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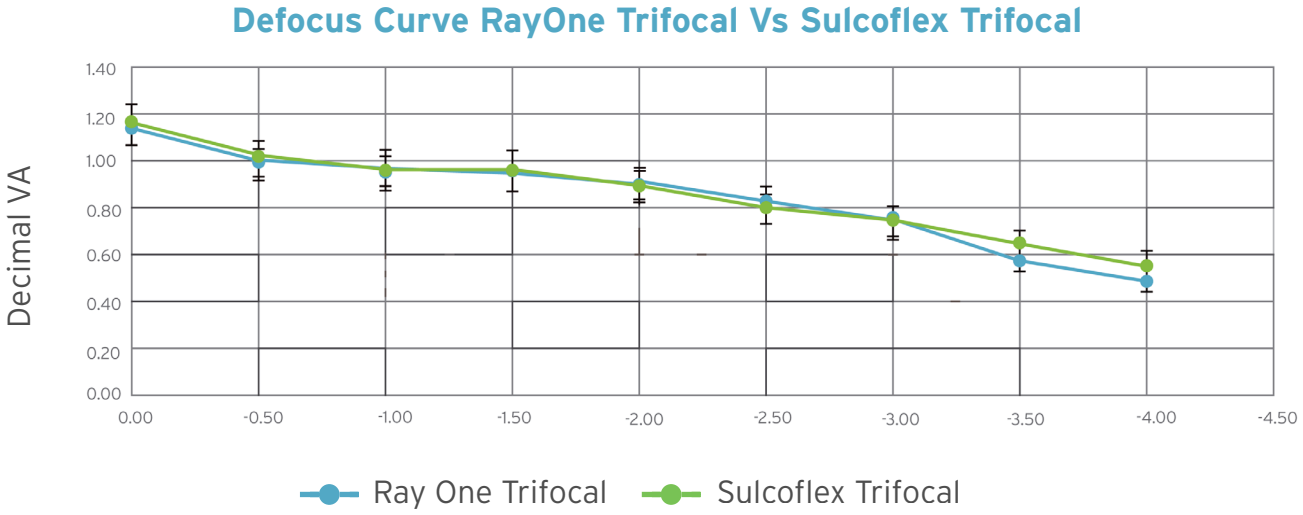
Leading the Way to Offer More Patients a Trifocal Solution: Surgeon Panel Discussion on RayOne Trifocal and New Sulcoflex Trifocal

The RayOne® Trifocal is an innovative intraocular lens (IOL) from Rayner developed in collaboration with engineers at a leading European technology institute. It is the newest entry in the RayOne family of preloaded IOLs, and its patented design incorporates a number of features for optimising clinical performance that distinguish the RayOne Trifocal from other trifocal IOLs on the market.

This supplement summarises the proceedings from a symposium held during the 36th Congress of the ESCRS in Vienna, Austria, in which a panel of leading surgeons presented their experience using the RayOne Trifocal and the Sulcoflex® Trifocal, an add-on version of the trifocal lens for ciliary sulcus implantation in pseudophakic eyes. The reported results, which include comparisons with other trifocal technologies, indicate that the RayOne Trifocal represents a big step forward for the future of presbyopia correction. – *Oliver Findl, MD*

Early results from the new Sulcoflex Trifocal

Prof Michael Amon, MD, FEBO, Academic Teaching Hospital of St. John and Sigmund Freud Private University, Vienna, Austria



Experience accumulated over a period of 10 years establish the long-term efficacy, safety, and stability of the pseudophakic supplementary Sulcoflex IOLs, whether used for primary implantation in a DUET procedure or as an enhancement in a secondary surgery. Now, early outcomes data for the newest version – the Sulcoflex Trifocal – also show excellent results, said Michael Amon, MD, inventor of the Sulcoflex technology.

"The Sulcoflex Trifocal, which is the world's first trifocal supplementary IOL, uses a modern new optic that is an advance in multifocal technology for enabling patients to see at near, intermediate and far," said Prof Amon.

"The visual acuity results and patient satisfaction with vision have been excellent across all distances in patients implanted with the Sulcoflex Trifocal IOL, and the outcomes with the add-on version of the trifocal lens are comparable to those achieved with the RayOne Trifocal implanted in the capsular bag."

HISTORY OF SULCOFLEX: MATERIAL, DESIGN, AND PERFORMANCE

The Sulcoflex family of supplementary IOLs has included monofocal, toric, bifocal multifocal and bifocal multifocal toric implants. The main indications for their use are to provide multifocality to patients undergoing cataract surgery or to enhance the outcome in pseudophakic patients who desire presbyopia correction or need refractive enhancement.

