Quality of Life in Patients With Age-Related Macular Degeneration

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Key words: age-related macular degeneration; quality of life.

Summary. The aim of this study was to evaluate the quality of life in persons affected by age-related macular degeneration.

Material and Methods. The study was performed in the Clinic of Ophthalmology, Hospital of Lithuanian University of Health Sciences. A total of 140 patients completed the Visual Functioning Questionnaire and the Hospital Anxiety and Depression Scale (HADS) during this prospective study. The patients were divided into two groups: patients with age-related macular degeneration (70 patients) and control patients (70 patients).

Results. There was a significant difference in the quality of life between groups (P<0.0001). Analyzing patients with age-related macular degeneration within the group (patients with monocular or binocular disorders), significant differences in near vision (P=0.003), far vision (P=0.04), color vision (P=0.01), and social functioning (P=0.02) were observed. Mental health (r=0.326, P=0.02), dependency (r=0.340, P=0.02), and role difficulties (r=0.355, P=0.01) were found to be significantly associated with general vision in the age-related macular degeneration group.

Conclusions. Age-related macular degeneration appeared to have a great impact on the quality of life. General vision impairment caused by age-related macular degeneration affects patient's mental health, dependency, and role difficulties.

Introduction

One of the main leading reasons of vision impairment and blindness in the world is age-related macular degeneration (AMD) (1, 2). One has to be aware that AMD is a common eye disease associated with aging that gradually and painlessly destroys sharp, central vision. The growing life expectancy of the world's population shows that the number of AMD cases is also increasing (3). Although there are certain methods related with an effective treatment of AMD, this disease is the main factor causing irreversible visual loss.

AMD typically affects central vision necessary for reading, driving, watching television, recognizing people, and performing many other activities of daily life (4–6). Peripheral vision generally remains intact. Partially sighted persons may have difficulty adjusting to their decreased vision and may experience higher levels of anxiety and loneliness than those who are totally blind (7). Furthermore, patients with AMD have been found to have lower quality-of-life scores than persons with chronic obstructive pulmonary disease or acquired immunodeficiency syndrome (3).

Quality-of-life considerations are becoming increasingly important in all spheres of medicine, but are especially relevant in the field of ophthalmology, because vision loss can have such a profound impact on the quality of life.

Therefore, the aim of this study was to evaluate the quality of life in persons affected by AMD.

Material and Methods

The study was conducted at the Clinic of Ophthalmology, Hospital of Lithuanian University of Health Sciences, during 2009–2011. The approval from the Bioethics Center was obtained.

The study comprised 140 patients aged 50 years and more, who were divided into 2 groups. The study group consisted of patients of both sexes with confirmed AMD. The control group consisted of patients of both sexes with no ocular diseases, except the changes of refraction, and best-corrected visual acuity equal to 1.0 in both eyes.

To assess the quality of life, two questionnaires – the Vision Functioning Questionnaire and the Hospital Anxiety and Depression Scale (HADS) – were used. The first questionnaire consisted of the questions about patients’ general health and vision, ocular pain, near and far vision, color vision, peripheral vision, driving, social functioning, mental health, dependence, and role difficulties. All the data were converted to the percentage scale ranging from 0 to 100. A higher score shows better patient’s quality of life. The HADS is a 14-item measure (7 questions for depression symptoms and other 7 for anxiety symp-
toms, answered on a 4-point [0–3] response category) and allows examining patient’s psychoemotional status quickly and properly. A lower score of the subscales shows better psychoemotional status (8).

Statistical data analysis was performed using the SPSS 17.0 program for Windows. All variables were described by the methods of descriptive statistics. The analysis of quantitative variables included calculation of the mean and standard deviation. The means of continuous variables were compared by the t test for independent samples. The Mann-Whitney nonparametric test was used when the assumption of normal distribution of data was rejected. Association between categorical variables or nonnormally distributed continuous variables was assessed by the Spearman correlation. The level of significance set at $P<0.05$ was considered significant.

Results

The experimental group comprised 70 patients (56% of women and 44% of men) with a mean age of 68 years (SD, 8.9). The control group consisted of 70 patients (40% of women and 60% of men) with a mean age of 61 years (SD, 5.3). There was a significant age difference comparing the groups ($P<0.05$).

