

## Commentary: Presbyopia correction with intraocular lenses

Presbyopia correction remains a great challenge in Cataract and Refractive Surgery.<sup>[1]</sup> With each passing moment in the field of ophthalmology, the expectations of the patient with regards to functional improvement are waxing. Gone are the days when a patient reading the last line on your vision chart will always be satisfied. A common man's room or his working and living environment is contracting day by day. Even while driving on Indian roads, in my personal experience, we are seldom looking beyond 3–4 m. In my day-to-day clinical experience, functional satisfaction is more in those patients who have residual myopia or myopic astigmatism.

Recent advances in multifocal intraocular lenses (IOLs), Trifocal IOLs, and extended range of vision IOLs have revolutionized the outcomes of cataract surgery.<sup>[2]</sup> With advent of these lenses, now the cataract surgery has expanded into the realm of refractive surgery.<sup>[3]</sup>

However, at the same time, we come across many dissatisfied patients after having these lenses implanted. Insights into the reasons for dissatisfaction of this group of patients leads me to subdivide them into two groups:

1. Dissatisfied in spite of good refractive outcome
2. Dissatisfied due to poor refractive outcome.

Patients who are dissatisfied in spite of good refractive outcome complain usually of lack of sharpness in vision, reduced contrast, and photic phenomena especially during

night driving. Use of these IOLs requires a very good knowledge of the needs of the patient.<sup>[4]</sup> The personality of the patient and his expectation from the surgery has to be assessed before offering him these premium lenses. Prefer to write down the keywords, surgeon's expectations, and patient's expectations during the counseling of such patients. Make sure that these patients read these points on the day of the surgery too. In the visual pathway, at neural levels, two disparate images form a combined single image with depth or stereopsis. Technology till now has tried to correct presbyopia. Correcting presbyopia with IOL's increases the complexity of this pathway with the possible introduction of intraocular rivalry or relative monovision. The neuroadaptation for using these lenses lacks studies in depth. Understanding which patient selection factors are important for neuroadaptation may improve patient satisfaction.<sup>[5]</sup>

Second group is the one who are dissatisfied after a poor refractive outcome. The main reason for this in premium lenses is the effective lens position, which in itself is an assumption. The final position where the lens is going to rest, an unexpected tilt, etc. are the main factors for a refractive surprise. Development of posterior capsular opacification and anterior capsular phimosis are not under the control of surgeons. Minor changes in lens position or decentration after an neodymium-doped yttrium aluminum garnet (YAG) capsulotomy may lead to refractive errors or sometimes intractable aberrations. According to a study, after 24 months of implantation of multifocal IOLs, 8.8% developed significant posterior capsule opacification in hydrophobic IOL group and 37.2% in hydrophilic IOL group.<sup>[6]</sup> In another study, the significant refractive change was noticed in 7% of patients immediately after YAG capsulotomy postmultifocal IOL implantation.<sup>[7]</sup>

Other reasons for poor outcome are inaccurate biometry, miscalculated surgically induced astigmatism or surgeon's factor, ill-planned incisions, etc. How the wound will heal in each eye is another assumption.

Hence, a very meticulous workup with assessment of the needs of the patient, and a very thorough counseling make the real cocktail of success for the use of premium IOL's.

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