FREQUENCY OF FUNDUS PATHOLOGY RELATED TO PATIENTS' DISSATISFACTION AFTER PHACOEMULSIFICATION CATARACT SURGERY

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ABSTRACT

Purpose: The benefit of cataract surgery in the general population concerning visual acuity and subjective visual function has been well established. However, a small proportion of patients are dissatisfied after cataract surgery. Our study aims to evaluate patients' dissatisfaction after phacoemulsification cataract surgery related to low visual function and to analyze the factors associated with this outcome.

Methods: 397 patients, who underwent uneventful phacoemulsification cataract surgery, participated in the study. All the participants completed a self-administered questionnaire which evaluated their visual function pre- and post-operatively. Best Corrected Visual Acuity (BCVA) was measured before and after cataract surgery and patients' contentment if they were satisfied or not with the result of the surgery was also recorded.

Results: Macular disease, diabetic retinopathy and glaucoma were the main factors limiting the final visual result after phacoemulsification cataract surgery.

Conclusions: It is very important for the patients to be preoperatively fully aware of the presentation of the aforementioned fundus pathology and to be warned about the predicted visual outcome after cataract surgery.

KEYWORDS

phacoemulsification; dissatisfaction; visual outcome

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INTRODUCTION

Cataract surgery is one of the most common surgical procedures worldwide (1-3). The benefit of cataract surgery in the general population concerning visual acuity and subjective visual function has been well established (1-5). Nevertheless, a small proportion of patients experience worse visual ability and are dissatisfied after cataract surgery (2). Our study aims to evaluate patients' dissatisfaction after phacoemulsification cataract surgery related to low visual function and to analyze the factors associated with this outcome.

MATERIALS AND METHODS

The study was undertaken at General Hospital of Veroia, Veroia, Greece. 397 patients (201 male and 196 female), with an age ranging from 65 to 91 years and a median age of 76,4 years, who underwent uneventful phacoemulsification with posterior chamber intraocular lens (IOL) implantation during the year 2009, participated in our investigation. All the participants completed a self-administered questionnaire which evaluated their visual function before and three months after phacomemulsification cataract surgery. This questionnaire was based on the assessment of vision-dependent daily activities such as reading, television watching, distance estimation (far and near) or driving (Table 1). Each question was scored on a scale ranging from 0 (maximum disability) to 4 (no disability). The average score was multiplied by 25 to give an overall score ranging from 0 to 100. All the participants were demographically matched in order to achieve a balance among the individuals regarding the visual requirements necessary for their everyday tasks. Best Corrected Visual Acuity (BCVA) was also measured before and after cataract surgery. In addition to this, patients' contentment, i.e. whether if they were satisfied or not with the result of the surgery, was recorded, as a YES/NO statement after cataract surgery. Written in-

Table 1: *The questionnaire which evaluated patients' visual function*

Do you have any difficulty, even when glasses are needed, to do the following:						
		No	Minimal	Moderate	Important	Can't do
1	Reading a newspaper or book?					
2	Doing fine handworking ie. sewing?					
3	Recognizing people close to you?					
4	Seeing steps?					
5	Reading traffic signs, street signs or stop signs?					
6	Cooking?					
7	Watching television?					
8	Taking part in sports?					
9	Driving during daytime?					
10	Driving at night?					

Table 2: *Changes in Visual Acuity after phacoemulsification cataract surgery*

	Preoperative BCVA in decimal scale (mean±SD)	*Postoperative BCVA in decimal scale (mean±SD)*	*Change*	*p*
No fundus pathology (n=290)	2.83±0.72	8.77±1.27	5.94±0.73	<0.001
Age-related macular degeneration (n=62)	2.09±0.83	5.61±1.43	3.52±0.57	<0.001
Diabetic retinopathy (n=27)	2.62±0.81	8.64±1.24	6.02±0.54	<0.001
Glaucoma (n=17)	2.28±0.52	7.46±1.45	5.18±0.83	<0.001
Retinitis pigmentosa (n=1)	2.0	3.0	1.0	<0.05

BCVA=best corrected visual acuity

Table 3: *Changes in Visual Function Score after phacoemulsification cataract surgery*

	Preoperative Visual Function score (mean±SD)	*Postoperative Visual Function score (mean±SD)*	*Change*	*p*
No fundus pathology (n=290)	84.51±1.76	93.64±1.23	9.13±0.52	<0.001
Age-related macular degeneration (n=62)	81.47±3.12	89.58±2.08	8.11±1.21	<0.001
Diabetic retinopathy (n=27)	83.23±1.42	87.29±0.87	4.06±1.07	<0.001
Glaucoma (n=17)	80.56±1.24	87.32±1.19	6.76±1.11	<0.001
Retinitis pigmentosa (n=1)	45	57.5	12.5	<0.001