The results of the HADS are shown in Table 1. Comparison of the scores by the groups showed that anxiety and depression symptoms in the AMD group were significantly worse than in the control group ($P<0.0001$). The same difference was observed between the groups in the Visual Functioning Questionnaire scores (Table 2). All the scores were significantly lower in the AMD group than in the control group ($P<0.0001$). It was decided to compare the patients with AMD within the group dividing them into the patients with monocular AMD and the patients with binocular AMD (Table 3). The comparison showed a significant difference in near and far vision, color vision, and social functioning between the subgroups ($P<0.05$).

Mental health ($r=0.326$, $P=0.02$), dependency ($r=0.340$, $P=0.02$), and role difficulties ($r=0.355$, $P=0.01$) were found to be significantly associated with general vision in the AMD group.

Discussion

Our study showed that AMD appeared to have a great impact on the patient’s quality of life especially affecting general health, general vision, dependency, and role difficulties. Suzukami et al. (9) reported that driving, near and far vision, and mental health were mostly affected in patients with AMD. Few studies have shown that patients with AMD are susceptible to depression, social isolation, and emotional stress (10–12). This occurs because most of the elderly affected by the diseases are retired and usually indulge in activities that require good vision. Our study showed that patients with AMD were prone to depression and anxiety symptoms. Another analysis (13) showed that patients with moderate or serious visual impairments in both eyes, compared with those with moderate bilateral impairments or unilateral impairment, had difficulties with visual function affecting activities, which require near and far vision, mental health, and dependency. Our study showed similar results, i.e., patients with AMD and binocular visual impairment had worse quality of life (especially near and far vision, color vision, and social aspects) than patients with monocular visual impairment. A few

| Subscale          | AMD Group | Control Group | $P^*$ |
|-------------------|-----------|---------------|-------|
| Depression        | 6.44 (3.2) | 3.3 (1.9)     | <0.0001 |
| Anxiety           | 6.84 (3.0) | 2.5 (2.0)     | <0.0001 |

Values are mean (standard deviation). AMD, age-related macular degeneration. *Mann-Whitney nonparametric test.

| Item                            | AMD Monocular Subgroup | AMD Binocular Subgroup | $P^*$ |
|---------------------------------|------------------------|------------------------|-------|
| Anxiety (HADS)                  | 6.5 (3.1)              | 6.8 (3.4)              | 0.83  |
| Depression (HADS)               | 5.0 (3.7)              | 6.9 (3.5)              | 0.10  |
| General health                  | 30.5 (16.1)            | 27.3 (14.7)            | 0.23  |
| General vision                  | 47.7 (12.1)            | 45.0 (11.3)            | 0.43  |
| Ocular pain                     | 81.9 (20.6)            | 76.1 (23.6)            | 0.36  |
| Near vision                     | 56.4 (19.7)            | 33.5 (26.1)            | 0.003 |
| Far vision                      | 67.5 (21.5)            | 49.2 (27.4)            | 0.04  |
| Color vision                    | 66.0 (36.3)            | 56.2 (38.1)            | 0.01  |
| Peripheral vision               | 83.3 (25.7)            | 78.9 (19.1)            | 0.06  |
| Driving                         | 56.6 (30.0)            | 45.6 (40.0)            | 0.14  |
| Social functioning              | 75.6 (20.7)            | 55.8 (30.2)            | 0.02  |
| Mental health                   | 46.8 (27.5)            | 45.7 (24.3)            | 0.81  |
| Dependency                      | 43.9 (32.5)            | 34.3 (32.9)            | 0.31  |
| Role difficulties               | 46.5 (37.8)            | 33.9 (26.6)            | 0.31  |

Values are mean (standard deviation). AMD, age-related macular degeneration; HADS, Hospital Anxiety and Depression Scale. *Mann-Whitney nonparametric test.
studies reported that blindness due to AMD mostly affected the patient’s mental health (12, 14). Our study showed that general vision impairment affected the patient’s mental health, dependency, and role difficulties in patients with AMD.

AMD affects the quality of life of the elderly, and studies should be focused not only on treatment, but also on the prevention of mental problems and limitations imposed by the disease.

Conclusions
Age-related macular degeneration appeared to have a great impact on the patient’s quality of life. General vision impairment caused by age-related macular degeneration affects patient’s mental health, dependency, and role difficulties.

Statement of Conflict of Interest
The authors state no conflict of interest.

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