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Study of demographic profile and causes of visual impairment amongst patients seeking visual disability certificate in tertiary care center, Jodhpur, Rajasthan

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ABSTRACT

To identify various causes of visual impairment in patients seeking visual disability certificate and study the demographic characteristics of visually disabled population.

Materials and Methods: Cross-sectional study of patients seeking visual disability certificate from November 2014 to April 2015 was done. Cause of visual impairment was ascertained after detailed examination which included slit-lamp examination, direct ophthalmoscopy, indirect ophthalmoscopy, slit-lamp biomicroscopy with 90D lens, Optical Coherence Tomography (OCT) and/or ERG/VEP and MRI, CT scan, Ultrasonography (USG) in selected cases.

Results: Out of 250 cases in the study, most of them were in the age group of 21-40 years (44.80%). Mean age was 34.25 years. Male cases (192) were more compared to female (58) in this study. Male to female ratio was 3.31: 1. The cause for which most disability certificate issued was congenital anomalies (18.40%) followed by Other Retinal Pathology (15.20%) and retinitis pigmentosa (14.80%) and least were staphyloma (4%) and empty socket (4.80%).

Conclusion: High number of eye were blind due to congenital diseases and retinitis pigmentosa explains the need of genetic counselling. Avoiding trauma, early diagnosis and treatment is necessary to prevent blindness from avoidable causes. Rehabilitation includes the provision of vocational and functional training as well as social and legislative service support. This is with a view to enhancing the chances of the affected individuals particularly children, who have their whole life ahead of them, to acquire a means of livelihood, improved social interaction and enhanc self-dignity.

1. Introduction

Blindness is major public health problem in developing Countries. Many ocular diseases lead to partial or total blindness. Most of the ocular diseases are not treatable. These non treatable conditions lead to permanent visual handicap. Permanent visual handicap is one of the most severe disabilities which affect not only the individual but also his/her family and society.[1]

"Blindness" means any of the following after best correction, either total absence of sight; or visual acuity less than 3/60 or less than 10/200 (Snellen) in the best eye with best possible correction; or limitation of the field of vision subtending an angle of less than 10 degree.[2]

Certification of visually disabled in India is categorized based on its severity and is performed by a duty constituted board that includes an ophthalmologist. According to the guidelines by The ministry of social justice and empowerment of the Government of India, the minimum degree of disability should be 40% for an individual to be eligible for any concession or benefit.[3]

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According to the National Sample Survey Organization (NSSO) that conducted a survey of individuals with disabilities in 1981, 1991 and 2002 in India. Disability considered as 'Any Restriction or lack of abilities to perform an activity in the manner or within the range considered normal for a human being. According to 58th round data from the NSSO survey, 10.88% were blind and 4.39% were having low vision in all disabled individuals in India.[4]

According to recent estimates by WHO, the major global causes of moderate to severe vision impairment are: uncorrected refractive errors 53%, cataract 25%, age-related macular degeneration 4%, glaucoma 2%, diabetic retinopathy 1%. The major causes of blindness are: cataract 35%, uncorrected refractive error 21%, glaucoma 8%.[5]

2. Materials and Methods

The study conducted in the department of Ophthalmology, S.N.M.C Jodhpur on 250 patients seeking for visual disability for a period of 7 Months from April 2021 to October 2021. Patients subjected to detailed ophthalmic evaluation and data recorded in a specially designed proforma and transferred to master sheet, the data was subjected to statistical analysis by the biostatistician of our institution.

2.1. Exclusion criteria

Avoidable or treatable causes of visual impairment(e.g. Refractive errors, cataract, early glaucoma etc).

The observational study conducted with all patients who came seeking visual disability certificate in the Outpatient department of Ophthalmology. All patients were subjected to comprehensive ocular examination which includes best corrected visual acuity according to snellen's chart, anterior segment examination using slit lam, Applanation tonometry for intraocular pressure, posterior segment analysis by direct ophthalmoscope, indirect ophthalmoscope and/or slit lamp biomicroscopy using +90D lens after dilating the pupil with mydriatcs, Optical Coherence Tomography (OCT) and/or ERG/VEP and MRI, CT scan, Ultrasonography (USG) in selected cases.

