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Research Article

A STUDY OF DISTRIBUTION OF VARIOUS CAUSES OF BLINDNESS AMONGST PATIENTS ATTENDING AT TERTIARY EYE CARE HOSPITAL FOR VISUAL HANDICAP CERTIFICATE PURPOSE

KURAPATI BHANU NAGASRI*, PAMU NIRMALA JYOTHI, MALLULA MADHAVI

Department of Ophthalmology, Government Regional Eye Hospital, Visakhapatnam, Andhra Pradesh, India. Email: bhanu70d@gmail.com

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ABSTRACT

Objectives: To study the various causes of blindness among patients attending the DR.R.S.P.R. Government Regional Eye Hospital, Visakhapatnam, for visual handicap certificates. To understand the relationship between age and sex with various etiologies.

Methods: Retrospective analysis of records of 272 patients (360 eyes) who had applied for the visual handicap certificate in the period of 1 year, i.e., from August 2021 to July 2022, at DR. R. S. P. R. Government regional eye hospital, Visakhapatnam. Certificates were issued after all the necessary examinations and investigations were done by qualified ophthalmologists, as per the guidelines.

Results: The majority are in the 31–50 age group (41.8%). Males (69.85%) are more than females (30.14%). Preventable causes (52.7%) are more common than non-preventable causes (47.2%). Phthisis (17.2%) was the most common preventable cause, followed by corneal opacity (13.3%). Retinitis pigmentosa (20.5%) was the most common non-preventable cause.

Conclusion: Most common causes of blindness are preventable, so early diagnosis, prompt treatment, and regular follow-up reduce the incidence of blindness. Awareness programs for preventable blindness, health education, and genetic counseling for congenital and hereditary causes will definitely decrease the incidence of blindness.

Keywords: Visual handicap certificate, Preventable causes, Non preventable causes.

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INTRODUCTION

WHO Definition of blindness: "Visual acuity of <3/60 (Snellen) or its equivalent" or inability to count fingers in daylight at a distance of 3 meters [12].

NPCB Definition of blindness: "Defined as presenting a distance visual acuity of <6/60 or central visual fields of <20° in the better eye" [1].

The government offered a number of benefits for the rehabilitation of visually handicapped people. According to the government of India's ministry of social justice and empowerment, a person must have a minimum of 40% disability in order to qualify for any benefits or concessions [2].

Aims and objectives of the study

To study the various causes of blindness among patients attending the DR.R.S.P.R. Government Regional Eye Hospital, Visakhapatnam, for visual handicap certificates. To understand the relationship of age and sex between various etiologies.

METHODS

This was a retrospective study conducted on 272 patients (360 eyes) who had applied for a visual handicap certificate at the Ophthalmology Department, Dr. R.S.P.R. Government Regional Eye Hospital, Andhra Medical College, Visakhapatnam, in 1 year period, i.e., from August 2021 to August 2022 were included. This study excludes treatable causes like cataracts, correctable refractive errors without amblyopia, posterior capsular opacification, and recent retinal detachment.

Institutional ethics committee approval was obtained before the start of the study. Written informed consent was taken from each patient before inclusion in the study. A detailed clinical history pertaining to decreased vision and cataract surgery was taken. A detailed ophthalmic examination was done by the ophthalmologists appointed for the handicap board. A detailed history of the patient was taken. Best corrected visual acuity by Snellen chart. A detailed slit lamp examination of the anterior segment was done. Fundus examination was done with a 78D and indirect ophthalmoscope. A B-scan was done for posterior segment evaluation where necessary. Goldmann Applanation Tonometry to record intraocular pressure in glaucoma cases. Visual field examination using Humphrey Visual field analyzer in required cases. Optical coherence tomography of the macula, RNFL, and GCC was done in the required cases. After the detailed evaluation, patients were diagnosed and categorized according to the criteria for a visual handicap.

RESULTS

DISCUSSION

Certificates for those with visual impairments come with several advantages and support recipients in obtaining accommodations at work and in study. Individuals who have a disability percentage of 40% (BCVA in the better eye, 6/18–6/36) are deemed to be disabled and are eligible for government benefits [1].