"The Sulcoflex Trifocal lenses are available in 0.25D steps, and so in principle they can be used to titrate the refractive result with good precision," Prof Amon said.

"Because the supplementary IOL is reversible and exchangeable, it is also an adaptive option. Should a patient develop some pathology in the future, such as diabetic macular oedema, age-related macular degeneration or glaucoma, a multifocal Sulcoflex IOL can be easily removed, returning the patient to monofocal vision with better contrast."

Sulcoflex lenses are made of a proprietary hydrophilic acrylic copolymer (Rayacryl®). Prof Amon selected this material based on research showing that hydrophilic acrylic has better uveal biocompatibility than hydrophobic acrylic or silicone.[1,2]

Reviewing experience with Sulcoflex IOL implantation in 200 eyes over a 10-year period, Prof Amon reported encountering no severe complications. Measurements obtained with a laser flare cell meter showed anterior chamber inflammation was less than after phacoemulsification. There were no cases of iris trauma, pigment dispersion, interlenticular opacification, optic capture or significant pupil ovalisation. The supplementary IOL maintained adequate distance from the iris and centre of the IOL in the capsular bag. Visual

acuity results and refractive predictability (±0.25D) in eyes that underwent secondary enhancement were excellent.

Published results also support the stability and biocompatibility of Sulcoflex IOLs. Prof Amon cited a published study examining 43 eyes with a Sulcoflex IOL that found the supplementary lens had significantly better centration than the capsular bag-fixated IOL.[3] One explanation for this difference is probably the effect of capsular contraction on the position of the capsular bag-fixated lens.

Findings from a laboratory study examining pseudophakic human cadaver eyes confirmed appropriate sulcus fixation and centration of the Sulcoflex IOL and showed minimal interaction with uveal tissue or the IOL in the capsular bag.[4] Data from an optical bench study investigating effects of surface reflections indicated that visual quality would be the same in a pseudophakic eye implanted with the sulcus-based IOL compared with a pseudophakic eye that did not have an add-on IOL.[5]

"One has to consider the potential for light to reflect from more surfaces when there are two lenses in the eye compared with one, but the study found no differences comparing these two situations. There was also no additional light loss with the add-on IOL, which is important for preserving contrast," Prof Amon said.

THE SULCOFLEX TRIFOCAL

The Sulcoflex Trifocal features the same optic that is found on the RayOne Trifocal. It is aberration-neutral technology and features a diffractive design with 16 diffractive rings in a 4.5mm central diffractive trifocal zone with an outer monofocal distance zone at >4.5mm. The optic has a +3.5D near add and +1.75D intermediate add at the IOL plane, and maximises light transmission to the retina. At a pupil size of 3mm, light loss is only 11%, 52% of light is allocated for distance and the rest of the light energy is split 22% for intermediate and 26% for near.

"The RayOne Trifocal has less light loss and greater energy transmission for distance than other trifocal IOLs, and it has fewer rings than most. This new trifocal IOL is designed to reduce visual disturbances, decrease dependence on pupil size and lighting conditions, maintain contrast sensitivity and improve distance vision, especially in mesopic conditions," Professor Amon said.

When performing a DUET procedure, Professor Amon operates through a temporal incision. He emphasised the importance of removing viscoelastic from behind the capsular bag lens before implanting the Sulcoflex. He creates space for implanting the Sulcoflex IOL by instilling viscoelastic to lift the iris and delivers the add-on lens with a new single-handed injector (Medicel). The lens unfolds in a controlled manner and is easily positioned. Then all viscoelastic is removed, including from behind the iris and between the two lenses.

Prof Amon reported that he implanted the first Sulcoflex Trifocal IOL on July 30, 2018, and had data from 20 eyes of 10 bilaterally-implanted patients who underwent a DUET procedure. In addition, he had performed bilateral Sulcoflex Trifocal implantation for secondary enhancement in one patient.

Outcome assessments for patients undergoing DUET implantation with the Sulcoflex Trifocal included testing of photopic and mesopic contrast sensitivity, and defocus curves.

"We have not yet done all statistical analyses, but the results (visual acuity, contrast, defocus curve) with the Sulcoflex Trifocal are about the same as with the RayOne Trifocal lens, " Prof Amon said.

