



Visual Assessment and Causes of Blindness in Patients Attending Kims Hubli Ophthalmology Opd for Visually Handicap Certificate

KEYWORDS

Blindness(BL,SVI), refractive error

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ABSTRACT *PURPOSE* : To study the incidence of various ocular conditions resulting in visual impairment and blindness in patients attending ophthalmology OPD for visually handicap certificate.

METHODS : A cross-sectional study was carried out in total 129 patients who attended Ophthalmology OPD from August 2015-January 2016 for the purpose of obtaining visually handicap certificate. Visual testing and refraction, Slit lamp and fundus examination, if required ultrasound, B-SCAN were done on all patients.

RESULTS : Among the 129 patients who participated in the study 17(13.17%) gave history of blindness in family members. The causes of SVI and BL in the better eye of blind patients were refractive error(18.00%), pthisis bulbi(15.50%), corneal opacity(12.4%), optic atrophy(10.85%), retinal dystrophy(10.85%) etc.

CONCLUSION : In this study it is found that retinal diseases, whole globe, corneal pathologies and refractive errors were the prominent causes of blindness.

INTRODUCTION

Visual impairment (VI) is a worldwide problem that has a significant socioeconomic impact. Blindness (BL) is a priority area because of the number of years of BL that ensues. Data on the prevalence and causes of BL and severe VI (SVI) are needed for planning and evaluating preventive and curative services, including planning special education and low vision services. The prevalence of blindness is four-fold higher in the poorer (1.2/1,000) than in the wealthy regions (0.3/1,000)^{1, 7}. Since, this study incorporated subjects from all the age

groups, there were more patients with refractive error than that of cataract. Similar studies conducted in Central India by Singh MM showed that refractive errors accounted for 40.8%, followed by cataract 40.4%, aphakia 11.1% and pterygium 5.2%².

The prevalence of blindness is higher in developing countries because, firstly, potentially blinding conditions such as vit A deficiency, harmful traditional eye remedies, or cerebral malaria, which do not occur in affluent societies, are prevalent there. Secondly preventive measures for conditions that have been controlled elsewhere such as measles, congenital rubella, or ophthalmia neonatorum are inadequate. Thirdly, facilities and skilled personnel for managing conditions needing surgery are lacking.³

VISION 2020: The Right to Sight – India is a national forum for eliminating avoidable blindness by year 2020. It is a key driver of the World Health Organisation (WHO) and International Agency for the Prevention of Blindness (IAPB) joint global initiative for eliminating avoidable blindness. About 285 million people are visually impaired worldwide: 39 million are blind and 246 million have low vision (severe or moderate visual impairment). Preventable cause is as high as 80% of the total global

visual impairment burden. About 90% of the world's visually impaired people live in developing countries. Globally, uncorrected refractive errors are the main cause of visual impairment. Cataracts are the leading cause of blindness. 65% of visually impaired and 82% of blind people is over 50 years of age, although this age group comprises only 20% of the world population. Top causes of visual impairment: refractive errors, cataracts and glaucoma. Top causes of blindness: cataracts, glaucoma and age-related macular degeneration. The number of people visually impaired from infectious diseases has greatly reduced in the last 20 years. India contributes to 20.5% of world's blind population. Using the World Health Organisation (WHO) classification of levels of visual impairment it is estimated that globally almost one in 1000 children are blind, which is less than a tenth of the prevalence in adults^{4, 5}. Various studies have reported uncorrected refractive error to be an important cause of visual impairment.⁶ Visually impaired patients with aphakia and congenital anomalies of the eye will benefit from refraction and low vision services.⁸

Co-morbidity is a common phenomenon in the elderly and is considered to be a major threat to quality of life (QOL). Knowledge of co-existing conditions or patient characteristics that lead to an increased QOL decline is important for individual care, and for public health purposes. In visually impaired adults, it remains unclear which co-existing conditions or other characteristics influence their health-related QOL. Our aim was to present a risk profile of characteristics and conditions which predict deterioration of QOL in visually impaired older patients.

