SHORT COMMUNICATION

Patients' satisfaction and spectacle independence after cataract surgery with multifocal intraocular lens implantation in a tertiary care hospital

Rashid Baig, Tanveer A. Chaudhry, Saajan Kukreja, Sidra Shakil, Khabir Ahmad

Abstract

This single group cohort study, undertaken at Aga Khan University Hospital, Karachi, from Jan 2012 to September 2013, assessed patients' satisfaction, spectacle independence and visual disturbance after implantation of multifocal IOLs. A total of 39 patients who underwent bilateral cataract surgery with multifocal IOL implantation were included for telephonic interviews. The mean age of participants was 55.5 ± 8.1 years. The mean follow up time was 9.60 ± 3.19 months. The overall satisfaction rate after surgery was found to be 84.6% and there was no statistically significant association of satisfaction with gender, age or education. In all 84.6%, 94.9% and 84.6% people had spectacle independence for far, intermediate and near, respectively. More than half of participants (59%) had some degree of visual disturbance. In this study, multifocal IOL implantation provided high levels of satisfaction and spectacle independence despite notable risk of halo or glare symptoms at night. Therefore, careful patient selection and preoperative counselling regarding possible risks and benefits is recommended.

Introduction

Modern cataract surgery with intraocular lens (IOL) implantation results in improved vision and visual function in more than 90% of the cases.[1] Currently, monofocal IOL implantation is the standard of care worldwide. However, even after successful surgery, most patients require spectacles for near work or distance - and spectacle dependence is a significant issue. New IOL models such as multifocal IOLs have been designed to address this problem.[2,3] These IOLs employ apodized diffractive technology to decrease photic phenomena while providing simultaneous vision at distance and near foci. Since they were approved for use in the US in 1997, multifocal IOLs have gained significant acceptance in patients needing cataract or refractive surgery.

A number of studies[2-4] have been conducted in Europe and North and South Americas to assess the outcomes of cataract surgery following multifocal IOL implantation including visual outcome, patients' satisfaction, visual disturbance (e.g., glare and halos) and spectacle independence. In a non-randomised clinical trial involving 40 patients (80 eyes), Souza et al[5] found that multifocal IOL cataract surgery provided a satisfactory full range of vision, with less spectacle dependence compared with monofocal IOL but with lower contrast sensitivity. Chiam et al[6] also found a higher level of satisfaction and less spectacle dependence in patients with multifocal IOL implantation. These benefits outweighed the photic symptoms it caused.

Multifocal IOLs are also gaining popularity in Pakistan. However, to date no research has been conducted to examine the level of satisfaction, spectacle independence and visual disturbance among patients implanted with these lenses. We designed a study to assess these outcome measures in a tertiary care setting in Karachi, Pakistan.

Methods and Results

This was a single-group cohort study conducted at the Section of Ophthalmology, Aga Khan University, Karachi. All patients implanted with multifocal IOLs from June 2012 to September 2013 at the Aga Khan University Hospital, Karachi, were included in the study.

After obtaining informed verbal consent, structured telephone interviews were conducted with the participants by one of us (SK). Data were collected on socio-demographics (age, gender, occupation and education), satisfaction (overall and with far, intermediate and near vision), spectacle dependency and visual disturbance.

IBM SPSS Statistics version 19 (Statistical Package for Social Sciences) was used to enter and analyse the data. Means and SDs were computed to describe continuous data while frequencies and percentages were computed to describe categorical data. Fisher's Exact test was used to compare satisfaction across age groups, gender, education and visual acuity. A P-value< 0.05 was considered significant.

The study was approved by the Ethical Review Committee

Section of Ophthalmology, Department of Surgery, Aga Khan University, Karachi, Pakistan.

Correspondence: Rashid Baig. Email: rashid.baig@aku.edu

Table-1: Patients' satisfaction-overall and with far, intermediate and near vision.

