STATUS OF VISUAL AND OCULAR DISORDER IN PEOPLES WITH MENTAL RETARDATION

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Abstract

Aim: To evaluate visual and ocular disorder in peoples with mental retardation.

Background: The vision plays a vital role development of cooperate actions such as language, interpreting facial expressions and abilities requiring hand eye co-ordination. The mental retardation people are difficult to evaluate, requiring patience, skills and a broader range of investigatory instruments than normal people. The visual problems of mentally retarded people are often ignored as they cannot express their feelings by their own. There have been several studies which reported ocular and visual disorders in mental disorder peoples.

Objectives: To analyse the status of vision in peoples with mental retardation and also to determine the prevalence of ocular defects in peoples with mild, moderate and severe mental retardation attending special educational schools.

Materials and methods: A total of 150 institutionalized peoples with mental retardation in the mean age group of 21.07± 8.228 years underwent a visual screening based on a standard test protocol. Visual and ocular disorders were identified and subjective optical correction was advised as well as referrals of the complicated cases were assessed.

Results: In our study, the prevalence of refractive error in mentally retarded people was found to be 46% and astigmatism being the most highly prevalent refractive error among these people. Compared to the prevalence rate of refractive error in normal population found to be 30%. The prevalence rate of ocular disease among mentally retarded people is 29.3% and blepharitis (14%) being the most highly prevalent ocular defect. It is found that there is no association between the severity of mentally retarded peoples with ocular disorder($p=0.882$) and refractive error($p=0.135$). Moreover, it is also found that out of 69 only 9 subjects with refractive error were using spectacles.

Conclusion: Visual examination in mentally retarded people is ignored and their ocular conditions remain undiagnosed. Therefore, assessments should be done that may improve or enhance the skills of these people. The sign of blepharitis is commonly seen in such patient and proper hygiene in care of these patients should be emphasised.

Keywords: Mental retardation, visual disorder, ocular defects, vision assessment, special school, screening protocol.

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Introduction

Mental retardation is a condition of defective growth and development of the mental as well as physical health which is characterized by incomplete state of skills presented during the developmental period that affects the overall capacity for capacity for logic, understanding, self-awareness, learning, emotional knowledge, planning, creativity, and problem solving. Retardation can occur with or without any other related mental or physical disorder.The state of mental retardation may be associated with the visual impairments, hearing impairments, learning disabilities , speech and physical impairment. 1

A definitive diagnostic category is recommended based on the level of intellectual functioning and the IQ level provides a guidance for the identification of mental health globally.The categories described by World health organisation for staging the mental retardation with standard IQ tests are-

Mild mental retardation-The IQ ranging from 50 to 69 is indicative of mild mental retardation. .

Moderate mental retardation-. The IQ is usually in the range 35 to 49.

Severe mental retardation- The IQ is usually in the range 20 to 34.

Profound mental retardation- The IQ in this category is estimated to be below 20.

The causes of visual defects may be due to result of syndromes, inherited eye conditions, pre-natal or post-natal factors.In several ways vision can be impaired which may be due to a structural malfunctioning, refractive error, cortical visual impairment.

Associated medical conditions whether or not are judged to be causative factors of the mental retardation. The ocular conditions such as Visual disturbance, Blindness and low vision, Nystagmus and other irregular eye movements are among those encountered most frequently whether causative or not.

Materials and methodology

150 selected institutionalized patients with mild,moderate and severe mental retardation secondary to a wide variety of both known and nonspecific etiologies.The head of all Special education schools within Delhi NCR were informed and approval was taken from the heads of selected special schools with a view to measure a parameter of eye.

After checking the medical records for cause and severity of ID and ophthalmological history, protocolled assessment of visual functioning was performed on site in one session.

Visual acuity- Evaluated monocular presenting and best corrected visual acuity for both near and distance with chart set 10 feet (3 meters) from the patient under Standard lighting. Referral Criteria: 20/40 (10/20) or worse OD or OS. Subjects must be able to correctly identify 4 out of 5 symbols within any one line

Auto refraction- Evaluated the status of refractive error in subjects objectively by instructing the subjects to fixate on specified target and examiner monitored and used landmarks designated to ensure proper

alignment and fixation. Instrument may voluntarily move to left eye once the right eye testing is finished. If not, manually adjust it to test the left eye. Press the print button to receive a readout of the indices found.

Retinoscopy-Evaluated the refractive status of each subjects' eye and non-corporative subjects were exclude. Instructed the subjects to fixate at a large size attractive target and retinoscopy was performed at that state.

