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Original Research Article

CAUSES OF SEVERE VISUAL IMPAIRMENT AND BLINDNESS IN PATIENTS ATTENDING SADAREM CAMPS AT GOVERNMENT GENERAL HOSPITALS IN TELANGANA STATE

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ABSTRACT

Background: Very few studies are available regarding the causes of severe visual impairment and blindness in India as well as in Telangana State.
Purpose: To notice the common causes of severe visual impairment (SVI) and blindness in remote districts of Telangana State.
Materials and Methods: This is a cross sectional, retrospective and observational study. A total of 620 patients attended SADAREM camps and were enrolled for this study during the period of 2 years from July 2022 to June 2024.
Results: Demographic data was collected as per the BCVA, age, gender, occupation and residence. Most of the patients were belonging to rural areas (78%), Males (62%) were more common than females. Most common causes of blindness were due to various ocular diseases like Corneal (11.77%), Whole globe (20.50%), Vitreoretinal (15.50%), Glaucoma (8.08%), Amblyopia (6.93%).
Conclusion: Data obtained from this study can be utilized to design the programmes for the prevention and control of blindness in Telangana State.
Keywords: Severe visual impairment (SVI), Blindness, Best corrected visual acuity (BCVA), SADAREM (Software for Assessment of Disabled for Access Rehabilitation and Empowerment) camp.

INTRODUCTION

Severe visual impairment and blindness are the devastating conditions leading to serious socioeconomic implications. The family directly shares the economic and emotional burden of the individual and indirectly so does the Nation. Visual acuity better than 6/18 is considered as normal. Best corrected visual acuity (BCVA) less than 6/60 to 3/60 in the better eye is termed as severe visual impairment (SVI). BCVA of 3/60 or worse in the better eye is considered as blind as per the WHO and National blindness survey. In India vision less than 6/60 in better eye is defined as economical blindness and vision less than 3/60 in better eye is considered as legal blindness, no perception of light is classified as complete or total blindness as per NPCB (National Programme for Control of Blindness). Worldwide 338 million people are visually impaired. Out of these 43.28 million people may come under blindness category as per WHO statistics of global blindness.[1,2] This is leading to enormous global financial burden with an estimated global productivity loss about US 411 billion dollars.[3] In India it is around 38.[4] billion USD.4 In India, 4.95 million people are considered blind and 70 million people are suffering from severe visual impairment.[5,6] The most common causes of visual impairment and blindness are uncorrected refractive errors, cataract, glaucoma, diabetic retinopathy, and age related macular degenerations(ARMD). In addition to these ocular trauma, severe Vitamin A deficiency, and corneal infections are noticeable causes in India.[6]

The current data shows the incidence and prevalence of blindness is more common in underdeveloped and developing countries like India. These countries bear the burden of having more than 90% of blind and visually impaired people in the world.[7] This is because the developed countries initiated effective measures to eliminate the avoidable blindness (preventable and treatable) .In Telangana State, visually disabled certificates are issued in SADAREM camps , conducted twice in a month in all Government General Hospitals at District Headquarters to provide financial assistance to the visually challenged people .SADAREM stands for Software for Assessment of Disabled for Access Rehabilitation and Empowerment .

The main purpose of this study is to identify the common causes of severe visual impairment and blindness in patients attending SADAREM camps in remote districts of Telangana state. Early detection and management of these causes reduces the magnitude of this global phenomenon. There are several ways to address this issue to prevent, treat and rehabilitate the blind people to reduce the economic burden and improve their quality of life.

MATERIALS AND METHODS

This is a cross sectional, retrospective and observational study. It was conducted among the patients attending the SADAREM camps at three government general hospitals in Sangareddy, Mancherial and Peddapally districts of Telangana State during the period of two years from July 2022 to June 2024.Total 620 patients were enrolled in this study. The informed consent was taken as per the tenets of Helsinki declaration.8 Permission was taken from the head of the department to conduct the study. The WHO prevention of blindness eye examination protocol was followed. Demographic information was taken from the patient and attenders. A brief history of the family, place of residence, occupation and consanguinity of parents were noted.