Descriptive statistics was done for all data. Based on chi-square and non-parametric tests was done and declared statistically significant for p-value <0.05. The variables of interest were age, gender, occupation, percentage of disability and the cause of visual disability.

3. Results

Of the 250 patients, 76.80% (192) were males and 23.20% (58) were females with M:F ratio being 3:31.

Visual disability of 80-100% was noted in 41.60% (104). 10.40% (26) had 60-70% visual disability, 8.80% (22) had 40-50% visual disability, 6.40% (16) had less than 20% visual disability. 32.80% (82) of the patients were one eyed with visual disability of 30%.

Most of the patients, 44.80% (112) were in the age group of 21-40 years, followed by less than 20 years group with 24.00% (60). 21.20% (53) were in age group of 41-60 years and 10.00% (25) were above 61 years. Most patients of visual disability in age group of 21-30 years in which maximum patients had 100% visual disability. Most patients of 30% visually disabled were in 31-40 years Age group. (Table 2)

Majority 85.76% (229) were unemployed, 10.48% (28) were students, 3.74% (10) were self-employed.(Table 3)

The causes were congenital anomalies -46 (18.40%), retinitis pigmentosa-39(15.60%), other retinal pathology - 36(14.40%), phthisis bulbi-35 (14.00%), optic atrophy - 23(9.20%), glaucoma-21 (8.40%), corneal opacity related to trauma and infectious keratitis 18(7.20%), amblyopia - 10(4.00%), staphyloma -10(4.00%). 46 out of 250 patients were blind due to congenital anomalies in which 35 were male and 11 were female. 32 male, 7 female were blind due to Retinitis Pigmentosa. 32 male, 4 female were blind due to other Retinal pathology. (Tables 4 and 5)

4. Discussion

There have been many surveys in abroad and India regarding the prevalence of blindness in the community. They provide important information related to the causes of blindness and help the health planners to put strategies to decrease the prevalence of blindness. Evidence-based information is important to plan low vision care and rehabilitation services. Obtaining a visual handicap certificate is a part of rehabilitation of a blind person. It helps the blind person to obtain travel and income tax benefit. Data collected in this study may be useful to the governmental agencies to plan the strategies for rehabilitation and prevention.

Our certification system is based on best corrected visual acuity rather than presenting visual acuity. Furthermore, certificates are given to patients with permanent visual impairment or blindness, so temporary causes of visual impairment, such as uncomplicated non-operated senile cataract, are excluded.

In our study Male were more compared to female. Among 250, 192 (76.80%) were male and 58 (23.20%) were female. Male to female ratio was 3.31: 1. Gender difference was found to be statistically significant (P<0.0001). In 2008 SambuddhaGhosh et al study in kolkotta M:F ratio being 2.37:1.[7] In 2016 Neethisheth et al showed 352 male and 125 female patients.[8]

In our study age ranged from 5-80years. Mean age was 34.25 years. Most of them were in the age group of 21-30years (24%). Patients in the age group of 21-60 years were significantly large in number as compared to above 60 years and below 20 years age groups. This suggests that the driving force behind getting disability certification was more among the working age group. This is due to

Table 1: Severity of visual impairment was calculated as per the NPCB classification:[6]

BCVA in better eye	BCVA in worse eye	Percentage of disability
6/6 to 6/18	6/6 to 6/18	None
6/6 to 6/18	< 6/18 to 6/60	10
6/6 to 6/18	< 6/60 to 3/60	20
6/6 to 6/18	< 3/60 to No PL	30
< 6/18 to 6/60 Or visual field less than 40° up to 20° around centre of fixation	< 6/18 to 6/60	40
	< 6/60 to 3/60	50
	< 3/60 to No PL	60
< 6/60 to 3/60 Or visual field < 20° to 10°	< 6/60 to 3/60	70
	< 3/60 to No PL	80
< 3/60 to 1/60 Or visual field < 10°	< 3/60 to No PL	90
HM to No PL	HM to No PL	100

