conjunctivitis- allergic/ infective), cornea (predominantly corneal opacity, microcornea, megalocornea), ant. Staphyloma, cataract (congenital, traumatic or complicated cataracts), Uvea(predominantly Ant. uveitis and iris coloboma).
- 4. Post. Segment** – predominantly Glaucoma (congenital/ secondary), optic atrophy, congenital optic disc anomaly, RP, post uveitis and vitritis.
- 5. Globe and orbit** – Microphthalmos, Phthisis bulbi, buphthalmos etc.

Functional morbidities and anterior segment pathology were most common morbidities 46.7%with prevalence of 28.3% each followed by adnexal morbidities (26%) in the study population.(Table 2, Fig 2). Based on NPCB classification of blindness, children were grouped into three categories:

- Normal vision (6/6 - 6/18 in better eye),
- Low vision/visually impaired (less than 6/18 – 3/60 in better eye),
- Economic blind (less than 3/60 – NPL).

Ocular pathologies with Low vision (less than 6/18) was most prevalent(46.7%) followed by ocular pathologies with normal 6/6 vision (42.4%). The prevalence of visual blind group was 10.9% (Table3). Common treatable causes of ocular morbidities in the study population were uncorrected refractive error (22.8%) followed by corneal opacity (19.5%) (Table 4).

DISCUSSION

The study conducted in the tribal community of assam confirmed the higher prevalence of ocular morbidities(7.4%) as compared to the general population, suggesting poor health facilities and lack of health awareness among these backward areas. In the present study, the prevalence of ocular morbidity was found to be 7.4% and that of visual impairment (Vision less than 6/18 in better eye) was found to be 5.4%, Vasudha et.al⁴ reported similar results with prevalence of ocular morbidities in paediatric age group to be 2.66% among the rural community.

Most common ocular morbidity in the present study was Uncorrected refractive error (1.7%) followed by corneal opacities and trumatic and congenital cataract (1.5%) while Vasudha et al showed Vit. A deficiency as the commonest morbidity (1%) followed by uncorrected refractive error (0.6%). The difference may be because of the higher incidence of trauma induced impairment and higher prevalence of congenital morbioties in these population.

The prevalence of Childhood blindness in present study was 0.8% (10 out of 1244 screened cases), similarly Vasudha et al⁴ showed the prevalence of 0.1% in there study. On the contrary much lower prevalence (0.015%) was noted in study conducted in kolkata.⁵ Apart from India, studies conducted in countries like Finland, Africa, Chile, and Nepal have also demonstrated a lower prevalence of ocular morbidity in children.^{5,6,7} The variation can be attributed to the diference in study population, racial and ethnic variations.

The prevalence of traumatic and congenital cataracts, corneal opacity were much higher among the preventable causes of blindness was much higher than other studies.^{8,9,10} Unexpected high prevalence of preventable causes of blindness such as traumatic cataract, corneal opacities, secondary glaucoma can be explained because of lack of awareness, ignorance and lack of health service among these communities.

CONCLUSION

Nearly half of the prevalence of childhood blindness is attributable to preventable causes like cataract, corneal opacity, uncorrected refractive error, and similar results is shown in present study.

There is significantly higher prevalence of childhood blindness in rural and backward community mostly because of lack of awareness and ignorance.

High prevalence of preventable causes of blindness in

paediatric age group especially in rural community focuses the need for expanding the paediatric ophthalmic services along with the measures to increase the awareness among these population.

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