

Panel Discussion on Multifocal IOL Practice

UPSOS Correspondent : Dr Mohit Khattri

Consultant, Regency Hospital Ltd, Kanpur

Expert Panel :



Dr Gaurav Luthra (GL)

Director, Drishti Eye Institute, Dehradun
Member Scientific Committee, AIOS



Dr Namrata Sharma (NS)

Professor, AIIMS, New Delhi
Hony General Secretary, AIOS



Dr Rupal Shah (RS)

Group Medical Director
Centre For Sight - New Vision Laser Centre,
Vadodara



Dr Sudhir Srivastava (SS)

Director, Sun Eye Hospital,
Lucknow

With the recent upsurge in the implantation of multifocal IOLs, we planned a panel discussion on the trends in multifocal practice across the country. We are sharing the excerpts from the discussion to help and guide the practitioners in day to day practice.



Q.1 Do you think multifocal IOL implantation has increased in present day world? If yes, then what's the foremost reason?

GL: Yes. Two reasons. Better IOL power prediction with optical biometry and newer formulas like Barrett's and Hill RBF leading to more

patients in the + 0.5D range which is a key to happy patients with multifocals. Second reason is newer better IOL designs to customise to patient needs like the trifocals, quadrifocals and extended depth of focus. Better understanding of patient eligibility and exclusion is another important reason.

NS: Cataract surgery has gradually evolved into a refractive procedure, the goal being attainment of complete post-operative emmetropia. Since the multifocal IOLs provide spectacle independence for both distance as well as near, their use is on a rise. Cataract surgery has become refractive surgery now. Furthermore because of the changes in the lifestyle, the surgeon's and the patient's expectations are on the rise.

RS: Number is definitely on the rise. The reason is that

cataract surgery is fast becoming refractive surgery and secondly there are lots of options available in terms of choice of IOLs

SS: Yes, there is definite increase in MF implantation nowadays, in my opinion better understanding with the technology is the foremost thing and obviously it is demand drive too.

Q.2 What are the two most important contraindications for multifocal IOL implantation in your practice?

GL: 1) Macular pathology 2) Patient with unrealistic expectations

NS: Patient selection is of utmost importance while planning cataract surgery with multifocal IOL implantation, in order to avoid postoperative dissatisfaction. Patient's personality plays an important role in determining their ability to neuroadapt to the visual phenomenon seen following implantation of these IOLs. Patients with unrealistic expectations should better be planned for a monofocal IOL. The second most important consideration is the ocular surface evaluation. A healthy ocular surface is of utmost importance in achieving successful results with any of the premium IOLs. Patients

with reduced tear film break up time, corneal surface staining and decreases aqueous production rates should not be planned for multifocal IOL implantation. Further, it is important to know from where are the aberrations emanating: Corneal or lenticular because that also helps to take a decision on the planning of these intraocular lenses.

RS: Two most important contra indications

- a) Poor visual prognosis
- b) Unrealistic expectations of the patient

SS: Any irregularities on cornea n optical system are the main no for MF and if patient is not understanding the limitations of this technology would be the next.

Q.3 What are the two “must to do” preoperative tests prior to multifocal IOL implantation in your practice?

GL: A- OCT macula and Optical biometry. If available an aberrometry too.

NS: The two “must do” preoperative tests, prior to multifocal IOL implantation are the tests to determine tear film production as well as its stability which includes the Schirmer’s and the tear film break up time (TBUT) and the measurement of intraocular aberrations i.e.aberrrometry. I recommend getting an I trace done since it not only measures the total intraocular aberrations but also gives us an individual contribution by the cornea as well as the lens. If the cornea is highly aberrated, the multifocal intraocular lens implantation is best avoided.

RS: Two must do tests pre op

- a) Psychological makeup of the patient
- b) Visual potential and pupil size

SS: A - thorough corneal assessment by using all possible tools to detect any anomaly on cornea.

B - Patients with any retinal or macular pathology.

Q.4 One per operative surgical pearl you would like to give to a cataract surgeon while doing surgery with multifocal implant.

GL: A- Perfect anastigmatic incision, perfect rhexis and perfect IOL centration. A- Good sized

NS: Size of capsulorhexis is an important intraoperative parameter, which should be taken into consideration while implanting these IOLs. This has an important determinant and can adversely affect the final visual outcome. The capsulorhexis size should be such that it should adequately and equally cover the IOL, 360 degrees. The IOL should be well centred within the bag.

Inadequate or differential coverage might lead to post-operative IOL decentration causing sub-optimal visual outcome as well as increased photic phenomenon. Also the IOL should be perfectly centred and the best guide are the purkinge images which should be centred when you ask the patient to look into the light. Of course the image guided systems are available, they are also useful in intraocular lens centration.

RS: To do minimal handling of tissues, well centred IOL with astigmatically neutral outcome

SS: Surgeon should assess own impact on cornea by knowing own SIA, all surgical efforts for good centration of IOL

Q.5 Do you think EDOF (extended depth of focus) IOLs score better than conventional refractive or diffractive IOLs? If yes, then how?

