

ORIGINAL RESEARCH

CAUSES OF LOW VISION AND USE OF OPTICAL AIDS IN THE ELDERLY

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PURPOSE: To determine the causes of low vision in an elderly population attended by a university visual rehabilitation service and to check for the use of prescribed optical aids.

METHOD: A cross-sectional study was carried out on patients aged 60 years or over attending for the first time a university low vision service in 2001. Ophthalmic reevaluation and interview were performed by means of a structured questionnaire in 2002.

RESULTS: The sample comprised 50 subjects aged between 60 and 90 years. Severe low vision ($\leq 20/200$) was present in 68.0% of patients. The main cause of low vision was age-related macular degeneration (44.0%). Regarding literacy, 16.0% were illiterate and 72.0% had completed fundamental schooling. Thirty-one patients (62.0%) had been prescribed optical aids; 54.8% of these patients stated that they use them. A majority (70.6%) held a favorable opinion of these aids.

CONCLUSIONS: The main cause of low vision was age-related macular degeneration. Approximately half of those receiving prescriptions reported actually using the aids in their daily activities. Making best use of residual vision in the elderly population with visual impairment is a priority, given the social context, if the independence necessary for enhanced quality of life is to be achieved.

KEY WORDS: Low vision. Elderly population. Optical aids. Quality of life. Visual rehabilitation.

The visually-impaired elderly population needs specialized ophthalmologic care including clinical assessment, counseling, and rehabilitation in order to attain improvement in quality of life and greater independence.^{1,2}

Results of prevalence studies have shown that low vision occurs in 10.3% of those over 75 years of age, and that risk increases rapidly with age, affecting 30.0% of those over 90 years of age.³

Owing to the growth in the number of elderly in the population, there has been an increase in the frequency of individuals with low vision, which ranks third today among chronic conditions contributing to the need for as-

sistance in daily-life activities among those over 70 years of age.⁴

As visual loss worsens, the functional consequences for the individual worsen also;⁵ it is therefore essential to recognize categories of visual impairment,⁶ individual needs, and aspects of patients' daily lives in order to best prescribe optical aids. Thus, it is nec-

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essary to enhance our knowledge of factors driving people in decision-making as to their own rehabilitation⁷ and thus in the acceptance of and effective use of prescribed optical aids.

The objectives of this study were to determine the causes of low vision in an elderly population attending a university visual rehabilitation service and to monitor the use of prescribed optical aids.

METHOD

A cross-sectional study was carried out at the Subnormal Vision Service of

our Institution. All patients were aged 60 years and over and were treated for the first time in 2001. Of the 63 patients with these characteristics, 50 (79.4%) presented for ophthalmologic re-evaluation between May and August 2002; these 50 patients comprised the study sample. A structured questionnaire was administered in the form of an interview by a postuniversity nonmedical professional trained for this task. The instrument was prepared using items from the low vision quality-of-life questionnaire (LVQOL)⁸, modified to meet local conditions.

The variables included in this study were: age, schooling, levels of vision loss, ophthalmologic causes of vision loss, and use of prescribed optical aid.

Visual acuity (VA) was measured for distance and for proximity using the Lighthouse table, with either letters or symbols for the illiterate. Distant visual acuity was expressed in metric notation, and near visual acuity in M units. The classification of low vision defined by ICD-9-CM⁹ was used, based on recommendations set forth by the World Health Organization (WHO) and the International Council of Ophthalmology, relating to visual acuity of the better eye with best possible correction: moderate vision loss VA 20/80 to 20/150, severe vision loss VA 20/200 to 20/400, profound vision loss VA 20/500 to 20/1000 and near-total vision loss VA 20/1200 to 20/2500.

Epi-Info was used to process data and perform the statistical analysis.