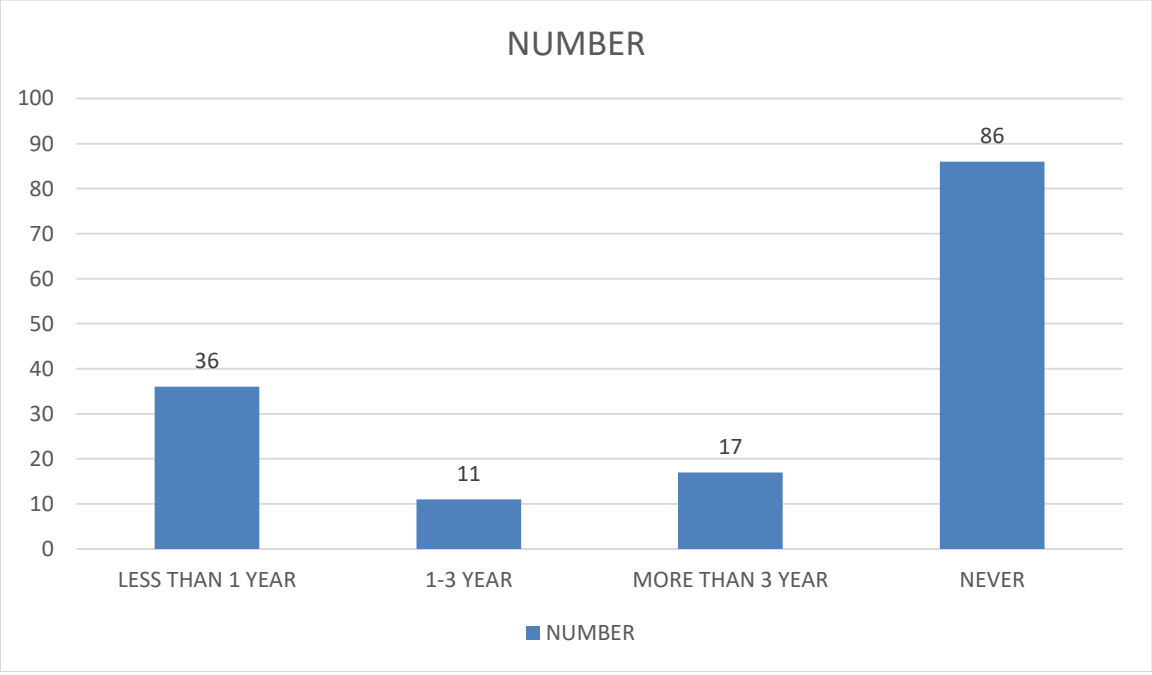
Hand held slit lamp- The external and anterior segment of the eye was evaluated. The subject is seated behind the bio microscope/hand held slit lamp. Directed the subjects to sit straight and look forward.

Sampling and assessment were performed between January 2017 to April 2017.All data were placed in spreadsheet and analyzed with Statistical package for the social sciences (SPSS) version 20.0.

Results

A standard protocolled assessment of vision as well as ocular status in young adults with mental retardation was done in three special school of Delhi, NCR.The mean age of all subjects was 21.07± 8.228 years and equal number of male and female.

Figure1. assessment of visual and ocular status of eyes previously



From the figure no 1, it is understood that only 24%(n=36) has underwent an eye care assessment for less than one year while 7.3%(n=11) had an eye examination between 1-3 years,11.3%(n=17) underwent eye examination more than three years before and 57.3%(n=86) had never assessed for an eye examination as reported by the patient.

Table.1 presenting binocular visual acuity status of the subjects

vision	frequency	Cumulative frequency	percentage
20/20	28	28	18.7
20/25	38	66	25.3
20/32	22	88	14.7
20/40	18	106	12.0
20/50	15	121	10.0
20/63	7	128	4.7
20/80	8	136	5.3
20/100	9	145	6.0
20/125	2	147	1.3
UNABLE	3	150	2.0
Total	150		100.0

From the above table it is understood that only 28 out of 150 mentally retarded individual has visual acuity of 20/20,38 out of 150 mentally retarded has visual acuity of 20/25 while only 2 out of 150 mentally retarded young adults has a visual acuity of 20/125.