The secondary enhancement case involved a 72-year-old woman who had undergone cataract surgery five years earlier and became interested in reducing her need for reading glasses. The implantations were done through incisions on the steep axis to correct low astigmatism. After surgery, monocular distance uncorrected visual acuity (UDVA) was 1.0 OS and 0.7 OD; near uncorrected VA (UNVA) was Jaeger 1 OU.

"The patient was very happy with the outcome.The reduced vision in the right eye was due to posterior capsule opacification (PCO) that was present at the time of the enhancement procedure, and she was scheduled for Nd:YAG capsulotomy," said Prof Amon.

The patient said: "I am independent from glasses at all distances. For me the expected glare effects are tolerable easily."

Prof Amon added that a Sulcoflex IOL can be implanted in an eye that has had capsulotomy.

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RayOne Trifocal: Premium lens outcomes in 150 eyes at Multisite Refractive Clinica Baviera

Fernando Llovet-Osuna, MD, PhD, Medical Director of Clínica Baviera, Spain. Associate Professor, Ophthalmology, College of Medicine, Cardenal Herrera-CEU University, Valencia, Spain. Board, Spanish Society of Cataract & Refractive Surgery (SECOIR)

Analysis of outcomes from the first 74 patients implanted with the RayOne Trifocal show that it provides good results for near, intermediate and far vision with reduced dependence on glasses and high patient satisfaction, said Fernando Llovet-Osuna, MD.

The data were collected in a prospective, non-randomised, multi-centre study that included patients undergoing cataract surgery. Eligible patients were <70 years old and had preoperative sphere between -6.00 and +6.00D with corneal astigmatism <2.50D. Patients with previous corneal surgery, amblyopia, significant corneal disease, retinal detachment or neuro-ophthalmic disease were excluded.

The RayOne Trifocal was implanted bilaterally in all patients with a target of emmetropia in both eyes, and patients returned for follow-up within 24 hours of surgery, and again at five-to-seven days, one month and three months. Patients with an intraoperative or postoperative complication were excluded from the analysis.

The 74 patients had a mean age of 57 years. Preoperatively, mean sphere was +1.51D, mean cylinder was -0.6D and mean spherical equivalent (SEQ) was 1.22D. Mean axial length was 22.97D and mean IOL power was 22.92D. Preoperatively without correction, mean binocular visual acuity (VA) logMAR values were 0.24 at near (UNVA), 0.5 at intermediate (UIVA) and 0.46 at distance (UDVA);

mean corrected distance VA (CDVA) was 0.03.

At the last postoperative follow-up, mean sphere, cylinder and SEQ were -0.06D, -0.38D and -0.25D, respectively. Achieved SEQ was ±1.0D of target in 96% of eyes, ±0.50D in 85% and ±0.25 D in 71%.

Visual acuity results were excellent at near, intermediate and distance in both monocular and binocular testing. Mean binocular logMAR VA values were: UNVA 0.07, UIVA 0.21, UDVA 0.01 and CDVA 0.

Dr Llovet-Osuna reported that postoperative UDVA was equal to or better than the CDVA in 87% of eyes. The mean efficacy index for the study population was 1.22, and the mean safety index was 1.34. No eyes lost ≥2 lines of BCVA.

Patient satisfaction was evaluated using the Clínica Baviera Satisfaction Questionnaire, and the responses showed excellent subjective outcomes. When asked about their vision for reading, driving, and working at the computer, between 67% and 73% of patients rated it as "very good" and all other patients rated their vision for each of these tasks as "good". Sixty percent of patients felt that compared with preoperatively, driving at night was the same or better after surgery, and no patient stopped driving after surgery. Two-thirds of patients felt their vision at night was the same or better after surgery than it was before the operation.

No patient needed glasses for reading, working at the computer or driving, and general satisfaction was very high, with 80% of patients stating they were "very satisfied" with the result and the remaining 20% stating they were "satisfied".

"For me, the most important question for judging patient satisfaction asks 'would you repeat the treatment with the same procedure', and 100% of patients answered yes," Dr Llovet-Osuna said.

KEYS TO SUCCESS

Dr Llovet-Osuna also discussed considerations for patient selection and consultation, preoperative examination, and surgical technique that are important for achieving excellent results with a multifocal IOL.

"One must obtain emmetropia when implanting a multifocal IOL, and that requires selecting a good candidate, performing perfect surgery and being prepared to perform an enhancement postoperatively," he said.