RESULTS

The sample comprised 50 subjects whose ages ranged from 60 to 90 years (72.88 ± 7.98, mean ± SD). With regard to schooling and literacy, 16.0% were illiterate, 72.0% had primary education through the 4th grade, and 12.0% fin-

ished 5th grade or higher. With regard to place of residence, 43 patients (86.0%) lived in the city of Campinas and 7 (14.0%) lived on country properties.

The patients were classified into groups according to visual acuity in the better eye with best possible correction (Table 1). Severe, profound, and near-total vision loss was present in 68.0% of the patients.

The major cause of vision loss was age-related macular degeneration (ARMD), which was observed in 44.0% of the patients (Table 2).

Ordinary eye glasses to correct ametropia were worn by 68.0% of the patients. Thirty-one (62.0%) patients were prescribed optical aids. The types of aids are listed in Table 3.

Nonprescription of optical aids occurred in the following situations: 21.1% of the patients ignored the prescription because they did not practice reading or writing activities; 31.5% thought their eyesight was satisfactory for daily activities; 21.1% were very nearsighted with near visual acuity of 1M or 0.8M without correction; and 26.3% had severe primary ocular pathology in which visual acuity was not improved by the use of aids.

After the low vision quality-of-life questionnaire (LVQOL) was administered, patients' responses concerning acceptance and use of prescribed optical aids showed that of the 31 patients for whom optical aids were prescribed, 54.8% used them with vary-

Table 1 - Classification of degree of visual impairment.

n = 50

Vision loss*	F	%
Moderate (20/80 to 20/150)	16	32.0
Severe (20/200 to 20/400)	23	46.0
Profound (20/500 to 20/1000)	4	8.0
Near-blindness (20/1200 to 20/2500)	7	14.0

* In accordance with World Health Organization (WHO) classification of visual impairment by visual acuity in the better eye for distance with best possible correction.

Table 2 - Causes of visual impairment.

n = 50

Cause*	F	%
Age-related macular degeneration	22	44.0
Other maculopathies	13	26.0
Diabetic retinopathy	9	18.0
Glaucoma	4	8.0
Pigment retinopathy	3	6.0
Other causes	5	10.0

* Multiple causes in 5 patients.

Table 3 - Types of optical aids prescribed.

n = 31

Types of aid device*	F	%
Aspherical lenses	19	61.3
Support magnifying glasses	11	35.5
Binocular spherical - prismatic lenses	9	29.0

* Use of more than 1 optical aid device by 8 patients.

ing frequency in their daily lives (Table 4). Of those who did not use the aids, 28.5% had not bought them and the remaining 71.5% claimed they had not received prescriptions.

Table 4 - Responses on use of optical aids.

n = 31		
Use	f	%
Yes	17	54.8
No	14	45.2

Of the 17 patients using optical aids, 23.5% reported improved reading speed, 23.5% prolonged reading, and 29.4% enhanced daily activities.

As to whether the aids met expectations, 23.5% reported total satisfaction; 52.9%, partial satisfaction; and 23.5%, dissatisfaction. When giving their opinions about the validity of the aids, 70.6% answered positively and 29.4% negatively.

DISCUSSION

The major cause of vision loss among elderly patients seeking treatment at the low vision service in the present study was age-related macular degeneration (44.0%). Similar figures are found in statistics for developed countries.¹⁰ In a retrospective population study of 60,404 patients treated in 74 Cataracts Projects—*Projetos Catarata*—in Brazil, minus those cases who received spectacles and those who underwent cataract surgery, the major cause of vision loss was ARMD.¹¹ Although the same type of cause is found, different approaches must be used owing to the different features of the Brazilian population and those of developed countries. The

elderly population of developed countries generally engages in reading and writing, demanding a compatible level of visual acuity.

Effective use of optical aids occurred in 54.8% of those who received prescriptions. These patients obtained considerable improvement in visual acuity by means of prescriptions for near-distance, in accordance with the visual needs of that part of the elderly population who include reading among their daily activities. This improvement produced personal and social benefits including increased autonomy and enhanced quality of life, as shown by the answers given in the LVQOL questionnaire; all of those who used optical aids reported improved reading speed and duration and enhanced ability to perform daily activities.