Variable		n	%
Overall satisfaction	Very Satisfied	13	33.3
	Satisfied	20	51.3
	Neutral / not sure	0	.0
	Dissatisfied	5	12.8
	Very Dissatisfied	1	2.6
Satisfaction with far vision	Very Satisfied	12	30.8
	Satisfied	23	59.0
	Neutral / not sure	1	2.6
	Dissatisfied	3	7.7
	Very Dissatisfied	0	.0
Satisfaction with intermediate vision	Very Satisfied	12	30.8
	Satisfied	24	61.5
	Neutral / not sure	0	0
	Dissatisfied	3	7.7
	Very Dissatisfied	0	.0
Satisfaction with near vision	Very Satisfied	14	35.9
	Satisfied	19	48.7
	Neutral / not sure	0	.0
	Dissatisfied	5	12.8
	Very Dissatisfied	1	2.6

Table-2: Overall satisfaction by age, gender and education.

Variables		Interviewed	Overall satisfaction		P
			Count	%	
Overall		39	33	84.6	
Age	> 55 years	16	14	87.5	0.677
	≥ 55 years	23	19	82.6	
Gender	Male	14	13	92.9	0.286
	Female	25	20	80.0	
Education	Upto intermediate	13	11	84.6	>0.999
	Graduates or above	26	22	84.6	

of Aga Khan University, Karachi, Pakistan (2755-Sur-ERC-13). Informed verbal consent for the telephone survey was obtained from each participant. Participants with visual disturbance or dissatisfaction were offered free consultation.

Of 51 persons who had bilateral multifocal IOL implantation, 41 were contactable and invited to participate in the study. Of these, 39 participated. The mean age of participants was 55.5 ± 8.1 years. Fifteen (35.9%) were men; 25 (64.1%) were women. Majority (66.7% or 26/39) of them had graduate or postgraduate qualification. The mean time between interview and second eye surgery was 9.60 ± 3.19 months. The median was 9.57 months (range: 4 to 14 months). The rate of overall satisfaction (very satisfied/satisfied) was 84.6% (Table-1). Overall satisfaction did not vary significantly by

Table-3- Spectacle dependence, visual disturbance and difficulty in recognizing colours among study participants (n=39).

Variable		Count	%
Spectacle dependence far	None	33	84.6
	Some time	2	5.1
	Most of the time	3	7.7
	Always	1	2.6
Spectacle dependence intermediate	None	37	94.9
	Some time	1	2.6
	Most of the time	1	2.6
	Always	0	0.0
Spectacle dependence near	None	33	84.6
	Some time	2	5.1
	Most of the time	3	7.7
	Always	1	2.6
Visual disturbance at night (e.g., glare or halos	Severe	2	5.1
	Moderate	9	23.1
	Mild	12	30.8
	None	16	41.0
Difficulty in performing visual task at night	Severe	0	0.0
	Moderate	5	12.8
	Mild	5	12.8
	None	29	74.4
Difficulty in recognizing colours	Severe	0	0.0
	Moderate	0	0.0
	Mild	2	5.1
	None	37	94.9

age (P=0.677), gender (P=0.286) and education (P>0.999; Table-2).

Altogether, 89.8%, 92.3% and 84.6% participants were very satisfied/satisfied with their far, intermediate and near vision, respectively.Reasons for dissatisfaction were glare/halos (2 persons), spectacle dependence (3 persons) or both (1 person).

Spectacle dependence (some time, most of the time, or always) for far, intermediate and near was reported by 15.4 %, 5.2 % and 15.4 % of the participants, respectively (Table-3). More than half of participants (59%) had some degree of visual disturbance: mild (30.8%), moderate (23.1%) and severe (5.1%).

Discussion

To our knowledge, this is one of the first studies in a developing country's setting to evaluate patients' satisfaction and visual disturbance among individuals implanted with multifocal IOLs. Evaluation of patients' perspectives is an often-neglected aspect of biomedical research and this study is a contribution to fill this gap. We found a very high satisfaction rate (overall, and with far, near and intermediate vision) despite a high incidence of photic effects; most participants reported being spectacle

independent. This is consistent with published studies.

When comparing our results with previous studies, we found a considerable variety in the way patient-reported satisfaction was measured in different studies.[7] The follow up time also varied substantially.

