



OCULAR MANIFESTATIONS IN MENTALLY CHALLENGED CHILDREN

Mohammed Ather *	Professor of Ophthalmology, Bhaskar Medical College, Yenkapally, Moinabad, 500075, RR district, Telangana. *Corresponding Author
Farha Jabeen	Assistant Professor of Ophthalmology, Bhaskar Medical College.
Vanga Hemanth Reddy	Senior resident, Department of Ophthalmology, Bhaskar Medical College.
Avvari Sowmya	Junior resident, Department of Ophthalmology, Bhaskar Medical College.
Manikonda Bhoomika Rao	Junior resident, Department of Ophthalmology, Bhaskar Medical College.
Prathyusha Josyula	Internee, Department of Ophthalmology, Bhaskar Medical College.

ABSTRACT **Purpose:** To identify the ocular disorders in mentally challenged children attending a special school.
Methods: A total of 100 mentally challenged children in the age group of 3-16 years attending special school in a district of South India were examined. Complete ocular examination was done. Ocular problems were identified and categorized into development related, hygiene related and IQ related problems.
Results: Seventy children (70%) had ocular problems. Refractive error and strabismus were the common ocular problems seen in this study. Ocular manifestations like nystagmus, congenital ptosis, anti mongoloid slant, wide telecanthus with epicanthus, chalazia, stye, blepharitis, congenital NLD obstruction, conjunctivitis, xerosis, microcornea, corneal opacities, congenital cataracts, optic atrophy, retinitis pigmentosa were seen. An association was found between the severity of mental retardation and ocular problems ($P < 0.005$).
Conclusion: A high prevalence of ocular problems was seen in mentally retarded school children. These children should undergo annual ophthalmic evaluation. Visual function of the children should be assessed as soon as the child is admitted to the school. Earlier assessment and correction of the visual problems will have greater chance of achieving potential and will prevent visual impairment.
Aim of the study: To identify the ocular disorders in mentally challenged children attending National Institute of Mental Health, a special school for such children.

KEYWORDS : Mentally challenged, cycloplegic refraction, nystagmus, strabismus, Congenital cataract, chalazia.

INTRODUCTION

Embryologically eye develops from neuro-ectoderm (prosencephalon). Optic vesicle is an outgrowth from prosencephalon. Brain also develops from the prosencephalon,^[1] which expands to form cerebral hemispheres. During fetal development, the anomalies occurring in the brain may affect the development of eyes also which can lead to developmental anomalies of eyes which can coexist with mental retardation.^[2]

Any birth trauma, birth hypoxia, prolonged labor, difficult abnormal and instrumental delivery can cause cerebral palsy and the child can also have ocular problems because of it.^[3] Two handicaps in one child will not have additive effect but have a multiplicative effect in the learning and development process of the child.^[4] This is because vision plays an important role in the development of a child and uncorrected vision affects the child's performance at various levels.^[3]

MATERIALS AND METHODS

This is a prospective study conducted at NIMH on 100 mentally handicapped children. All children were examined with the help of teacher or parent of the child. Examination of eyes was done in diffuse light by torch and loupe at NIMH. Phorias and tropias were detected by Hirschberg's corneal reflex test and Cover and Uncover test. Visual acuity was recorded by Kay picture test, Snellen's E chart or Sheridan Gardener's tumbling E test. Cycloplegic refraction was done in cases with less than 6/9 vision. Cyclopentolate was avoided in children with history of seizures. Retinoscopy and subjective correction was done in co-operative children. Children who are not co-operative were prescribed glasses according to retinoscopy readings. Fundus examination was done using direct or indirect ophthalmoscopy. All the living conditions and life styles of these children were thoroughly related to understand the occurrence and incidence of hygiene related problems. Teachers and parents were counseled about the hygiene.

Children suffering from mild eye ailments like conjunctivitis,

blepharitis, stye etc., were given appropriate treatment and children having chalazion were referred to base hospital for minor surgical procedure like incision and curettage. The children having squint and congenital cataract were referred to tertiary eye care hospitals for correction.

RESULTS

Out of 100 children examined, 65 were males and 35 were females. 10 children were in the age group of 3 to 6 years, 23 children were in the age group of 7 to 10 years, 67 children were in the age group of 11 to 16 years. 27% had mild mental retardation (IQ 50-70), 39% had moderate mental retardation (IQ 36-50) and 34% had severe mental retardation (IQ < 35).

70 children had ocular problems. Refractive error and strabismus were the common ocular problems seen in this study. 35 children had refractive error, of which 22 children had myopia and 13 children had hypermetropia. Strabismus was seen in 25 children of which 17 had esotropia, 7 had exotropia and 1 had hypertropia. Development related problems and hygiene related problems are described in Tables 1 and 2, respectively. Other findings like cerebral palsy (6 children), epilepsy (12 children) and hypothyroidism (2 children) were noted.

Table 1: Development related problems.

S.No	Type of problem	No of Cases
1	Nystagmus	3
2	Congenital ptosis	1
3	Anti Mongoloid Slant	2
4	Xerosis of conjunctiva	3
5	Microcornea	5
6	Wide telecanthus with epicanthus	10
7	Optic atrophy	1
8	Facial asymmetry	1
9	Retinitis pigmentosa	1

10	Congenital NLD obstruction	1
11	Congenital Cataract	6

Table 2: Hygiene related problems.

S.no	Type of hygiene related problem	No of cases
1	Chalazia	5
2	Stye	1
3	Squamous blepharitis	10
4	Mucopurulent Conjunctivitis	5

DISCUSSION

The results of the study are consistent with our hypothesis that mental retardation and ocular disorders coexist in many children. Both of them share many etiologies such as birth trauma, difficult labor, instrumental delivery, etc., which can cause cerebral palsy and ocular disorders related to it. The close embryological association between the eyes and the brain makes their disorders to go together.

Children having birth trauma or difficult labor will have normal embryological development of whole body including eyes. The trauma occurs to brain only and they develop cerebral palsy but their eyes will be structurally normal. They may have motility problems like squint, nystagmus because of injury to their brain caused by hypoxia. They are mentally retarded due to injury to the brain during prolonged and obstructed labor. These children will also have hygiene related problems because they cannot maintain themselves. The present study is compared to Parikshit Gogate et al study⁽¹⁾, in many respects which is described in Table 3.

Table 3: Comparison of the present study with Parikshit Gogate et al study.

	Gogate et al study	Present Study
No. Of children examined	526	100
Male:Female ratio	60:40	65:35
Mild MR	146	27
Moderate MR	276	39
Severe MR	50	34
Myopia	57	22
Hypermetropia	33	13
Exotropia	45	17
Esotropia	38	7
Hypertropia	0	1

CONCLUSION

The most important inference of this study is that mentally challenged children have decreased ability to express themselves and so their ophthalmic conditions do not come into light. But if they are diagnosed and treated, there would be remarkable improvement in their developmental processes and learning abilities. Vision plays a very important role in the development of a child and once it is corrected it would help the child to achieve success in the learning process as one of the biggest obstacles in the learning and developmental processes would be eliminated. Children can pursue their education in the specialized school or under the guidance of specially trained teachers who are well versed in dealing with this kind of children. They cannot take care of their hygiene and it is very important for the care takers to monitor their hygiene and get them treated, if they are found with any signs of infection. This study opens up avenues for further research on the age of diagnosis and correction of ocular disorders and the level of improvement with the hypothesis that children who are corrected at an earlier age may show better progress in life.

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