

Dear Members

Greetings from UPJO!

The recent advances in intraocular lenses (IOL) has revolutionized the cataract surgery and its results. The first IOL implanted by Sir Harold Ridley in 1949 by the brand name of 'Perpex' was a monofocal IOL. The lens showed us clear distance vision but needed an addition for near vision.

Since then, the IOL journey has come a long way. The addition for near came in the form of multifocal IOLs although basically, they were bifocal IOLs. The early multifocal IOLs were of refractive types that were based on the simple principle of refraction. The increased addition for near in the form of convex lens led to the focusing of light rays for near and thus, good vision for near. But the large circle of diffusion formed due to multiple alternate rings of near & distance power introduced several errors like glare, halos, aberrations etc . This lead to poor image quality with increased higher order aberrations and, subsequently, discontinuation of these IOLs.

The next came in diffractive multifocal IOLs that were based on principal of diffraction and therefore, deviated the light rays as it comes in contact with the edge of the diffraction gratings made on the surface of IOLs. The size (width) of these gratings were gradually reduced towards the center to focus the diffracted rays at a single point because of an increase in the convergence of rays due to reducing the size of the gratings. These IOLs reduced the problems of refractive multifocal IOLs and became more popular. However, the compromised intermediate vision led to further research and then came in the trifocal IOLs.

The trifocal IOLs had additional step of lesser power than that was for near addition. The principal was same as diffraction, and these lenses' implantation led to improved intermediate vision. The increased usage of intermediate vision due to computers, laptops and mobiles lead to increased utilization of these IOLs. Although the inherent problems of glare, halos, etc persisted to some extent especially while driving. Neuroadaptation is the key component leading to adjustment of these IOLs but it might take some time in certain subset of patients and might not happen completely leading to problems.

Finally, to combat this issue came in the EDOF (Extended depth of Focus) IOLs improved the quality of vision for distance and intermediate vision without compromising the color, contrast and avoided production of glare & halos. The exciting news is that they can be implanted in the eyes with compromised retina as there are no rings on the surface of IOLs. Thus, avoiding the image quality compromise and giving clearer vision. The patients can read the near text type too to a certain extent and thus hold promising modality of visual rehabilitation post cataract surgery.

The researchers are still going on to invent an IOL like crystalline lens with all the inherent qualities we naturally have. Till then we all are working to attain the goal of perfect visual rehabilitation.

The coming issue deals with questionnaires on types of IOLs and how to choose from the experts in the fields besides many other interesting topics. Awaiting constructive criticism and suggestions to improve upon.

Happy Reading!!!!



Editor in Chief

Dr. (Prof) Shalini Mohan
Head of Department of Ophthalmology
GSVM Medical College, Kanpur
Uttar Pradesh, India.