More than half of participants in our study had some degree of visual disturbance, which is a well-known disadvantage of multifocal IOLs. This is despite the fact that these lenses use apodisation phenomenon, which involves gradual transition of diffractive steps from the centre to periphery of IOL. This is aimed to create a smooth transition of light between different focal points (far, intermediate or near), reducing the probability of visual disturbances including glare and halos. Patients receiving multifocal IOL implantation should be cognizant of this risk and should be educated before surgery.[7]

In our study, there was no statistically significant association between overall satisfaction after surgery and any of the socio-demographic variables such as age, gender and education. Men were more likely to be satisfied than women, but the results did not reach statistical significance because of the small numbers of participants in each group. These results are consistent with a study by Nijkamp and colleagues[8] that found no association between socio-demographics and patients satisfaction, rather they found relationship between perceived quality of near vision and satisfaction level.

Our study had various limitations. First, it had a relatively small sample size. This was because multifocal IOLs are new modalities in Pakistan and are currently used only in a small proportion of cataract surgeries. Second, we did not have a control group to determine whether multifocal IOL implantation is associated with better satisfaction/visual function compared with monofocal IOLs. Majority of previous studies are comparative in nature. Third, we focused only on self-reported satisfaction and visual function. Future studies in our population are needed to examine the effects of multifocal IOLs on both distance and near visual acuity and contrast sensitivity. It will also be important to predict who will be more likely to benefit from multifocal lens implantation taking into account patients' lifestyle, needs (reading, driving or computer work), expectations and culture.[9]

Conclusion

In this study, multifocal IOL implantation provided high levels of satisfaction and spectacle independence despite notable risk of halo or glare symptoms at night.

Acknowledgements

The authors would like to thank Mr Sean Victor, Office of Surgical Research, Department of Surgery, Aga Khan University, Karachi, for his assistance with data entry.

Disclosure: The article or part of the article has not been published in any other journal.

Conflict of Interest: None

Financial Support: None

References

1. Informal consultation on analysis of blindness prevention outcomes. WHO/PBL/98.68 Geneva: : World Health Organization, 1998.
2. Cochener B, Fernandez-Vega L, Alfonso JF, Maurel F, Meunier J, Berdeaux G. Spectacle independence and subjective satisfaction of ReSTOR multifocal intraocular lens after cataract or presbyopia surgery in two European countries. Clin Ophthalmol. 2010;4:81-9.
3. Javitt JC, Steinert RF. Cataract extraction with multifocal intraocular lens implantation: a multinational clinical trial evaluating clinical, functional, and quality-of-life outcomes. Ophthalmology. 2000; 107:2040-8.
4. Sheppard AL, Shah S, Bhatt U, Bhogal G, Wolffsohn JS. Visual outcomes and subjective experience after bilateral implantation of a new diffractive trifocal intraocular lens. J Cataract Refract Surg. 2013; 39:343-9.
5. Souza CE, Muccioli C, Soriano ES, Chalita MR, Oliveira F, Freitas LL, et al. Visual performance of AcrySof ReSTOR apodized diffractive IOL: a prospective comparative trial. Am J Ophthalmol. 2006; 141:827-32.
6. Chiam PJ, Chan JH, Aggarwal RK, Kasaby S. ReSTOR intraocular lens implantation in cataract surgery: quality of vision. J Cataract Refract Surg. 2006; 32:1459-63.
7. Calladine D, Evans JR, Shah S, Leyland M. Multifocal versus monofocal intraocular lenses after cataract extraction. Cochrane Database Syst Rev. 2012;9:CD003169.
8. Nijkamp MD, Dolders MG, de Brabander J, van den Borne B, Hendrikse F, Nuijts RM. Effectiveness of multifocal intraocular lenses to correct presbyopia after cataract surgery: a randomized controlled trial. Ophthalmology. 2004; 111:1832-9.
9. Walkow L, Klemen UM. Patient satisfaction after implantation of diffractive designed multifocal intraocular lenses in dependence on objective parameters. Graefes Arch Clin Exp Ophthalmol. 2001; 239:683-7.