In our study, 41.8% of the patients were between the ages of 31 and 50. This demonstrates that younger individuals are more than the older individuals to approach the board for disability certification to avail themselves of the benefits associated with the disability categorization, such as employment, education, and transportation.

Males (69.85%) are more common than females (30.14%). It was evident from our study that the number of males attending the medical board to obtain the visually handicapped certification was significantly higher than that of females, which is similar to the studies by Ghosh

Table 1: Visual disability guidelines [1]

Category	Better eye	Worse eye	Field of vision	Percent of blind	WHO definition
0	6/9–6/18	6/24–6/36	-	20	-
I	6/18–6/36	6/60–Nil	-	40	Low vision
II	6/60–4/60	3/60–nil	10–20°	75	Severe visual impairment
III	3/60–1/60	Cf 1m to nil	10°	100	Total blindness
IV	Cf1m to nil	Cf 1m to nil	10°	100	Total blindness
One eyed	6/6	Cf 1m to nil	-	30	-

Table 2: Preventable and non-preventable causes of blindness

S. No.	Preventable causes	190 eyes (52.77%)
1.	Phthisis bulbi	62 (17.2)
2.	Corneal opacities	48 (13.3)
3.	Glaucoma	32 (8.9)
4.	Retinopathies	15 (4.2)
5.	Amblyopia	21 (5.9)
6.	Empty socket	12 (3.3)
	Non preventable causes	**170 eyes (47.23)**
1	Retinitis pigmentosa	74 (20.5)
2	Optic atrophy (include primary, secondary)	36 (10)
3	Congenital anomalies	18 (5)
4	Degenerative myopia	18 (5)
5	Macular degenerations and dystrophies	22 (6.1)
6	Others	2 (0.6)
	Total	360 eyes (100)

Table 3: Age and preventable causes distribution

S. No	Diseases	0–10 Year	11–20 Year	21–30 Year	31–40 Year	41–50 Year	51–60 Year	61–70 Year	>70 Year	Total (190 eyes) (%)
	Preventable causes									
1.	Phthisis bulbi	0	2	3	17	20	15	5	0	62 (32.7)
2.	Corneal opacities	1	2	2	6	14	18	4	1	48 (25.2)
3.	Glaucoma	0	1	2	3	7	11	7	1	32 (16.8)
4.	Retinopathies	0	1	1	1	2	4	4	2	15 (7.9)
5.	Amblyopia	1	4	5	7	4	0	0	0	21 (11.05)
6.	Empty socket	0	3	1	2	2	2	1	1	12 (6.3)

Table 4: Age and non-preventable causes distribution

S. No	Diseases	0–10 Year	11–20 Year	21–30 Year	31–40 Year	41–50 Year	51–60 Year	61–70 Year	>70 Year	Total (170eyes) (%)
	Non preventable causes									
1.	Retinitis pigmentosa	0	12	16	18	12	10	6	0	74 (43.5)
2.	Optic atrophy	4	4	6	8	10	3	1	0	36 (21.2)
3.	Congenital anomalies	8	4	3	0	2	1	0	0	18 (10.5)
4.	Degenerative myopia	0	0	8	4	4	2	0	0	18 (10.5)
5.	Macular degenerations and dystrophies	0	3	2	3	1	1	6	6	22 (13)
6.	Others	1	0	0	1	0	0	0	0	2 (1.17)

et al. [3] in West Bengal, Ambastha *et al*. [10] in Bihar in India, and Khan *et al*. [11].

Preventable causes (52.77%) are more common than non-preventable causes (47.23%). In the present study, phthisis was the most common preventable cause (17.2%), followed by corneal opacity (13.3%). Similar to the studies by Ghosh *et al*. [3] in west Bengal and Khan *et al*. [11] in northern Maharashtra, showed Phthisis bulbi, followed by corneal opacity, was found to be the most common cause of blindness. Retinitis pigmentosa is the most common non-preventable cause (20.5%), followed by optic atrophy (primary and secondary) (10%).