GL: They have their own places. People with long arms and predominantly intermediate needs do well with EDOF lenses whereas those with need for good reading vision might do better with conventional bifocal diffractive designs. Another great addition is the trifocal or quadrifocal design which gives good near and intermediate vision in addition to distance.

NS: The visual performance of EDOF IOLs have been seen to be comparable with the trifocal IOLs in terms of distant and intermediate distance visual acuity, but for near the trifocal IOLs have been seen to provide better and preferred reading distances with a more continuous range of vision. The EDOF lenses work on the principle of splitting the light. They provide 90-86% of light for distance and varying amounts for intermediate and near distances. They are that way more forgiving as they extend the focus. Depending on the lifestyle the patients and their requirements, they can be counselled.

RS: EDOF IOL has its own place. Comparison with multifocal IOL may not be fair.

SS: Yes. I always say to my patients that none of the available MF technology would match God gifted seem less multifocality, but we can reach closer but you might need some addition for near without loss of contrast sensitivity.

Q.6 What do you think is the future and standoff for the Trifocals?

GL: Trifocals are popular now and have satisfied patients but I am sure technology will continue to evolve and we will see even better designs in the near future.

NS: The trifocal IOLs provide an effective means for restoring distant, intermediate, as well as near vision with good visual quality and minimal photic phenomena. The visual

outcomes are non-inferior to that of the bifocal IOLs. The future might see an increase in the use of these IOLs.

RS: Concept of trifocals seem to have a bright future.

Needs more refining though

SS: Will improve with time but we have to learn n adjust with it in future to score better in future

Q.7 What are the two commonest causes behind an unhappy multifocal patient in your practice?

GL: Luckily I personally don't have many unhappy MF IOL patients but do see a lot of referred ones. Residual refractive error especially astigmatism and poor patient selection and exclusion are most common causes besides lack of proper counseling and building the right expectations.

NS: The most common causes of unhappiness after multifocal IOL implantation is blurred vision and the occurrence of photic phenomenon. Blurred vision is usually the result of residual ametropia and astigmatism, development of posterior capsule opacification, a large pupil size or unhealthy ocular surface. As far as the photic phenomenon are concerned, most of the times the reason for their occurrence is not identified. These visual phenomenon however lessen with time by a process of neuroadaptation within a time period of 3 months to a year. Further it is imperative to see that their tear film is optimal and of course the patient expectations should also be looked into.

RS: Reason for unhappy patients post op

- a) Residual refractive error
- b) Quality of vision in extreme light conditions

SS: A. If patient is not ready to understand the limitations of MF technology.

B. Hidden corneal aberrations

Q.8 Have you ever tried mixing up the multifocals? (EDOF + Diffractive or Refractive + Diffractive or EDOF + Trifocal) if yes, then which combination suits you the most?

GL: Yes, occasionally. There is no fixed combination that works best. It has to be tailored to the patient's needs and the given situation but one must give careful thought before mixing and matching.

NS: No, I don't practice mixing up of different types of multifocal IOLs, especially diffractive or refractive with EDOF intraocular lenses.

RS: No I don't normally mix.

SS: I have not such experience of mixing two different MF technology

Q.9 Have you tried multifocal IOL after refractive surgery? If yes, then what special considerations you take?

GL: Yes. One has to be very cautious. Well centred good optical zone ablations with accurate biometry and prelasik data are necessary. Again good counseling and building the right expectations helps. Not to be done as a routine though.

NS: I have never tried implanting multifocal IOLs after refractive surgery. After excimer laser ablation the corneal asphericity is altered and the cornea becomes multifocal. Planning a multifocal IOL in these eyes might lead to increase in postoperative aberrations by adding up with the corneal aberrations rather than neutralising them. One can perhaps do it, if you have sophisticated instruments like I Trace which can help to decipher the corneal and lenticular aberrations. In these cases, of course very careful planning is required.

RS: I have not done but I would consider the centration of the original treatment and induced aberrations

SS: No experience in post refractive surgery patients, I personally think MF in such patients must be avoided

Q.10 Have you been using Multifocal IOLs in pediatric age group?

GL: Yes. Only bilateral implantations over the age of 8-10 years. Works very well with proper case selection. Have over 10 years follow up on some children now and they are doing well. Needs a much larger cohort to be studied in a multicentric trial for clear answers though.

NS: No, I have no experience of implanting multifocal IOLs in the pediatric age group. I believe that in children one does require a clear focus and I am unconformable in compromising on the contrast sensitivity and glare acuity in children.

RS: Not done any multifocal IOL in paediatric age group.

SS: No, since pediatric age is refractive unstable stage, therefore MF should be avoided in this age group.

At the end, we personally feel that after reading, the practitioner must be able to frame some practical guidelines in his or her practice regarding the use of multifocal IOLs.

Wishing you all the best!

Mohit Khattri