Table 4: *Changes in Visual Acuity and Visual Function Score in dissatisfied patients after phacoemulsification cataract surgery.*

	Preop BCVA in decimal scale (mean±SD)	*Postop BCVA in decimal scale (mean±SD)*	*Preop Visual Function score (mean±SD)*	*Postop Visual Function score (mean±SD)*
Age-related macular degeneration (n=15)	2.2±0.56	5.0±1.07	82.17±5.16	81.33±5.33
Diabetic retinopathy (n=6)	2.67±0.52	5.33±0.82	83.33±5.16	82.08±5.79
Glaucoma (n=5)	2.0±0.71	4.6±0.55	80.5±2.09	80.0±1.77
Retinitis pigmentosa (n=1)	2.0	3.0	45	57.5
Retinal detachment (n=2)	2.5±0.71	5.5±0.71	82.5±3.54	71.25±1.77

Preop=preoperative; BCVA=best corrected visual acuity; Poststop=postoperative

formed consent was obtained by all the participants and the study was approved by the Institutional Review Board.

RESULTS

There was a statistically significant difference in BCVA and visual function in all patients before and after phacoemulsification cataract surgery (Table 2, 3). 92.7% of the patients (368) at follow-up stated to be satisfied with the outcome of cataract surgery. All of them showed an increase in visual acuity and reported improved visual function postoperatively. On the contrary, 7.3% (29 patients) were dissatisfied from their postoperative visual ability and they had lower visual acuity than those being satisfied (5.02±1.81 for dissatisfied vs. 8.13±1.23 for satisfied patients). Pre- and post-operative BCVA and visual function score of the dissatisfied patients were illustrated in Table 4.

Statistical analysis showed that 51.6% of the patients (15 of 29 patients) who stated stability or deterioration of their visual function ability, suffered from age-related macular degeneration (AMD), 20.7% (6) from diabetic retinopathy complicated by with cystoid macular edema and 17.2% (5) had significant atrophy of the optic nerve secondary to advanced glaucomatous neuropathy (c/d=0.9). One patient (3.5%) had retinitis pigmentosa associated with cystoid maculopathy. These ocular fundus abnormalities were stable after cataract surgery, were preoperatively detected and patients were all informed about the potential poor postoperative outcome. In spite of this warning, these patients had decided to undergo the cataract surgery. Interestingly, two patients (6.9%), who were moderately myopic, suffered from retinal detachment postoperatively, that could not be predicted preoperatively.

Importantly, in the 92.7% of satisfied patients, there were also patients with fundus pathology who were not dissatisfied. Specifically, 47 patients with age-related macular degeneration, 21 patients with diabetic retinopathy and 12 patients with glaucoma without optic disc atrophy stated satisfaction after cataract surgery.

DISCUSSION

The primary outcome of our study was the change in the BCVA and in the visual function subjective appreciation after phacoemulsification cataract surgery. We found a statistically significant gain of visual acuity in all patients. Nevertheless, patients who stated dissatisfaction after cataract surgery presented a lower improvement in their visual acuity and they had lower visual acuity than those who were satisfied. With respect to the changes of the BCVA, all patients had improved their visual function after phacoemulsification cataract surgery, although the dissatisfied patients had lower visual function score than the satisfied ones.

AMD has been highlighted as an important risk factor for poor visual outcome after cataract surgery (1-3). Nevertheless, even if central vision is lost, the peripheral visual field can be improved by cataract surgery (3). In our study, postoperative visual acuity improved in 47 cases and deteriorated in 15 cases with macular degeneration. The AMD stage is very important to take into account when deciding to perform cataract surgery, as it defines the surgery outcome in patients with AMD.

Diabetic retinopathy, glaucoma and retinitis pigmentosa are also associated with worse postoperative visual acuity (2,3). The presence of cystoid macular edema in diabetic retinopathy and the atrophy of the optic nerve in glaucoma patients are the main factors that had affected the postoperative outcome. However these diseases do not contraindicate cataract surgery as many patients benefit from it (2).

Undoubtedly, macular disease is the main factor limiting the final visual result after phacoemulsification. In addition, diabetic retinopathy associated with cystoid macular edema and glaucoma associated with significant optic disc atrophy are also significant factors associated with poor visual function after cataract surgery. Our study indicates that there is a significant degree of dissatisfaction regarding the visual outcome after cataract surgery in patients with fundus pathology. This could not falsely discourage surgeons not to perform cataract surgery in the patients with a fundus pathology. However, it is very important for the patients to be preoperatively fully aware of the presentation of the aforementioned fundus pathology and to be warned about the predicted visual outcome after cataract surgery, although warning does not always prevent dissatisfaction.

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