Preoperatively, Dr Llovet-Osuna emphasised the importance of establishing a good doctor-patient relationship when first meeting the patient and obtaining a good history to understand existing problems and the patient's goals and expectations. Data collected include information to determine vision needs and general health problems. He also considers personality issues to identify if the patient may be overdemanding, obsessive or have unrealistic expectations.

His preoperative consultation also includes a thorough discussion of potential outcomes, including spectacle independence. Information is provided in an exhaustive oral discussion and supplemented with written materials.

In addition, patients undergo a comprehensive ophthalmic examination, with special attention to detecting conditions that might exclude them from being candidates for a multifocal IOL. The preoperative evaluation includes corneal topography, endothelial cell count, tear breakup time, pupillometry, angle kappa, ocular dominance and pachymetry. Fundus evaluation is also mandatory, and Dr Llovet-Osuna routinely performs macular OCT.

"It is very important to determine pupil size and function. The pupil should be small enough when accommodating to permit reading and not overly large in scotopic conditions to avoid halos," he commented.

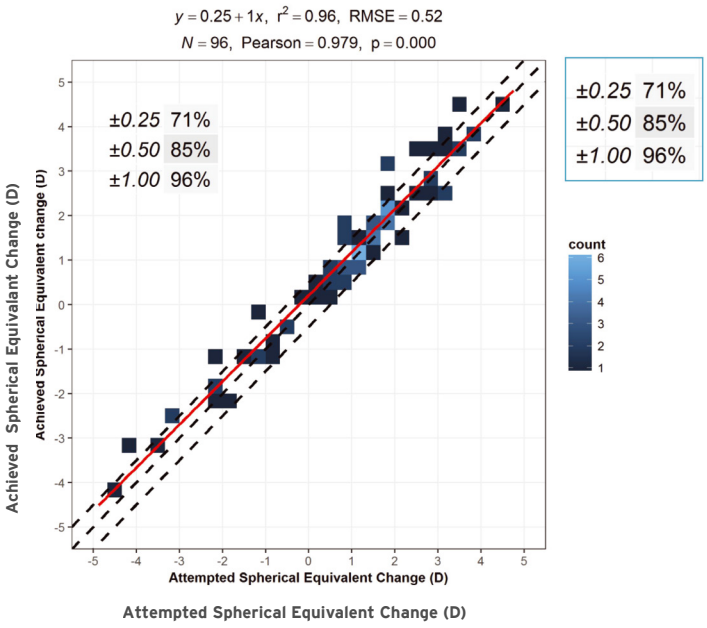
"In addition, implantation of a trifocal IOL should be considered carefully in patients with a larger angle kappa."

To achieve a good refractive outcome, Dr Llovet-Osuna pays special attention to the IOL calculation. He personalises lens constants, uses the latest generation formulas and recalculates the IOL power for the second eye if the first-eye outcome was not accurate. The need for astigmatic correction is also considered.

Intraoperatively, incisions are carefully planned to avoid inducing astigmatism. The capsulorhexis is sized to overlap the edge of the optic, precautions are used in patients at risk for intraoperative floppy iris syndrome, and the IOL is centred in the capsular bag.

"After the time of neuroadaptation, it is possible to find a happy and satisfied patient," Dr Llovet-Osuna said.

6.3.3 Post-Operative Data (Spherical Equivalence) ESCRS Vienna 2018



Prospective comparative study of bilaterally implanted RayOne Trifocal versus Finevison POD F in 60 eyes

Tiago B Ferreira, MD, FEBOS-CR, Hospital da Luz, Lisbon, Portugal.

A prospective randomised study comparing the RayOne Trifocal (Rayner) with the FineVision POD F (PhysIOL) show that both trifocal implants offer excellent visual and refractive results and are associated with similarly good postoperative contrast sensitivity. However, refractive predictability was better with the RayOne Trifocal, and the RayOne Trifocal patients had better depth perception and experienced less photic phenomena than patients implanted with the FineVision POD F, reported Tiago B Ferreira, MD.

The study enrolled 30 patients with <0.75D of corneal astigmatism who were undergoing bilateral cataract surgery. They were randomised 1:1 to bilateral implantation with the RayOne Trifocal or the FineVision POD F.

All patients underwent a comprehensive preoperative examination. IOL power calculation was performed using data from optical biometry and the Hill-RBF formula. The refractive

target was the first negative value above the recommended result for emmetropia. Surgery was done through a 2.2mm clear cornea temporal incision.