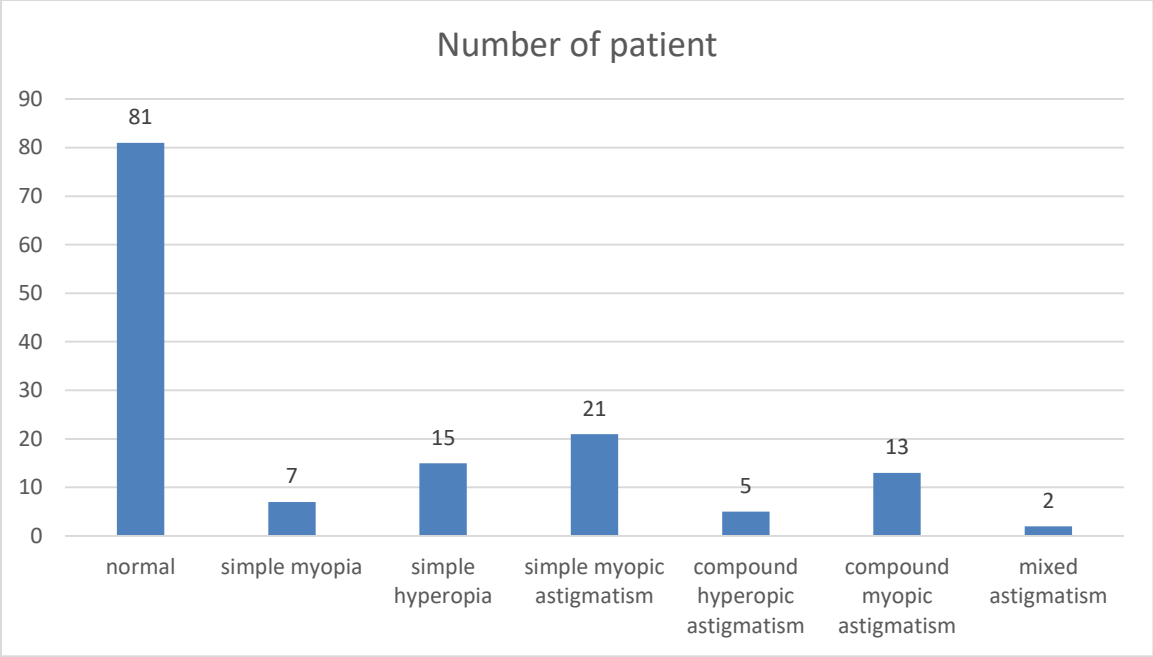
Table.2 frequency distribution of refractive error on gender

Participants gender	Refractive error		Total
	no	Yes	
Male	40(53.33%	35(46.67%)	75
Female	41(54.67%)	34(45.33%)	75
Total	81(54%)	69(46%)	150

From the above table it is observed that the prevalence of refractive error among mentally retarded male is 46.67%(n=35) while in female it is 45.33%(n=34).46% adults with mental retardation have refractive error.

Table.3 Frequency distribution of refractive error on severity of mental disorder

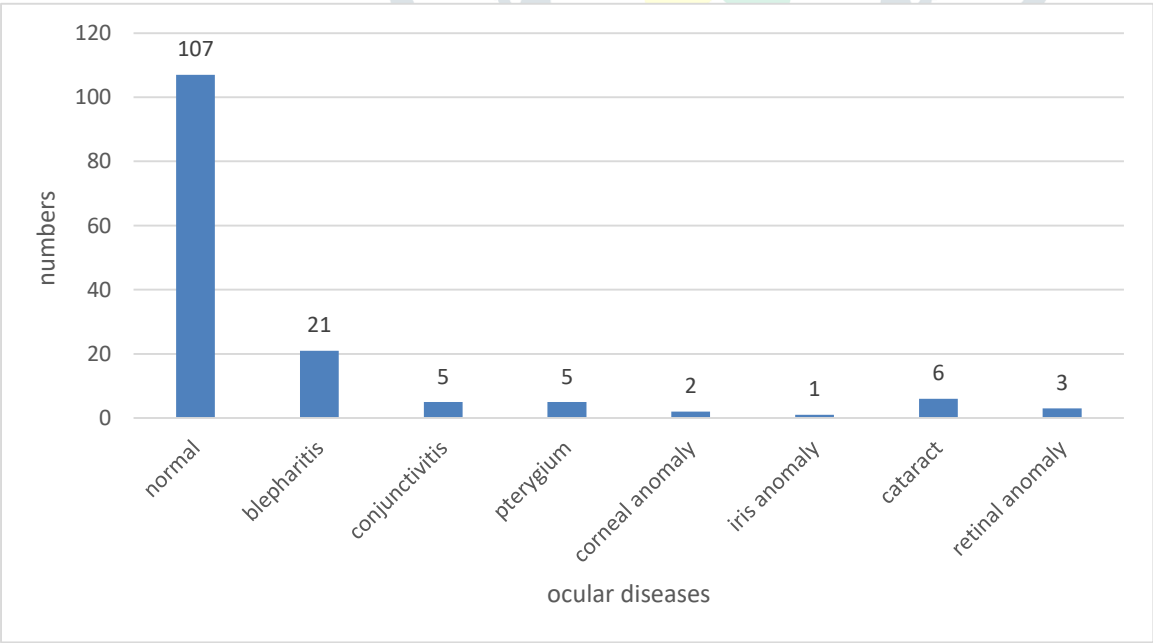
Type of participants severity	REFRACTIVE ERROR		Total
	NO	YES	
Mild	34(52.31%)	31(47.69%)	65
Moderate	40(59.70%)	27(40.30%)	67
Severe	7(38.89%)	11(61.11%)	18
Total	81(54%)	69(46%)	150



