Study of causes of visual handicap amongst patients attending outpatient department for visual handicap certification in a medical college of Bagalkot district of Karnataka, India.

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Abstract

Background: Permanent visual handicap is one of the most severe disabilities which affect not only the individual but also his/her family and society.

Aim: To analyze various ocular causes which lead to permanent visual handicap in patients of Bagalkot district of Karnataka, India.

Material and methods: Visually handicap patients who came to outpatient department of ophthalmology were examined. The percentage of disability was calculated based on the guidelines for evaluation of various disabilities. A total of 300 cases were included in the study.

Results: A total of 300 patients were included in the study. Of these 60 % (180) were males and 40% (120) were females, the M: F ratio was 1.5:1. Of the total population included in the study, 62% of the patients had 40% of visual impairment and only 25% had 100% of disability. Among this, retinitis pigmentosa (16%) was the most common cause followed by congenital anomalies (15.3%).

Conclusion: A large number of disabled individuals comprised of males showing gender bias. Retinitis pigmentosa, congenital anomalies and refractive errors were the most common causes of loss of vision, most of which could be avoided by genetic counseling and creating awareness.

Key words: visual handicap, retinitis pigmentosa, certification.

Introduction

Blindness is a major public health problem in developing countries.[1] 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.

Certification of blindness or partial sight is the process by which social services for the visually disabled are co-ordinated. 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.[2]

A survey conducted by national sample survey organization(NSSO) about disability in 1981, 1991 and 2002 in India, disability was considered as “any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being”. The 58th round data from NSSO survey reveals that, of all the disabled individual in India 10.88% were blind and 4.39% were having

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low vision.[3] However under registration is a global problem.[4]

The primary objective of the present study is to determine the prevalence of leading causes of blindness who attended the disability clinic in outpatient department.

Materials and Methods

A total of 300 cases with visual impairment of 40% and above were selected randomly from the outpatient department and were included in the study. Patients were explained about the procedure and a written consent was taken. The study was conducted from March 2012 to February 2013. Ethical committee clearance was obtained. The percentage of disability was calculated based on the guidelines for the evaluation of visual disability and procedure of certification. Table 1 shows percentage of impairment depending on the vision.

Table 1. Categories of visual disability

Best corrected visual acuity in better eye	Best corrected visual acuity in worse eye	Percentage of impairment
6/18 – 6/36	6/60 to nil	40
6/60 – 4/60 or field of vision 10^0-20^0	Finger counting at 1 feet	75
3/60 – 1/60	Finger counting at 1 feet to nil	100
Finger counting at 1 feet to nil or field of vision 10^0	Finger counting at 1 feet to nil or field of vision 10^0	100

Diagnosis was based on medical history, ocular examination and investigations such as tonometry and automated perimetry. The variables of interest for this analysis were age, sex, religion, percentage of disability and cause for blindness.

Results

A total of 300 patients were included in the study. Of these 60% (180) were males and 40%(120) were females. Male to female ratio was 1.5:1. Among the total population studied 62% had 40% visual impairment and only 25% had 100% disability as shown in table 2.

Table 2. Percentage of visually disabled individuals in each group

Amount of visual disability	Percentage of visually disabled individuals
40%	62%
75%	13%
100%	25%

A majority of 123 (41%) individuals were in the age group of 14-40 years and only 54 (18%) were less than 14 years. Mean age was 57 years and median age was 35 years as shown in table 3.

Table 3. Percentage of visually disabled individuals in different age group.