Outcomes were assessed at three months. Main outcome measures included monocular and binocular uncorrected and distance-corrected VA at near (40cm, UNVA and DCNVA), intermediate (70cm, UIVA and DCIVA), and distance (UDVA and CDVA) using ETDRS charts. Manifest refraction, defocus curves, contrast sensitivity, and presence of photic phenomena were also analysed as main outcome measures.

Dr Ferreira reported that refractive predictability was very good with both IOLs, but significantly better with the RayOne Trifocal compared with the FineVision POD F (P=0.04). At three months, SEQ was ±0.5D of the target in 100% of eyes implanted with the RayOne Trifocal and in 83.3% of eyes implanted with the FineVision POD F.

In monocular testing and for all VA endpoints, mean logMAR VA in RayOne Trifocal eyes was identical to or slightly better than in the FineVision POD F group. Overall, the results for all VA measures were excellent with both IOLs and none of the differences between groups were statistically significant.

Examination of the defocus curves for the two IOLs showed better performance for the RayOne Trifocal IOL in the intermediate range, although the difference between the curves for the two IOLs was not statistically significant. There were also no statistically significant differences between the two IOLs in results from contrast sensitivity testing under mesopic conditions with glare or photopic conditions without glare.

Patients also completed the McAlinden questionnaire to assess quality of vision, and the results for depth perception were significantly better for the RayOne Trifocal than for the FineVision POD F (P=.042). In addition, a statistically significant difference favouring the RayOne Trifocal versus the FineVision POD F was achieved in an objective evaluation of photic phenomenon performed using a light-distortion analyser.

RayOne Trifocal vs PanOptix: Visual Outcomes and IOL stability

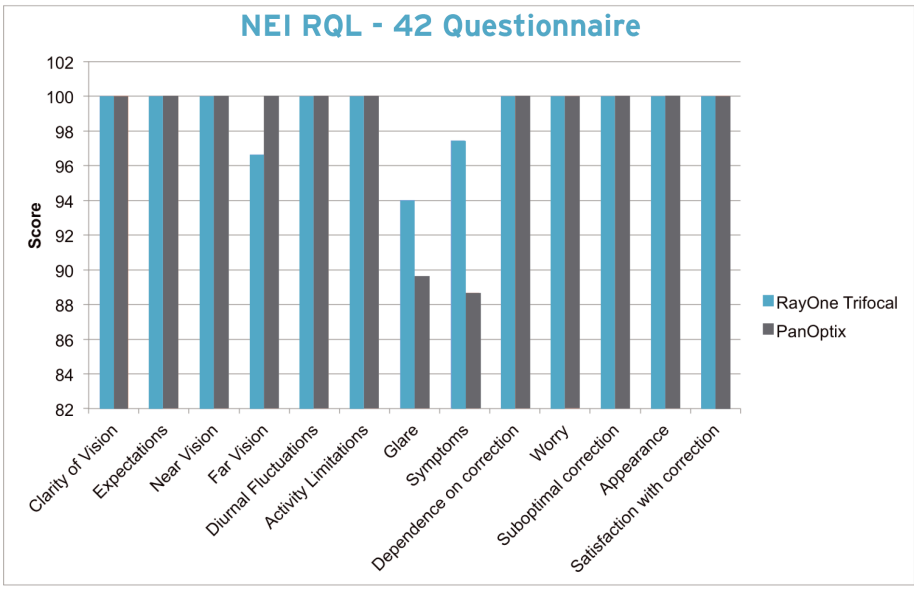
Alessandro Mularoni, MD, Head Department of Ophthalmology, San Marino Hospital, Republic of San Marino

Results from a small series of patients followed for at least 10 months after undergoing bilateral cataract surgery with implantation of the RayOne Trifocal IOL are excellent, said Alessandro Mularoni, MD.

"Distance, intermediate and near UCVA were all excellent, and the patients had a high level of spectacle independence and satisfaction postoperatively," he reported.

"The RayOne Trifocal remained stable during the long-term follow-up, and there were no cases of PCO [posterior capsule opacification]."

Dr Mularoni's study included six patients who underwent bilateral implantation with the RayOne Trifocal. He also compared their outcomes to similarly sized groups of patients who underwent bilateral implantation with the trifocal PanOptix IOL (Alcon) and the monofocal AcrySof IQ IOL (Alcon). The comparisons showed some differences between the two groups not statistically significant, perhaps because of the small number of patients studied.