Simple, relatively accessible optical aids can enhance the quality of life of the elderly, although other, more complex aids can supply additional benefit.¹ In the population studied, 70.6% responded positively regarding the validity of the aid, which is easily explained since vision is critical in so many aspects of daily activities. Even a modest improvement in visual performance produces markedly increased patient satisfaction such as in the use of an aid for reading tasks of short duration (eg reading medication labels).

Some patients reported not having filled a prescription that had been written for them; this shows the importance of explanation of the purpose of the device by the physician or the rehabilitation team in enabling the patient to make the best use of residual vision.

One must consider the positive and negative factors influencing use or nonuse of the aids including sociocultural specificities, lack of interest in

reading, advanced age, living in an urban environment demanding more frequent use of near vision (eg for labels and written information) or living in a rural setting where visual demands are directed more to the outside environment.

The bulk of the sample (78.0%) was comprised of subjects who were illiterate or had little schooling. Since optical aids benefiting the elderly are mainly used in near-distance activities, above all reading, reduced interest in reading may explain nonuse of optical aids by a portion of the subjects.

The major concern with regard to low-vision patients is making use of residual vision. This requires specific actions depending on the characteristics of each population. Approaching ophthalmic problems from the point of view of levels of prevention, and given the level of tertiary prevention encompassing rehabilitation procedures, the aim is to prevent total incapacity and obtain maximum use of remaining capacities.¹² To this end, the study of the visually-impaired elderly population may help clarify and facilitate the work of physicians so as best to prescribe optical aids. Furthermore, through prescription, the aim is to reintegrate the patient into daily and social activities by promoting autonomy and the development of skills and competencies.

In the present study, among causes of vision loss, ARMD stood out. Approximately half of the patients who were given prescriptions reported effective use of optical aids in their daily activities.

Use of residual vision in the elderly is a priority when one considers the social context and the independence necessary for enhanced quality of life.

RESUMO

CARVALHO KM e col. Causas de baixa visão e uso de auxílio óptico por idosos. **Rev. Hosp. Clín. Fac. Med. S. Paulo** 59(4):157-160, 2004.

OBJETIVO: Determinar causas de baixa visão de população idosa atendida por serviço universitário de reabilitação visual e verificar a utilização dos auxílios ópticos prescritos.

MÉTODO: Foi realizado estudo transversal entre pacientes de idade igual ou superior a 60 anos, atendidos pela primeira vez por serviço de visão subnormal em 2001. Foram submetidos à reavaliação oftalmológica e entrevistados mediante a aplicação de

questionário estruturado em 2002.

RESULTADOS: A amostra foi formada por 50 sujeitos de idades entre 60 e 90 anos. Apresentaram baixa visão acentuada (acuidade visual \leq 20/200) 68,0% dos pacientes. A principal causa de baixa visão foi a doença macular relacionada à idade (44,0%). No que se refere à situação de leitura, 16,0% não sabem ler e 72,0% cursaram até a 4ª série. Em relação aos auxílios ópticos, 31 (62,0%) receberam prescrição e 54,8% desses afirmaram utilizá-los, sendo causas de não prescrição a idade elevada e fatores sócio-culturais como pouco interesse na leitura. Quanto à opinião sobre a validade do auxílio 70,6% responderam positivamente.

CONCLUSÃO: A principal causa de baixa visão foi a degeneração macular relacionada à idade. Aproximadamente metade da população que recebeu prescrição relatou o uso efetivo dos auxílios ópticos nas atividades diárias. O aproveitamento do resíduo visual de população idosa com baixa visão reveste-se de prioridade quando se considera o contexto social e a independência necessária à melhor qualidade de vida.

UNITERMOS: Baixa visão. População idosa. Auxílios ópticos. Qualidade de vida. Reabilitação visual.

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