

Ensuring patient satisfaction with presbyopia correction

New modality proves a promising option, according to recent data

By Professor
Roger F. Steinert

Satisfaction is arguably one of the best outcomes of any treatment that we as ophthalmologists can provide to our patients. Presbyopia correction is no different. We are all looking for effective options for treating presbyopia that will keep our patients happy. However, as patients' expectations of perfect vision and spectacle independence increase, this task is becoming all the more challenging. We benefit from a wide variety of surgical treatment options for addressing the needs of our presbyopic patients; however, knowing which treatment modality will keep patients happy remains difficult. This is in large part due to our lack of understanding of what makes presbyopic patients satisfied with their treatment.

We recently performed a study aimed at answering just this question. Our results, although somewhat surprising, may be instructive to ophthalmic surgeons trying to find the best treatment modality for their presbyopic patients, as well as scientists trying to devise newer ways to treat presbyopia.

Determinants of patient satisfaction

As the basis for the study, we used data from multiple studies conducted with Raindrop Near Vision Inlay (ReVision Optics, Lake Forest, California, USA).¹ The Raindrop corneal inlay is a new modality for the treatment of presbyopia. Made of a biocompatible co-polymer (cross-linked methylmethacrylate/vinyl pyrrolidone), this transparent inlay has a high water content (78%) and shares the refractive index of the cornea. It has a central near zone and peripheral intermediate and distance zones. When implanted in the cornea, it works by reshaping the Bowman's layer and the anterior cornea, creating a profocal cornea with a smooth transition from near, intermediate and distance vision.

The results with this inlay have been promising, both in terms of visual outcomes and patient satisfaction.¹ In the inlay eye, on average, patients improved by 5 lines of near vision, and binocularly, they achieved 20/20 vision on average at all distances. In terms of patient satisfaction, over 90% of patients reported overall satisfaction with their vision. The data emanating from this study hence presents

a valuable tool with which to try and understand what factors lead to patient satisfaction following presbyopia treatment.

The initial study included 45 emmetropic patients who received the Raindrop inlay in the non-dominant eye.¹ The study collected information on uncorrected visual acuities, self-reported patient symptoms, and patient satisfaction with vision prior to inlay implantation as well as at 1, 3, 6, 9 and 12 months postoperation. To this data, three different statistical analyses were applied to determine predictors of near, distance and overall satisfaction. First, a univariate analysis was used to identify factors that appear to influence outcomes; second, a multivariate analysis was used to study the interactions between the factors found to influence outcomes; and third, a longitudinal analysis was used to make a final determination of influential factors by combining the data from all postoperative visits.

For the satisfaction survey part of the study, patients were provided five options to choose from that best described their level of satisfaction with the Raindrop inlay: 1) very satisfied, 2) satisfied, 3) neutral, 4) dissatisfied, and 5) very dissatisfied. One of the biggest challenges we had in performing the analysis was the distribution of patient responses — the majority of patients responded as being either

In short...

Post-op patient satisfaction is an important aspect for an ophthalmologist. However, patient expectations of post-op outcomes are increasing, making the task of meeting these expectations more challenging. In presbyopia correction there are now many options available to choose from but, unfortunately, there is still a lack in knowledge of which treatment modality will ensure patient satisfaction. A reason for this is a lack of understanding of what makes patients happy with their treatment, as such a recent study was performed to look at this issue in more detail. In this article, Dr Steinert discusses the study, which he believes may prove instructive to ophthalmic surgeons trying to find the best treatment modality for their presbyopic patients, as well as scientists trying to devise newer ways to treat presbyopia.

'very satisfied' or 'satisfied', with very few patients reporting dissatisfaction and none reporting to be 'very dissatisfied'. Therefore, to allow for more robust modelling, the patient responses were reclassified into two groups: satisfied (which included patients who responded as being 'satisfied' and 'very satisfied') and dissatisfied (which included patients who responded as being 'neutral', 'dissatisfied', and 'very dissatisfied').

Predictably, we found that visual acuity had a major influence on patient satisfaction. However, surprisingly, we found that only uncorrected near visual acuity (UNVA) in the inlay eye affected near and overall satisfaction, whereas uncorrected distance visual acuity (UDVA) in the inlay eye influenced neither distance nor overall satisfaction. This runs contrary to the common belief that a reduction of distance vision in the inlay eye can affect patient satisfaction. Similar to previous studies addressing patient satisfaction with multifocal IOLs, we also found that visual symptoms influence patient satisfaction. Essentially, the stronger the visual symptoms such as halo and glare are, the lower the near, distance, and overall satisfaction will be. Therefore, UNVA in the inlay eye and visual symptoms play a greater role in patient satisfaction than UDVA in the inlay eye.

Our results essentially provide an explanation for why the vast majority of patients who received the Raindrop inlay were happy with their results. Average monocular UNVA in the study improved to J1+ by month 3, and by 6 months 90% of patients were at 20/20 equivalent at near and 100% were at 20/25 equivalent at near. Based on our results, this significant improvement in near vision must be the main driver of patient satisfaction. Additionally, patients must also be happy as they were largely free of visual symptoms — only about 3% of patients reported moderate glare and 5% of patients reported moderate

halos at 6-months postoperation. Although patients did have a small drop in UDVA in the inlay eye soon after implantation, we would expect that this did not contribute much to patient satisfaction. Nevertheless, by 6 months post-op, monocular UDVA improved to 20/40 or better in all eyes and binocular UDVA was 20/20 in all patients.

What the future holds

A really interesting question to ask in the future is whether these same factors, UNVA and visual symptoms, also determine patient satisfaction with other presbyopia corrections. In the meanwhile, however, the high patient satisfaction achieved with the Raindrop inlay sets it up as a promising treatment for presbyopia.

One of the biggest advantages of the Raindrop inlay is that it is completely transparent and hence doesn't reduce the amount of light entering the retina. For patients, this reduces difficulties with night driving and is also more aesthetically pleasing as the inlay is invisible. From an ophthalmologist's point of view too this is highly advantageous as it doesn't impede an eye exam or laser delivery. In addition, the implantation technique is straightforward. The inlay is inserted in a 150 micron deep LASIK flap and is tolerant to about 0.75 mm of decentration.

Although this analysis was focused on emmetropes in the presbyopic population, future studies on the outcomes and satisfaction of presbyopes undergoing concurrent LASIK or receiving the implant after LASIK will shed light on the impact of the inlay on a larger presbyopic population.

Reference

1. Data on file, ReVision Optics

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Author

Professor Roger F. Steinert is Irving H. Leopold Professor and Chair of Ophthalmology and Director of the Gavin Herbert Eye Institute at the University of California, Irvine School of Medicine, California, USA. He may be reached by E-mail: steinert@uci.edu

Dr Steinert is a consultant for ReVision Optics and the medical monitor for the Raindrop FDA clinical trial.