All the patients were clinically evaluated for best corrected visual acuity (BCVA) and examined with slit lamp biometry, ophthalmoscopy, tonometry, and B scan ultra-sonography. Perimetry for assessment of visual fields, ERG and VEP for retinal and visual pathway evaluation were ordered for some patients to find out the actual cause of blindness.

All the patients attending SADAREM camp with the BCVA less than 6/18 in the better eye were included in the study. Patients with acute loss of vision following trauma, infections, inflammations, CVA (Cerebrovascular accident) and treatable blindness secondary to cataract and refractive errors were excluded.

RESULTS

A total of 620 patients attended SADAREM camps at Government general hospitals of Sangareddy (SRD), Mancherial (MCL) and Peddapally(PPL) districts were enrolled for study and they were thoroughly evaluated as per the clinical protocol. Data was collected as per the various parameters like age, gender, residence, occupation, BCVA, causes, inheritance and amount of blindness according to WHO and SADAREM guidelines. [Table 1]

It was observed that SVI and blindness is more common in the age group of above 40 years (76.61%). Among 620 patients, 62% were males and 38% were females. Male patients are more involved in agricultural work, vulnerable for ocular trauma. Also addictions like smoking and alcohol are more common in male patients. SVI and blindness are common in rural people (78%) than urban 22%, as outdoor work smoking, alcoholism and malnutrition are more common in rural than urban population, Glaucoma and Diabetic retinopathy are noticeable causes in urban people. [Figure 1]

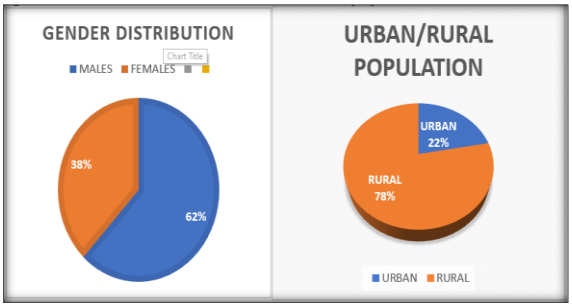

Figure 1: Gender and rural-urban distribution of population

As per SADAREM guidelines BCVA 6/18 to 6/60 in better eye is considered as mild visual impairment (20%). BCVA <3/60 in worse eye considered as one eyed (30%).

BCVA <6/18 in better eye termed as severe visual impairment (40%). BCVA <3/60 in better eye is termed as blind (75 to 100%). [Table 3]

Congenital, Hereditary, Vitamin A deficiency and trauma related blindness are more common in children and adolescence. Trauma and ocular diseases are more common in adults. [Table 5

Table 1: Age wise distribution of patients

Age in years	Number of Patients	Percentage
3-18	75	12.09%
19-40	68	10.96%
41-60	240	38.39%
>60	237	38.22%
TOTAL	620	100%

Table 2: Occupation Distribution

Occupation	Number of Patients	Percentage
Agricultural Labourer	241	39%
Other Labour	74	12%
Crushers	72	11.61%
Mining	40	6.45%
Civil Works	131	21.12%
Hotels/Kitchen Work	25	25%
Others	37	5.96%

Table 3: BCVA at the time of presentation

BCVA in better eye	Sangareddy Number of Patients	Mancherial Number of Patients	Ramagundum Number of Patients	Total/ Percentage
6/18 to 6/60	93	101	0	194(31.29%)
5/60 to 3/60	108	98	60	266 (42.90%)
<3/60	72	46	42	160(25.80%)
Total	273	245	102	620(100%)

