

Hospital based study on causes of low vision and patient preference for different types of low vision devices

B. K. KC, H. B. Thapa, S. Gurung, A. Sherchan, A.S. Karthikeyan, R.P. Kandel

Lumbini eye hospital, Butwal

Correspondence to : Dr. B. K. KC, Lumbini Eye Hospital, Butwal

Background: In accordance with the objectives envisaged by the Vision 2020 WHO global initiative, this study was designed to reveal the causes of low vision (LV), patient preference for and acceptance of specific types of low vision devices. The study was performed between January, 2006 and December, 2006 at the Low Vision Clinic in Lumbini Eye Institute (LEI).

Materials and Methods: A descriptive clinical study of patients with low vision was performed. All patients were examined by an Ophthalmologist and an Optometrist. Un-corrected visual acuity (VA), best-corrected visual acuity (BCVA), visual loss based on anatomical sites, low vision assessment was performed and patient preference for a specific low vision device was observed and documented. Standard National Low Vision Assessment Form was used.

Results: A total of 166 new Nepali patients were included in the study out of whom 70% were male. Of these patients, lens related causes like aphakia, pseudophakia was the main cause of low vision in 35.55% patients, followed by refractive errors / amblyopia accounted for 19.23%, retinitis pigmentosa for 10.84%, whole globe abnormalities 10.25%, corneal pathology accounted for 7.24%, retinal disease (different types of maculopathies, retinal scars, retinal hemorrhages, vein occlusion, etc.) in 6.64%, and other causes (albinism, nystagmus, different syndromes, etc.) in 10.25%.

In low vision assessment, 6.02 % not needed any device (sufficient near vision enough to conduct his or her near task without any type of devices / glasses) as per the guidelines set up by National Low Vision Programme), distance glasses gave enough improvement for 19.27%, spectacle magnifier was preferred by 51.80%, other magnifiers (hand/stand/dome) was preferred by 12.65%, and monocular handheld telescope was preferred by 20.48% for distance. The above includes certain patients requiring assistance with both near and distance vision who opted for multiple LV devices (i.e., for near and distance vision separately) instead of LV devices with multiple functionality.

In non-optical Low-vision devices, 25 % preferred reading lamp, 10 % preferred reading stand, 12% preferred black felt tip pen, 6 % preferred sunglasses, 7 % preferred peaked cap, 4 % preferred typoscope, and 3 % preferred LV note book.

Conclusion: Lens related causes and refractive errors/amblyopia seem to be two of the most important causes of low vision and should not be overlooked. In addition, low vision devices with a usage similar to that of spectacles were preferred by patients for near and telescope for distance.

Keywords: Visual impairment, low vision devices, patient preference, causes of low vision.

Introduction

Visual impairment is one of the most important health-care problems that has a direct impact on functional status and quality of life. Further, a few studies have shown that visual

impairment etiology varies considerably in diverse geographical areas. The World Health Organization (WHO) reported that currently there are 37 million individuals worldwide who are bilaterally blind and another 124 million

with severely impaired vision in both eyes. The fact that there are 161 million people in the world today who are in some way severely visually disabled is an existing tragedy and unacceptable situation in both social and economic terms, even though this number does not include the additional hundreds of million who are added to this list every year.¹⁻⁷

The WHO advisory group listed five main reasons for blindness: cataract, trachoma, onchocerciasis, childhood blindness, and refractive errors. Nevertheless, in certain cases, diagnosis prompts proper treatment.⁷ The geographical distribution of visual impairments is complex and the etiologies vary from one place to another. For example, a few studies have demonstrated that the most common causes of visual disabilities and blindness in India and some other developing countries are due to retinitis pigmentosa (RP) and optic atrophy anomalies and that 64% of the cases are due to congenital or genetic abnormalities. Congenital cataract (44%), optic dysplasia (30%), and coloboma (22%) are the most prevalent causes of visual impairment.⁸⁻¹² Other studies have reported that low birth weight is also related to visual impairment and that it further complicates etiologic studies in developing countries. The prevalence of blindness varies from 1-4:1000 in industrialized countries to 5-15:1000 in developing countries¹³⁻¹⁶ and the causes are widely varied according to region quite variable in different regions. Cataract, on the other hand, has resulted in blindness and low vision in 44% of the individuals in India, 47.4% in Africa, and only 7% in the Netherlands.²⁴⁻²⁷ Refractive errors appear to be the most frequent reason for low vision in Alaska.¹⁷ Finally, cataract and uncorrected aphakia are the most common causes of low vision in some parts of Africa and Pakistan.^{18, 19}

In 1981, Nepal Blindness Survey (NBS) was conducted in Nepal which showed that out of 39,887 patients examined, 335 were blind comprising 0.84%, 1.85% of total population fell under low vision category and 1.75% of the total population was unilaterally blind. Further, 11 cases of blind children were diagnosed among 4033 children. Among the main causes of childhood blindness, ocular infections (21.3%), congenital cataract (16.3%), nutritional cause (17.9%), amblyopia (8.5%), and other causes (2.7%) were of major concern. 80% of the blindness was due to avoidable causes and 90% of them lived in rural areas of the country.²⁰

The present study was conducted to discover the most frequent causes of low vision in a group of new Nepali patients who attended our clinic with low vision and observe patient preference for different low vision devices. Nepali patients alone were included for the following reasons.

Nepal National low Vision programme mainly focuses on Nepali patients. Other patients were not included as the purpose of this study was to find the cause of low vision among Nepali patients. Only new patients were included in the study as the current trend of cause of low vision can be established and could be compared to earlier studies. Also any bias can be avoided regarding patient preference for a specific type of LVD.

Materials and Methods

A descriptive clinical study was conducted at the Low Vision Clinic of Lumbini Eye Institute (LEI) between January 2006 and December 2006 on all new Nepali patients. After the procedure was explained completely to the patients, those who agreed to participate were evaluated by expert ophthalmologist. The optometrist performed all other complementary tests. A total of 166 patients (116 male) with low vision participated in the study. All the patients (without randomization) referred to the low vision clinic were selected in the study. The WHO working definition of low vision (best corrected visual acuity less than 6/18 to light perception) was used in this study. For measurements, a log-MAR chart (Lea and Baille Lovie chart) for distance and Light House near Acuity Chart for near was used.

Anterior segment examination was done with a slit lamp. Posterior segment examination was performed using a direct ophthalmoscope (Heine) and indirect ophthalmoscope, wherever appropriate. Refraction was performed in all cases. The best corrected distance and near acuity of each eye after refraction and using low vision aids were recorded. Refraction was done with streak retinoscope (Heine). Preferred optical low vision device(s) was given and counseling provided to each patient after low vision assessment. The cost of the low vision devices was not disclosed before determining patient preference and subsidy provided where cost of the preferred device was considered prohibitive by the patient.

Monocular telescopes, a variety of microscopes (monocular/binocular, with/without prisms), hand-held/stand magnifiers (illuminated/non-illuminated) were provided. The patient's improvement in visual acuity and his/her satisfactory response about the prescribed low vision devices were registered in his/her case file.

Results

A total of 166 (70% male) patients participated in the study. 4% were 0-5 years of age, 71% were 6-15 years of age, 23% were 16-39 years of age, and 2% were 40-59 years of age (*Figure 1*).