Out of 150 tested subjects 69 individual (46%) were found to have defective vision while 81(54%) had a normal vision. Refractive errors were found to be more common in females than in males. In these study it is also found that 52.13% subjects with mild ,43.28% subjects with moderate and 50% subjects with severe mental retardation had refractive error.

It has been also found that astigmatism had the high prevalence of refractive error among all other types of refractive error in the mentally retarded young adults' individuals.

Figure 3. slit lamp diagnosis of the people with mental retardation



From the above chart, it is understood that blepharitis 14% (n=21) is the most prevalent ocular disease followed by cataract 4% (n=6) ,conjunctivitis 3.3% (n=5) and pterygium 3.3% (n=5) among young adults with mental retardation subjects.

The prevalence rate of ocular disease among multiple disability people is 29.3% and blepharitis (14%) being the most highly prevalent ocular defect.

The p value is measured with the kruskal-wallis test and it is found that there is no association between the severity of mental disorder with ocular disorder(p=0.882) and refractive error(p=0.135). Moreover, it is also found that out of 72 only 9 subjects with refractive error were using spectacles.

Discussion

The present study is a population based prospective study of visual as well as ocular defects among multiple disabilities adult in Delhi NCR, India. It has been found that there is no association between the severity of mental disorder and refractive error (p=.135) and also no association between the severity of mental disorder and ocular disorder (p=.882) with the help of kruskal-wallis test.

The study has emerged as a group with a need for ophthalmologic assessment, only 36.8% underwent eye assessment previously and 63.7% has never assessed for an eye care. Nearly half of the subjects (46%) in this study had visual disorder and one fourth (29.3%) had ocular abnormalities.

In our study, it is found that subjects with 69 individual (46%) were found to have defective vision while 81(54%) had a normal vision and the most prevalent refractive error was found to be astigmatism. However, in the study for the normative population carried out in Tamil Nadu, India, namely-" Prevalence 1of refractive error in school children" by N. Prema it is found that the prevalence of the refractive error is 30.57%. Thus it proves that refractive error prevalence is more in multiple disable people than the normal people. It is also found in our study that tested subjects 29.3% individual (44) were found to have ocular disease while 70.7%(106) had a normal eye and most common ocular disease is found to be blepharitis followed by cataract (6). In our study we found that only 13.04% subjects with refractive error were using spectacles.

Interestingly, a subject with high myopia was screened for visual and ocular conditions. The vision of that subjects was very poor (OD-20/200 and OS-20/200) with a refractive power of OD: -16.00/-1.00×10 and OS: -16.00/-1.00×180 and internally myopic chorioretinal atrophy with posterior staphyloma was found with slit lamp and direct ophthalmoscope.

In the study of "ocular disorder in children with learning disabilities in special education schools of pune, India"4 conducted by Prikshit Gogate,Freya Rao,S JKharat and M Deshpande between 2007-2008 the most prevalent visual condition found was myopia (39.5%) while hyperopia (39.16%), astigmatism (20.9%).The most prevalent bilateral ocular disorder found in children with learning disabilities areametropic amblyopia (45.45%) followed by optic atrophy (36.3%), cortical visual impairment (5.4%), congenital anomalies in disc (3.6%), congenital cloudy cornea (1.8%) and congenital ptosis with amblyopia (1.8%).However the unilateral ocular disorders found were strabismus amblyopia (24%), optic atrophy (20%), anisotropic amblyopia (12%), macular scar (20%),microphthalmos with coloboma (8%) and others (16%).The most prevalent visual condition found was myopia (39.5%) while hyperopia (39.16%), astigmatism (20.9%).However in our study it is found that blepharitis(14%) is the most prevalent ocular disorder. We also found that only 9 of the 69 students with refractive errors were using spectacles.

Conclusion

A high prevalence of refractive error was seen in institutionalized mentally retarded people than the normal population of same age group. However, blepharitis proves to be the most prevalent ocular disorder in young adults with mental retardation people, so proper hygiene in care of these patients should be emphasised. Therefore, assessments should be done that may improve or enhance the skills of these people. These peoples should be encouraged to have a regular eye examination as early detection and intervention can prevent the prevalence and severity of visual impairment in future.

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