The same applies to older adults with a visual impairment or blindness. Large population-based studies in the more developed countries indicate a prevalence of visual impairment and blindness ranging from 0.6–2.1% and 0.1–0.9%, respectively. However, Klaver et al., who compared data

from large prevalence studies in developed countries, showed that the prevalence of visual impairment and blindness increased rapidly after about 70 years of age. In their study, the most common causes of visual impairment and blindness were age-related cataract and age-related macular degeneration (AMD). Due to demographic aging, these numbers are expected to increase and this group of patients will cause an increased demand for ophthalmic consultations. Moreover, studies among visually impaired older patients found that co-morbidity was often reported. For example, Brody et al. found that 78% of older patients reported to have at least one other condition in addition to AMD. In their study patient population of visually-impaired older adults with a variety of eye conditions, 75% reported to have other conditions in addition to their eye disease. Langelaan et al. reported that different chronic conditions have a different impact on health-related QOL. Moreover, the combination of certain conditions may cause an additive or synergistic effect on QOL. Insight into those combinations that lead to an increased QOL decline is important for the individual care of patients, and for public health purposes. For older patients with an eye condition it is not yet known which co-existing conditions lead to an increased vulnerability in terms of health related QOL or a decline in QOL.

The WHO launched the prevention of blindness programme in 1978. Control strategies include assessment of common blinding disorders at local, regional and national levels, establishment of national level programmes for control of blindness, training of eye care providers, operational research to improve and apply appropriate technology.

Blindness has profound human and socio-economic consequences in all societies. The costs of low productivity, rehabilitation and education in the blind are a significant economic burden, particularly in many developing countries. Furthermore in such settings, blindness is often associated with lower life expectancy. Thus the prevention and cure of blindness can provide enormous savings and facilitate social development.¹⁰

Vision 2020: the right to sight is a global initiative launched by WHO in Geneva on Feb 18th 1999 in a broad coalition with NGO'S to combat the gigantic problem of blindness in the world. Strategic approaches include disease prevention and control, training of eye health personnel, strengthening of existing eye care infrastructure, mobilization of resources, prevention of avoidable blindness. The aim of VISION 2020 is to reduce the current projection of 75 million blind people by the year 2020 to a target of 25 million. To achieve this, all the stakeholders, particularly the ophthalmologists must play a leadership role.

MATERIALS AND METHODS

1. **Study design**-Prospective study
2. **Study period**-August 2015- January 2016
3. **Inclusion criteria**-All patients attending KIMS Hubli ophthalmology OPD for visually handicap certificate.
4. **Methodology**-This cross-sectional study was carried out in total 129 patients who attended KIMS HUBLI Ophthalmology opd from August 2015-January 2016 for the purpose of obtaining blind certificate. The required permission for conducting the study was obtained from the DIRECTOR/PRINCIPAL/HOD of the Department of Ophthalmology. The concerned authorities were briefed about

the aims and objectives of the study and the ethical committee clearance for conducting the study was obtained. Informed consent taken from all patients.

INFORMED CONSENT TAKEN FROM ALL PATIENTS

All patients underwent thorough ophthalmological examination in the form of

- Relevant ocular history.
- Visual testing and refraction.
- Slit lamp and fundus examination.
- If required ultrasound, B-SCAN.

The anatomical classification of causes of visual loss defined that part of the eye which had been damaged leading to visual loss (such as cornea, lens, retina, optic nerve, whole globe). Where two or more anatomical sites were involved the major site was selected, or where two sites contributed equally, the most treatable condition was selected.

OBSERVATIONS AND RESULTS

The primary aim of the study is to assess the different pathological conditions associated with ocular morbidity and contributing to blindness in patients attending KIMS HUBLI Ophthalmology department for the purpose of obtaining visually handicap certificate.

The Study was conducted from August 2015-January 2016 and 129 patients were evaluated. All patients underwent thorough Ophthalmologic examination and the results were noted.

A total of 129 patients who participated in the study were examined, of which males were 89(68.99%) and 40(31.01%) were females (fig a). There is male preponderance in the study with the sex ratio being 2.22:1. Of the 129 patients 3 were aged less than 10(2.32%), 31 were aged between 11-20(24.03%), 31 were aged between 21-30(24.03%), 18 were aged between 31-40(13.95%), 11 were aged between 41-50(8.52%), 18 were aged between 51-60(13.95%), 13 were aged between 61-70(10.07%), 4 were aged between 71-80(3.10%). Most of the patients that is, 109(84.49%) were Hindu, 15(11.62%) were Muslims, 5 were Christians(3.87%).

Only 10(7.75%) patients were having associated disability while the remaining 119(92.24%) were not having associated disabilities. Among the 129 patients who participated in the study 17(13.17%) gave history of blindness in family members and the rest 112(86.82%) did not have had history of blindness in family members. Parental consanguinity was identified in 35 cases(27.13%) and no indication of consanguinity was reported in 94 cases(72.86%).

We classified patients by socio-economic status according to modified B.J.Prasad classification. We found that 94 patients (72.86%) were from lower socio economic status that is class 4 and class 5 [Table 1 and fig.1].