In the present study, in the age group 0–10 years, the most common cause of blindness was congenital anomalies. In a study by Bhalerao *et al*. [4] in Allahabad, congenital ocular anomalies accounted for 52.2% of blindness. It is reduced with prenatal counseling and genetic counseling regarding consanguineous marriages. In the 11–30 year age group, retinitis pigmentosa, followed by degenerative myopia, was the most common non-preventable cause of blindness, and amblyopia was the most common preventable cause of blindness. In the 31–50 age group, retinitis pigmentosa followed by optic atrophy were the most common non-preventable causes of blindness, and phthisis bulbi followed by corneal opacities were the most common preventable causes of blindness. In the 51–70 age group, age related macular degeneration and glaucoma are the common causes of blindness. In a study by Ambastha *et al*. [10] in Bihar, glaucoma and diabetic retinopathy were the most common causes of blindness between 46 and 65 years of age and above 65 years of age, respectively. In our study,

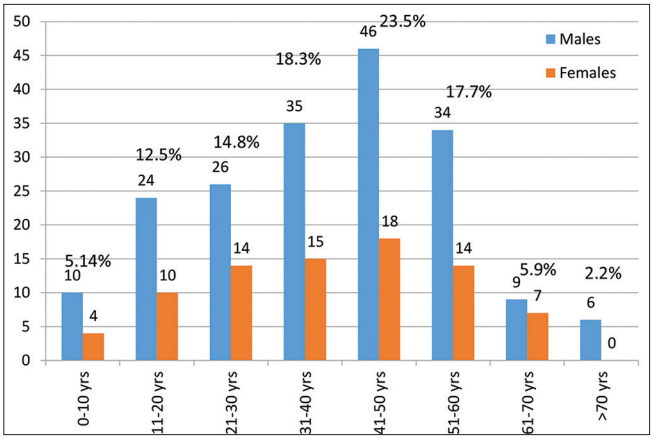

Fig. 1: Age and sex distribution

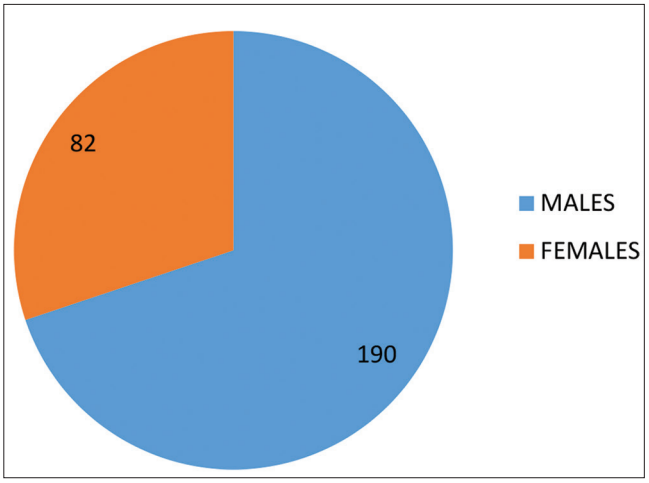

Fig. 2: Pie diagram showing sex distribution

Phthisis bulbi was the most common preventable cause of blindness, so awareness among patients, prompt treatment, and early surgical intervention in required cases can prevent this morbid condition.

CONCLUSION

Most common causes of blindness are preventable, so early diagnosis, prompt treatment, and regular follow-up reduces the incidence of blindness. Awareness programs for preventable blindness, health education and genetic counseling for congenital and hereditary causes will definitely decrease the incidence of blindness.

AUTHORS CONTRIBUTION

Kurapati Bhanu Nagasri, a postgraduate in the department of ophthalmology, Government Regional Eye Hospital, Visakhapatnam, aided in compiling the cases and diagnosed and analyzed various causes of blindness, thereby framing the final outcome of the study, along with the other authors. Pamu Nirmala Jyothi, Associate Professor in the department of Ophthalmology at the Government Regional Eye Hospital, Visakhapatnam, diagnosed and analyzed various causes of blindness among patients attending the Government Regional Eye Hospital, Visakhapatnam. Mallula Madhavi, Associate Professor in the Department of Ophthalmology at the Government Regional Eye Hospital, Visakhapatnam, diagnosed and analyzed various causes of blindness among patients attending the Government Regional Eye Hospital, Visakhapatnam.

CONFLICTS OF INTEREST

The authors declared no conflicts of interest.

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