Table 4: Anatomic classification of SVI and blindness

Anatomical Involvement	SRD	MCL	PPL	Total	%
I)Whole Globe					
• Anophthalmos	11	06	04	21	3.38%
• Microphthalmos	05	02	01	08	1.29%
• Atrophic Bulbi	02	03	02	07	1.12%
• Phthisis Bulbi	41	36	12	90	14.51%
• Buphthalmos	02	0	01	03	0.48%
Ii)Cornea					
• Corneal Opacity	55	39	25	119	19.19%
• Degenerations/Dystrophy	02	04	02	08	1.29%
• Keratoconus	02	04	00	03	0.48%
Iii)Uvea					
• Occlusio Pupillae	08	12	08	28	4.51%
• Ch.Uveitis + Sec Glaucoma	01	02	01	04	0.64%
Iv)Lens					
• Aphakia	08	04	02	14	2.24%
• Subluxated Lens	03	02	02	07	1.12%
• Congenital Cataract	04	04	02	10	1.60%
V)Vitreous and Retina					
• Diabetic Retinopathy	22	18	14	54	8.50%
• Retinopathy of Prematurity	01	00	00	01	0.16%
• Retinitis Pigmentosa	13	11	7	31	5.00%
• Retinal Dystropies	04	05	03	12	1.93%
• Retinal Detachment	03	04	01	08	1.29%
• Albinism	02	03	02	07	1.12%
• Pathological Myopia	09	07	04	20	3.22%
• Armd	05	03	02	10	1.61%
Vi) Optic Nerve					
• Glaucomatous	20	18	12	50	8.08%
• Primary Optic Atrophy	04	03	01	08	1.12%
• Secondary Optic Atrophy	12	10	06	28	4.50%
• Optic Disc Hypoplasia	01	00	00	01	0.16%
Vii) Amblyopia					
• High Ametropia	07	06	05	19	3.06%
• Strabismic	06	04	02	12	1.93%
• Nystagmus	08	18	08	34	5.14%
Viii) Cortical Blindness	02	01	00	03	0.48%

Table 5: Etiology of SVI and blindness

Etiology	Number of Patients	Percentage
Congenital	13	02%
Hereditary	87	14%
Malnutrition and Vitamin A Deficiency	18	03%
Diseases	372	60%
Trauma	130	21%

DISCUSSION

Statistics of global blindness as per WHO estimates 2020, the number of blind people across the globe over 43.28millions. The total number of people with SVI and blindness are 338.28 million. Over 80% of all visual impairment belong to avoidable catageory.[9] About 90% of Visual impairment and blind people live in lower- and middle-income group

countries like India.[10] About 80% of visual impairment and blind people are above 50 years age group as we noticed in our study.

Global visual impairment and blindness changes over the last 20 years. Overall, the prevalence of visual impairment worldwide has been decreased due to socioeconomic developments and increased availability of eye care services. The prevalence of ocular infections like trachoma has been reduced significantly over the last 30 years across the globe including India.[11] India became free from cases of trachoma since 8th December 2007.[12]

As per the causes of global visual impairment and blindness 2020 survey, leading causes of visual impairment and blindness are uncorrected refractive errors and cataract but we excluded these cases in this study as they come under temporary and treatable blindness. In this study we enrolled the patients with irreversible permanent and progressive blindness. In this study the main causes are various ocular diseases (60%) and ocular trauma (21%). Other causes like hereditary (14%), congenital anomalies (2%), malnutrition and Vitamin A deficiency (3%) and Amblyopia (6.93%) are more common in children. We noticed that out of various ocular diseases whole globe involvement (20.50%), ARMD (1.61%), corneal (20.96%), optic atrophy (5.62%), glaucoma (8.08%) and diabetic retinopathy (8.50%) were the main causes. We observed that infections, trauma, congenital anomalies were main causes in rural and low socioeconomic population. Glaucoma, diabetic retinopathy and ARMD were more common causes of blindness in Urban and high-income group people.[13]

Preventable and treatable causes of blindness are called avoidable blindness.[14,15] In our study we noticed that ocular trauma, infections, malnutrition, glaucoma, and diabetic retinopathy are among the main causes of avoidable blindness which accounts for more than 50% of all the cases.

CONCLUSION

There are very few studies available regarding severe visual impairment and blindness in India as well as in Telangana state. The data collected from the study can be utilized to design the effective eye care programmes in our region to prevent and manage the avoidable blindness. There by we can increase the quality of life of an individual and reduce the economic burden in the society.

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