A total of 107 patients (82.94%) were blind, 15(11.62%) were severely visually impaired, 5 were visually impaired(3.87%), no impairment was seen in 2 patients(1.55%) [Table 2 and Fig.2]

In all 129 patients who participated in the study, the whole globe 31(24.03%), retina 27(20.9%), refractive er-

ror and amblyopia 24(18%), cornea 22(17%), optic nerve 14(10.8%), lens 7(5.4%), Uvea 4(3.1%) were found to be the affected sites causing blindness or visual impairment. [Table 3 and Fig.3]

Trauma was a contributing factor for blindness in 13 patients (10.07%).

The main causes of SVI and BL in the better eye of blind patients were refractive error(18.00%), pthisis bulbi(15.50%), corneal opacity(12.4%), optic atrophy(10.85%), retinal dystrophy(10.85%), retinal detachment(8.52%), staphyloma(4.65%), atrophic bulbi(4.65%), pseudophakia(2.32%), aphakia(1.55%), coloboma(1.55%) ,microphthalmos(1.55%), anophthalmos(1.55%), cataract(1.55%) etc[Table 4].

Of these , 24(18%) patients had preventable causes of blindness(corneal opacity and staphyloma). Another 31(24.03%) patients had treatable causes of blindness(cataract, aphakia, pseudophakia and refractory error) [Table 4].

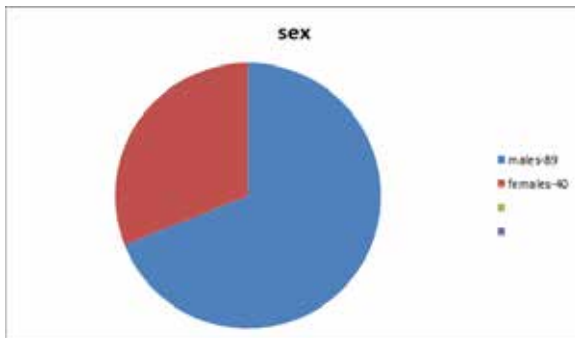


Fig a-Distribution of patients according to sex in this study

Table 1: Distribution of patients by socioeconomic status according to modified B. J. Prasad classification

Class	Per capita per month income (in Rs./month)	Number of Patient	Percentage
I	5156 and above	5	3.87%
II	2578-5155	20	15.50%
III	1547-2577	10	6.03%
IV	773-1546	40	31.0%
V	Below 773	54	41.86%
Total		129	100%

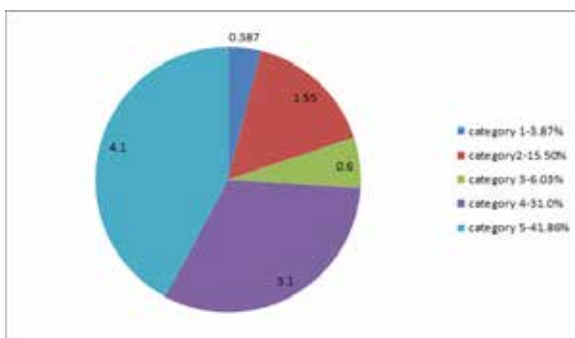


Figure 1: Distribution of patients by socioeconomic Status according to modified B. J. Prasad classification in percentage

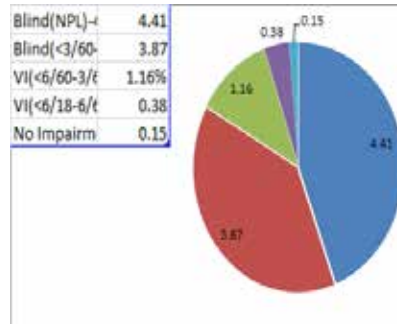


Figure 2: Visual acuity (better eye) in patients.

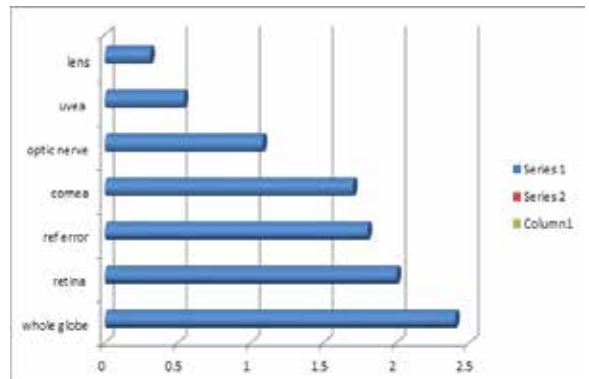


Figure 3: Anatomical classification of the causes of visual impairment in the better eye of patients.