Table 2: Percentage of visual disability according to age

Amount of Visual disability	Age (yrs)							Total
	≤10	11-20	21-30	31-40	41-50	51-60	≥61	
≤20	0	5	7	2	1	1	0	16
30 (One eyed)	5	17	16	24	7	8	5	82
40-50	1	9	6	3	2	0	1	22
60-70	1	3	3	13	5	0	1	26
80-100	8	11	28	10	13	16	18	104
Total	15	45	60	52	28	25	25	250

Chi square 60.78, P value <0.0001 (S)

Table 3: Cause of visual disability according to working status

Occupation	Male		Female		Total	
	N	%	N	%	N	%
Businessman	24	12.50	0	0.00	24	9.60
Labourer	42	21.88	1	1.72	43	17.20
Service class	17	8.85	3	5.17	20	8.00
Student	36	18.75	11	18.97	47	18.80
Not working	73	38.02	43	74.14	116	46.40
Total	192	100.00	58	100.00	250	100.00

Chi square 31.04, P value <0.0001 (S)

Table 4: Causes of visual disability

Cause of visual impairment	Gender				Total	
	Male		Female			
	N	%	N	%	N	%
Congenital Anomalies	35	18.23	11	18.97	46	18.40
Retinitis Pigmentosa	32	16.67	7	12.07	39	15.60
Other Retinal Pathology	32	16.67	4	6.90	36	14.40
Phthisis bulbi	27	14.06	8	13.79	35	14.00
Optic Atrophy	21	10.94	2	3.45	23	9.20
Glaucoma	7	3.65	14	24.14	21	8.40
Corneal Pathology	13	6.77	5	8.62	18	7.20
Empty Socket/Prosthetic Eye	10	5.21	2	3.45	12	4.80
Amblyopia	9	4.69	1	1.72	10	4.00
Staphyloma	6	3.13	4	6.90	10	4.00
Total	192	100.00	58	100.00	250	100.00

Table 5: Causes of visual disability according to age

Cause of visual impairment	Age (yrs) ≤10	11-20	21-30	31-40	41-50	51-60	≥61	Total
Congenital Anomalies	7	14	18	5	0	1	1	46
Retinitis Pigmentosa	0	0	7	1	9	9	13	39
Other Retinal Pathology	2	12	11	7	3	1	0	36
Phthisis bulbi	1	7	9	5	5	6	2	35
Optic Atrophy	1	2	6	6	4	1	3	23
Glaucoma	0	1	1	14	2	2	1	21
Corneal Pathology	0	2	4	3	4	1	4	18
Empty Socket/Prosthetic Eye	2	1	2	3	1	3	0	12
Amblyopia	1	4	2	2	0	1	0	10
Staphyloma	1	2	0	6	0	0	1	10
Total	15	45	60	52	28	25	25	250