Age (years)	visually disabled
<14	18%
14-40	41%
40-65	21%
>65	20%

Table 4. Percentage of causative factor

Causative factor	Visually disabled individuals
Retinitis pigmentosa	50 (16%)
Congenital anomalies	46 (15.3%)
Refractive errors	35 (11.6%)
Age related macular degeneration	30 (10%)
Corneal opacity	29 (9.6%)
Uveitis	26 (8.6%)
Glaucoma	20 (6.6%)
Optic atrophy	18 (6%)
Lens	16 (5.3%)
Diabetic retinopathy	15 (5%)
others	15 (5%)

Among the visually disabled retinitis pigmentosa accounted for (16%), congenital anomalies which included microcornea, microphthalmos, anophthalmos, and coloboma of eye (15.3%), refractive errors (11.6%),age related macular degeneration(10%), corneal opacity(9.6%), uveitis(8.6%), glaucoma(6.6%), optic atrophy(6%), lens(congenital cataract and complicated cataract) (5.3%), diabetic retinopathy(5%) and others (corneal dystrophy, corneal degeneration, anterior staphyloma, retinal dystrophy, central choroiditis, retinal detachment) (5%) as shown in table 4.

Discussion

Many ocular diseases can cause visual system damage and functional loss, which can lead to blindness and low vision. This will not only affect the patient's daily life and working abilities but also will have an adverse consequence on the society and the economy development. According to the World Health Organizations (WHO) estimation there were approximately 161 million visually impaired people all over the world, among whom 37 million were blind, over 90% of the blind people lived in the developing countries.[5]

There have been many surveys in abroad[6,7] and in India[8,9] regarding the prevalence of blindness in the community. They provided 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.

In our study 300 patients were included among them 180 were males and 120 were females. This high ratio of male to female could be attributed to the increased outdoor activities of males or males may have more need for certification.

Patients in the age group of 40-65 years and 14-40 years were significantly large in number as compared to age above 60 years group. This suggests that the driving force behind attending any board for the disability certification was more among the working age group. This was probably due to the presence of certain benefits which were associated with the disability certification such as employment, education and conveyance, which was more likely to serve the purpose of young individuals than the elderly. Similar observations were made in Bunce et al(1998) study,where non-certification was found to be more common in patients of 65 years or more than those under 65 years, with a trend of increasing odds with increasing age.[10] Retinitis pigmentosa was the leading cause of obtaining visual handicap certificate in our study. This finding correlated with the study Joshi et al (2008) in which they have accounted 15.05% of all disability.[11] This could be related to the increased consanguinity and lack of genetic counseling the area. A study done on RP patients in various states of India has shown a predominance of autosomal recessive inheritance pattern and more than 92% of cases in autosomal recessive category had positive history of consanguinity. Increased burden of RP patients in this area warrants genetic counseling to be taken seriously.[12]

Congenital ocular modification was the second important cause for obtaining certification in this study. Congenital ocular malformations were seen in the form of bilateral anophthlmos, microphthalmos and colobomas. We could not compare our data as there were no peer-reviewed studies on the analysis of congenital ocular malformation in the older age group.

29 (9.6%) patients had corneal blindness, which was also the second major cause for obtaining handicap certification. It was seen in the form of corneal scar (opacity). Majority of the patients had bilateral opacity, suggesting vitamin A deficiency precipitated by measles or debilitation. This can be avoided by improving awareness about intake of vitamin A rich food and immunization against measles. A survey carried out in a tertiary care eye hospital, Hyderabad, India has shown 11.6% patents had corneal opacities.[13]

Diabetic retinopathy (5%) and glaucoma (6.5%) constituted major cause of preventable blindness. Early diagnosis and management of these entities can prevent blindness arising out of these conditions. Facilities for the diagnosis and management will be available in cities but not in rural areas. Gradual progression of the disease and unawareness about the preventable blinding conditions amongst the masses contribute to the delayed diagnosis of these conditions.13 setting diagnostic centers and quick referral, where the facilities for the treatment are available, may prove useful to the patients staying in the remote areas. Arranging eye check up camps in the remote areas may also serve the purpose.