Table 2: Visual acuity (better eye) in patients

WHO visual Category	Visual acuity (better eye)	Frequency (number of Patients)	Percentage
Blind	NPL	57	44.18%
Blind	<3/60-PL	50	38.75%
SVI	<6/60-3/60	15	11.62%
VI	<6/18-6/60	5	3.87%
No impairment	No impairment	2	1.55%
Tota		129	100%

Table 3: Anatomical classification of the causes of VI in the better eye patients

Anatomical site	Frequency (number of patient)	Percentage
Whole globe	31	24.03%
Cornea	22	17.00%
Lens	7	5.4%
Uvea	4	3.1%
Retina	27	20.9%
Optic nerve	14	10.8%
Ref error & Am-lyopia	24	18.0%
Total	129	100%

Table 4: The main causes of SVI and BL in the better eye of patients

Anatomical site	Number	Percentage	Causes	Number	Percentage
Whole globe	31	24.03%	Microphthalmos	2	1.55%
			Anophthalmos	2	1.55%
			Microcornea	1	0.77%
			Atrophic bulbi	6	4.65%
			Pthisis bulbi	20	15.50%
Cornea	22	17.00%	Opacity	16	12.4%
			Staphyloma	6	4.65%
Lens	7	5.4%	Aphakia	2	1.55%
			Pseudophakia	3	2.32%
			Cataract	2	1.55%
Uvea	4	3.1%	Coloboma	2	1.55%
			Others(choroidal atrophic patch)	2	1.55%
Retina	27	20.9%	Dystrophy	14	10.85%
			Retinal detachment	11	8.52%
			Others(chorioretinal atrophic patch)	2	1.55%
Optic nerve	14	10.8%	Optic atrophy	14	10.85%
Refr error & Amblyopia	24	18%	Hypermetropia	13	54.16%
			Myopia	11	45.83%
Total	129	100%		129	100%

DISCUSSION

In the present study whole globe i.e.(pthisis bulbi, atrophic bulbi, microphthalmos, microcornea, anophthalmos) accounted for about 31% of SVI/BL in the studied population. This was followed by retinal pathologies which accounted for 27% of the patients blindness, followed by refractive error which accounted for 24%, and the corneal pathologies which accounted for 22% of the patients blindness.

There was male preponderance observed in the study who accounted for 69% and the females accounted for 31% of blindness. Associated disabilities were seen in 10(7.75%) patients and h/o consanguineous marriage was observed in 35 patients of the studied population which accounted for 27.13%. 17 patients gave h/o blindness in their family members which accounted for about 13.17% of the studied population. Trauma accounted for blindness in 13 patients(10.07%).

Preventable causes of blindness which include(corneal opacity, staphyloma) constituted for about 22% of SVI/BL in patients and treatable causes which include(cataract, aphakia, pseudophakia, refractory error) constituted for about 24.03% of SVI/BL in the studied population. Since, this study incorporated subjects from all the age groups, there were more patients with refractive error than that of cataract. Among the refractory errors hypermetropia constituted for about 13/24(54.16%) and myopia for about 11/24(45.83%) patients.

This study shows that refractive errors, cataract, and post segment diseases were the common causes of ocular morbidity. Refractive errors and cataract were the most common causes of visual impairment, while blindness was due to cataract, post segment diseases. Visual impairment due to refractive errors can be largely prevented by glasses of appropriate power and blindness due to cataract is curable by surgery.

Treatable causes included cataract, glaucoma, and refractive errors. There is a need to expand specialist pediatric ophthalmic services in India, and it has been recommended that there should be one well-equipped child eye care center for every 10 million total population. In India, this would translate to 100 centers throughout the country. There is a need to train pediatrician in screening for early detection of cataract and glaucoma with appropriate referral to a tertiary care center.

Some limitations were encountered in this study including poor history by some patients and parents/guardians of the precise period of onset, cause, and process of BL; this made

correlation of findings and determining the exact diagnosis difficult.

A more extensive survey would help in generating the updated information about the status of ocular morbidity in the community in general and the prevalence of blindness in particular.

CONCLUSION

In this study it is found that retinal diseases, whole globe, corneal pathologies and refractive errors were the prominent causes of blindness. Almost 46% of the patients had preventable or treatable causes of blindness, indicating the need of specific public health strategies.

By decreasing the rate of consanguineous marriage and performing a regular genetic consultation before marriage, we can prevent the genetic/hereditary eye diseases.

As this study provides information on the causes in a selected population, the findings as to absolute numbers have to be interpreted with caution. Population-based studies are, therefore, necessary in order to obtain more appropriate epidemiological information on BL and provide relevant information for national or regional BL prevention policy-making.

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