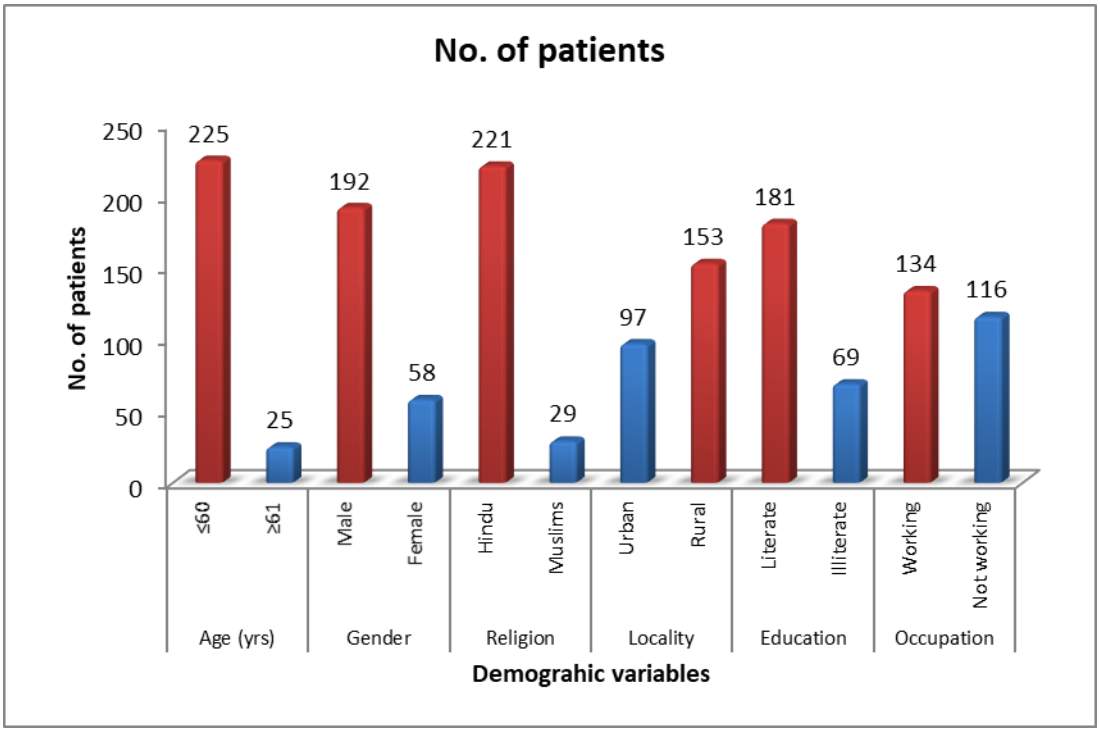

Fig. 1: Distribution of demographic variables

the presence of benefits with the disability certification such as monitory benefits, employment, education and conveyance, which was more likely to serve the purpose of young subjects than the elderly. Rajesh S Joshi study done in Yavatmal in 2013 showed mean age was 35.28 yrs.[9] Bunce et al. in 1998 made similar observations where non certification was found to be more common in older subjects belonging to the age group of 65 years and above than those below 65 years, with a trend of increasing odds with increasing age.[10]

Education, in terms of years of schooling, has also been assessed as an independent predictor for the risk of blindness, directly relating to economic status. In this study incidence of blindness was much more common in illiterate and low educated group. 27.60% blind patients were illiterate & 39.60% blind patients were educated up to primary. Thus, by above study we observe that non-educated group had a significant higher risk (1.5 times) for development of blindness as compare to educated group.

A population based cross-sectional study done by Rohit C et al[11] found that 58% blinds were illiterate, 35.2% blind were educated up to school class and only 6.6% blind were educated up to collage level. Global data on blindness by Thylefors B[12] suggested, that the prevalence of blindness is inversely related to education status of population of any region. Around three times higher risk of blindness has been

reported in those with no schooling compared with those with schooling in studies from India, China, and Nepal.

5. Conclusion

Results have shown that High number of congenital diseases of eye and retinitis pigmentosa explains the need for genetic counselling. Screening for the retinopathy of prematurity and diabetic retinopathy should be made mandatory. Presence of bilateral corneal scar can be avoided by proper health education and inadvertent use of systemic medications.

Avoiding trauma to eyes can reduce the visual disability due to corneal scarring and infections in large extent. Early diagnosis and treatment is necessary to prevent blindness from avoidable causes like diabetic retinopathy, glaucoma and retinopathy of prematurity. A quality of life of the blind should be improved through available, accessible and affordable well-maintained and sustained rehabilitation services.

6. Source of Funding

None.

7. Conflict of Interest

None.

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