The patients included in his analyses had a mean age of 65.4 years and mean pupil diameter of 3.82mm. Patients were excluded from the study if they had previous ocular surgery, corneal astigmatism >0.75D, irregular astigmatism, corneal opacities, glaucoma with impairment of the ganglion cell or retinal nerve fibre layer or macular disease.

All patients were assessed preoperatively with corneal tomography, pupillometry and macular OCT. Data for IOL power calculations were obtained with optical biometry and the calculations were done with the SRK/T formula, targeting emmetropia or the first minus value and using the manufacturer's recommended A-constant of 118.6.

Dr Mularoni performed all of the surgeries. He operated through a 2.4mm temporal clear cornea incision with a 5.5mm continuous curvilinear capsulorhexis and used phacoemulsification with a chop technique.

Patients were seen postoperatively on day seven and at months one, three, six and 10. He didn't report any intraoperative or postoperative complications.

Distance UCVA was excellent for patients in all groups. Monocular UCVA of 0.1 logMAR or better was achieved by all patients in both trifocal IOL groups. Mean distance UCVA in the RayOne Trifocal, PanOptix and AcrySof IQ groups was 0.016, 0.025 and 0.11, respectively. In all groups, the results were better in binocular testing.

Outcomes for UNVA and UIVA in the trifocal IOL groups were consistent with high rates of spectacle independence and did not differ significantly between the two groups. Monocular UNVA of 0.1 logMAR or better was achieved by 66% of patients receiving the RayOne Trifocal and by 50% of patients in the PanOptix group. Monocular UIVA of 0.2 logMAR or better was achieved by 91% of patients with the RayOne Trifocal IOL and 83% of patients receiving the PanOptix IOL.

At 10 months after surgery, the defocus curve for both trifocal IOLs showed a smooth transition phase between the far and near

focus and was clearly better than the defocus curve for the monofocal IOL patients.

"In the range from +1.00D to -2.00D, VA in all trifocal IOL patients was better than 0.10 logMAR, demonstrating they had good intermediate vision. At a defocus of -2.50D, which corresponds to near vision at 40cm, mean VA was 0.12 logMAR in both the RayOne Trifocal and PanOptix groups," Dr Mularoni reported.

Contrast sensitivity levels at all spatial frequencies and under mesopic and photopic conditions were within normal limits in all IOL groups throughout follow-up. At higher spatial frequency (>6cpd), contrast sensitivity under both photopic and mesopic conditions was lower (worse) in the PanOptix group compared with the groups receiving the RayOne Trifocal or the monofocal IOL, but none of the differences between groups was statistically significant.

Patients were also evaluated with aberrometry, and the results showed lower RMS values for ocular and internal aberrations in the AcrySof IQ monofocal group than in the groups with a trifocal IOL. Internal aberrations, both for lower-order and higher-order aberrations, were lower in the RayOne Trifocal group than in the PanOptix group, although the differences were not statistically significant.

"In my opinion, however, this is a very important finding because internal aberrations are directly related to the IOL. Low RMS values for internal aberrations indicate minimum dispersion of light inside the eye," Dr Mularoni said.

Patient satisfaction and visual symptoms were assessed using the 42-item National Eye Institute Refractive Error Quality of Life Instrument. The results showed high satisfaction in both the RayOne Trifocal and PanOptix IOL groups. Compared with the PanOptix, the RayOne Trifocal was associated with better scores for glare and symptoms, but neither of the differences were statistically significant.

Digital photographs of the anterior segment were reviewed to assess the development of PCO and IOL stability. During the 10 months of follow-up, there were no cases of PCO and IOL stability and centration were excellent.

Dr Mularoni noted that these clinical outcomes are consistent with the RayOne Trifocal IOL's closed C-loop haptic technology that confers excellent stability and its Amon-Apple enhanced square edge that minimises PCO.[1-3]

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Comparing RayOne and PanOptix Trifocal outcomes

Martin Kacerovsky, MD, Eye Clinic Horn Počernice, Prague, Czech Republic

A study comparing the RayOne Trifocal and PanOptix IOLs shows both lenses provided good results for patients seeking presbyopia correction, but it also identified some differences favouring the RayOne Trifocal for better intermediate UCVA, fewer side-effects and slightly better patient satisfaction, reported Martin Kacerovsky, MD.

Dr Kacerovsky said that his personal history with surgery for presbyopia began with the use of cornea-based procedures and then he started using bifocal multifocal IOLs. He implanted his first trifocal IOL in 2012. By the time he implanted his first RayOne Trifocal in December 2017, he had accumulated experience with two other trifocal IOLs – the AT Lisa tri (Carl Zeiss Meditec) and the PanOptix – in thousands of eyes.