As compared to the findings of the study of Bunce C and Wormald R, the leading cause of certification for blindness and partial sight in England and Wales were ARMD (57.2%), glaucoma (10.9%), diabetic retinopathy(5.9%), optic atrophy (3.1%) and hereditary retinal disorders (2.8%).[6]

In Avisar R et al (2006) study, the prevalence, incidence rates and cause of blindness in Israel were ARMD (28%), diabetic retinopathy (14.4%), glaucoma (11.8%), myopic maculopathy(7.4%),

optic atrophy(6.5%), cataract (6.5%) and other diagnosis(25.4%)[14]. This analysis strongly suggests that the three main causes of sight loss in England-Wales and Israel were ARMD, diabetic retinopathy and glaucoma.

In our study retinitis pigmentosa, congenital anomalies and refractive errors were the main causes of visual loss. Treatment for the first three leading causes of visual impairment existed in two other western studies, where as in our study, only preventive measures could be taken, without any definitive treatment with good visual prognosis. Hence, we need to concentrate on genetic counseling and discourage consanguineous marriages to prevent congenital anomalies and retinitis pigmentosa. School eye screening is necessary to identify and treat refractive errors.

Conclusion

There is no appropriate treatment available for the most common causes of blindness, only preventive measures can be undertaken. Hence we need to concentrate on genetic counseling and discourage consanguineous marriage to prevent congenital anomalies. School children screening is a must to identify and treat refractive error in those children.

References

1. *Schemann JF, Leplege A, Keita T, Resnikoff S. From visual function deficiency to handicap:Measuring visual handicap in Mali. Ophthalmic Epidemiol 2002;9:133-48.*
2. *Ministry of Social Justice and Empowement. Guidelines for evaluation of various disabilities and procedure for certification. Notification dated 1st June , 2001. The Gazette of India extraordinary. Part 1. Section 1. No 154. Available from:http://www.ccdisabilities.nic.in/eval2/page6.htm. (Last accessed on July 2012)*
3. *National Sample Survey Organization, Ministry of Statistics and Programme Implementation, Government of India, Round Number 37th in 1981, 47th in 1991 and 58th in 2002.*
4. *Barry RJ, Murray PI. Unregistered visual impairment: Is registration a failing system? Br J Ophthalmol 2005;89(8):995-8.*
5. *Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel GP, et al. Global data on visual impairment in the year 2002. Bull World Health Organ 2004;82:844-51.*
6. *Bunce C, Wormald R. Causes of blind certifications in England and Wales: April 1999- March 2000. Eye (Lond) 2008;22:905-11.*
7. *West SK. Blindness and visual impairment in the Americans and the Caribbean. Br J Ophthalmol 2002;86:498-504.*
8. *Dandona R, Dandona L, Srinivas M, Giridhar P, Prasad MN, Vilas K, et al. Moderate visual impairment in India: The Andhra Pradesh Eye Disease Study. Br J Ophthalmol 2002;86:373-7.*
9. *Dandona L, Dandona R, Srinivas M, Giridhar P, Vilas K, Prasad MN, et al. Blindness in the Indian State of Andhra Pradesh. Invest Ophthalmol Vis Sci 2001;42:908-16.*
10. *Bunce C, Evans J, Fraser S, Wormald R. The BD8 certification of visually impaired people. Br J Ophthalmol 1998;82(1): 72-6.*
11. *Joshi RS. Causes of visual handicap amongst patients attending outpatient department of a medical college for visual handicap certification in central India. Journal of Clinical Ophthalmology and Research- Jan-Apr 2013;1(1):17-9.*
12. *Vinchurkar MS, Sathye SM, Dikshit M. Retinitis pigmentosa genetics: A study in Indian population. Indian J Ophthalmol 1996;44:77-82.*
13. *Herse P, Gothwal VK. Survey of visual impairment in an Indian tertiary eye hospital. Indian J Ophthalmol 1997;45:189-93.*
14. *Avisar R, Friling R, Snir M, Avisar I and Weinberger D. Estimation of the prevalence, incidence rates and the causes of blindness in Israel, 1998–2003. IMAJ 2006;8:880–81.*

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