

The Clareon intraocular lens: first clinical experiences

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Outcome in toric IOL implantations in with-the-rule astigmatism compared to against-the-rule astigmatism

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Introduction: We wanted to analyse our results in toric IOL implantations to correct astigmatism, in order to achieve better results in aiming for emmetropia and spectacle independence.

Patients: We compared 20 eyes with-the-rule astigmatism in 3 men and 14 women (mean age 60 years old) with 20 eyes with against-the-rule astigmatism in 9 men and 5 women (mean age 66 years old). All eyes were operated by the same cataract surgeon in the Rotterdam Eye Hospital in 2016–2017.

Results: Astigmatism was measured with the IOL master700 and with the Pentacam. We used keratometry values of the ophthalmometry, corneal front keratometry values or total corneal power values of the Pentacam.

Preoperative astigmatism was 2.62 diopters in the with-the-rule group, which diminished to 0.79 diopters postoperatively. In the against-the-rule group, the preoperative astigmatism was 2.70 diopters, which diminished to 1.35 diopters postoperatively. In the with-the-rule group the mean total corneal power was 0.085 diopter lower compared to the mean corneal front power. In the against-the-rule group the mean total corneal power was 0.19 diopter higher compared to the mean corneal front power.

Conclusion: Correction of against-the-rule astigmatism with toric IOL's is more challenging to gain emmetropia and spectacle independence, even by using the total corneal power calculation. One should take notice of the higher total corneal power in against-the-rule astigmatism compared to the lower total corneal power in with-the-rule astigmatism, when calculating the right toric IOL.

The Clareon intraocular lens: first clinical experiences

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Introduction: We present the first clinical experiences with the Clareon SY60WF intraocular lens (IOL) in a routine cohort of academic patients.

Patients and Methods: A total of 71 patients and 98 eyes were implanted with the Clareon SY60WF IOL (Alcon) at the University Eye Clinic Maastricht and zuyderland hospital Heerlen between July and August 2017. All eyes underwent either regular or Femtosecond laser-assisted cataract surgery by two experienced surgeons (NB and RN). IOLs were implanted in the range of +12 to 25D (mean 21.2 + / -2.8D). Outcome primary measures were corrected-distance-visual acuity (CDVA), optimized A-constant and the mean refractive spherical equivalent (MRSE).

Results: With the Clareon SY60WF IOL we experienced significantly shorter unfolding times, both in-vitro as well as in-vivo, as compared to the AcrySof SN60WF. At 1 month postop, CDVA was >20/40 in 100% and >20/20 in 64.3% of eyes. The proposed A-constant (using ORA and Warren Hill A-constant optimization) was 119.13. MRSE was +0.03, -0.31 and -0.38D at respectively 1 day, 1 week and 1 month postoperatively, indicating a myopic shift, possibly due to hydration changes. No surface haze or glistenings were noted in this short follow-up.

Conclusion: Our first experience with the Clareon SY60WF intraocular lens shows shorter unfolding times, an optimized A-constant of 119.13, visual and refractive outcomes in line with previous cohorts implanted with the same IOL material (SN60WF), and no surface haze or glistenings.

The enemy of good is better-comparing two trifocal IOL's

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Purpose: To compare the performance of two different trifocal intraocular lenses implanted after lens extraction.

Methods: Retrospective consecutive case series of patients undergoing cataract extraction (CE) or refractive lens exchange (RLE). In one group the IOL AT LISA tri 839MP was implanted and in the other the AcrySof IQ PanOptix.

Results: The AT LISA group consisted of 44 eyes (22 patients) vs 114 eyes (57 patients) in the PanOptix group. Postoperatively there was no clinically significant difference between the groups. AT LISA vs PanOptix: UCDVA -0.02 ± 0.07 vs -0.00 ± 0.11 , CDVA -0.08 ± 0.08 vs -0.06 ± 0.07 , NVA at 40 cm 0.00 ± 0.01 vs 0.02 ± 0.37 , SE 0.017 ± 0.29 vs 0.03 ± 0.32 , Δ target $-SE$ 0.07 ± 0.29 vs -0.04 ± 0.33 , MAE 0.17 ± 0.19 vs 0.22 ± 0.23 . No adverse events were reported in these groups. The defocus curves were similar, with a better performance for the panoptix IOL from -1.5 D and lower. More halos and problems with intermediate vision were reported in the AT LISA tri 839MP group.

Conclusion: Both trifocal IOL's perform similarly in terms of achieved refraction, distance and near visual acuities. In terms of intermediate vision the PanOptix IOL performs better from -1.5D to more myopic on the defocus curve. This reflects the different design of the IOLs. Both lenses are good options in patients with a desire for less spectacle dependence.

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Multicenter clinical investigation of visual function after bilateral implantation of two presbyopia-correcting trifocal IOLs

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Purpose: To assess the binocular visual performance of the AcrySof IQ PanOptix and the AT LISA tri 839MP IOLs after 6 months post-operative follow up.

Method: A prospective, multi-center, randomized, double masked, parallel group post-market study was conducted involving the bilateral implantation of AcrySof IQ PanOptix (PanOptix) or AT LISA tri 839MP (AT LISA) IOL in 182 subjects. The binocular uncorrected intermediate (60 cm), near (40 cm) and distance (4 m) visual acuity and binocular defocus curves were evaluated under photopic lighting conditions at 6-months post-op. Photopic & Mesopic Contrast Sensitivity and Patient Satisfaction were also assessed.

Results: A total of 182 subjects (38% M: 62% F) with a mean age of 66 ± 9 years were implanted bilaterally with either the PanOptix IOL ($n = 93$) or the AT LISA IOL ($n = 89$). A difference of $-0.06 \log \text{MAR}$ Binocular UCIVA was found favoring PanOptix ($p < 0.002$); better UCNVA ($-0.05 \log \text{MAR}$) was also found in the PanOptix group ($p < 0.003$). UCDVA was not inferior for the PanOptix group with a difference of $0.01 \log \text{MAR}$. The Mean Defocus curve VA from 0.00D to -3.00D ranged from 0.1 to 0.0 $\log \text{MAR}$ in both groups. Higher average VA scores were seen in the PanOptix group at -1.50D and -2.00D . Contrast Sensitivity and Patient Satisfaction scores were similar between the groups.

Conclusion: The AcrySof IQ PanOptix IOL was found to be superior in UCIVA & UCNVA and non-inferior in UCDVA to the AT LISA tri 839MP. Differences in defocus curves validate the optical design differences between IOLs with high patient satisfaction scores achieved in both groups