"Now, the RayOne Trifocal is my first choice for trifocal IOL surgery," said Dr Kacerovsky.

BENEFITS OF THE RAYONE TRIFOCAL

Explaining what he appreciates about the RayOne Trifocal, Dr Kacerovsky mentioned the fact that it is based on the familiar RayOne platform, which is well known for its high performance.

In addition, because the RayOne Trifocal has fewer rings on the optic surface than some other trifocal IOLs, it has potential to cause fewer visual disturbances and provide better night vision.
"Furthermore, the RayOne Trifocal improves intermediate VA, enabling patients to feel more comfortable," Dr Kacerovsky said.
He also likes that the RayOne Trifocal comes preloaded.

"The preloaded system reduces the risks of lens damage and contamination, and the single-handed injection system makes the implantation easy and very comfortable for the surgeon. After it is delivered, the RayOne Trifocal unfolds very gently without risk of damage to the corneal endothelium or capsule," Dr Kacerovsky said.

CLINICAL OUTCOMES

Since December 2017, Dr Kacerovsky has accumulated a series of 50 eyes of 25 patients implanted with the RayOne Trifocal. The patients range in age from 41 to 76 years and available follow-up ranges from 16 weeks to nine months.

He uses optical biometry and plans for an emmetropic target using the SRK/T formula for IOL power calculations. In his series, 80% of patients had both eyes operated on the same day; the fellow eye procedures were done on two consecutive days in all other patients. There were no intraoperative complications.

Follow-up showed all patients were completely spectacle-independent. Mean SEQ was -0.21D.

Dr Kacerovsky also compared outcomes achieved with the RayOne Trifocal and the PanOptix. Each IOL group included 20 patients who underwent bilateral surgery in January and February of 2018. All of the procedures were done with a femtosecond laser-assisted approach and all patients had follow-up data to six months.

In binocular testing, mean uncorrected VA (logMAR) for the two groups was identical for distance (0.05) and near (0.18). Mean UIVA was better for the RayOne Trifocal than in the PanOptix group (0.1 vs. 0.18).

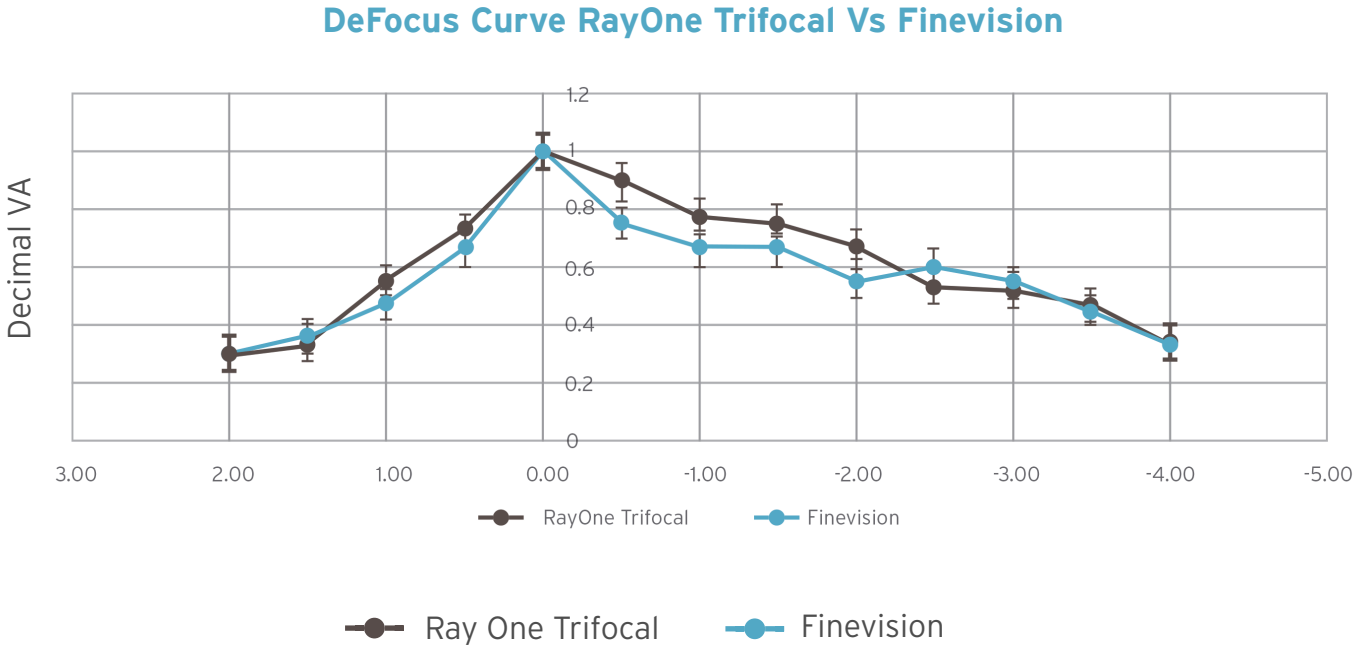
An assessment of halos and glare also favoured the RayOne Trifocal. In the RayOne group, 80% of patients reported experiencing halos and glare "not at all" or "rarely" compared with 65% of PanOptix patients. Only 5% of RayOne Trifocal patients versus 10% of PanOptix patients reported experiencing halos and glare "very often".

The rate of Nd:YAG capsulotomy for posterior capsule opacification was lower in the RayOne Trifocal group than in the PanOptix group (2.5% vs 10%).

No patients were dissatisfied in either group, but 78% of RayOne Trifocal patients stated they were very satisfied compared with only 65% of PanOptix patients. Asked whether they would have the same surgery again, 98% of patients who had the RayOne Trifocal and 95% of those implanted with the PanOptix responded yes.

Contralateral implantation of the RayOne Trifocal IOL and FineVision Trifocal IOL

Georges Cherfan MD, FRCS, Mohamad Issa MD, Beirut Eye & ENT Specialist Hospital, Beirut, Lebanon



Implantation of the RayOne Trifocal IOL in one eye and the FineVision trifocal IOL contralaterally is associated with good functional outcomes, said Georges Cherfan, MD.

Prof Cherfan gained experience using the two different IOLs in fellow eyes of four patients. One-half of the patients received the RayOne Trifocal IOL in their first eye surgery and the other half were implanted first with the FineVision trifocal IOL. In some patients, the decision to mix the two lenses was made because the IOL model used in the first eye was not readily available and the patient was anxious to have the second eye surgery, Prof Cherfan explained.

Because of his comfort with the RayOne IOL and also because of scientific curiosity about the outcome of contralateral implantation with different trifocal IOLs, Prof Cherfan obtained consent from the patients to use a different IOL in the second eye.

"The situations encountered with these patients provided a great opportunity to evaluate the feasibility of implanting the different trifocal IOLs in fellow eyes, and all patients achieved a good outcome," said Prof Cherfan, Beirut Eye & ENT Specialist Hospital, Beirut, Lebanon.

"Based on the positive results in this small patient series, we are considering conducting a prospective study of contralateral implantation of the RayOne and FineVision trifocal IOLs. In the meantime, our outcomes indicate that it can be a reasonable approach."

Prof Cherfan said that after using RayOne IOLs for many years, he was very comfortable adopting the RayOne Trifocal IOL.

"The RayOne has the benefit of being a preloaded lens, and it is a very stable platform that sits well in the capsular bag and gives predictable outcomes," he explained.

"As a vitreoretinal surgeon, I also appreciate that compared with the FineVision IOL, the RayOne material has lower oil adherence and provides a good barrier to prevent anterior migration of gas bubbles after gas is injected in the posterior chamber."

The four patients in his series ranged in age from 28 to 73 and included three women and one man. After their second eye surgery, all patients reported being happy with their outcome and functioning well in daily life.

All patients were spectacle-free even though some noted some difficulty at near when reading fine print or other delicate tasks. Overall results from defocus curve testing indicated that near and intermediate vision performance with the RayOne Trifocal IOL was similar to or better than with the FineVision IOL. No patient perceived any major differences between fellow eyes or experienced bother from having the two different IOLs. In binocular testing for all four patients, uncorrected intermediate VA was 1.0- or better and uncorrected near VA was 20/25- or better.

"The RayOne has the benefit of being a preloaded lens, and it is a very stable platform that sits well in the capsular bag and gives predictable outcomes,"

"The patients were very comfortable with their binocular vision for all distances and never felt the need to occlude one eye in order to see clearly," Prof Cherfan said.

Although the patients noticed some halos and glare early after surgery with both IOLs, their symptoms decreased with time, and the two patients who were driving at night before their surgery continued to do so comfortably postoperatively.

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