LASIK enhancement corrects residual refractive error in phakic IOL patients

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LASIK surgery is proving to be an effective method for correcting residual refractive error and astigmatism after phakic IOL implantation, report German researchers.

Christian Meltendorf MD and colleagues at the Johann Wolfgang Goethe University Clinic implanted the Artisan iris-fixated anterior chamber lens (Ophtec) in 170 eyes with high levels of myopia and astigmatism. With follow-up LASIK, all of the eyes reached 0.8 or better.

"LASIK appears to be a safe and effective means to treat residual myopia and astigmatism following the implantation of iris fixated phakic IOLs. We were able to reduce the mean astigmatism by 14% with Artisan phakic IOL implantation and by a further 67% following LASIK," he reported at the Congress of the German Speaking Society for Intraocular Lens Implantation and Refractive Surgery (DGII).

The investigators performed LASIK corrections on seven eyes of six patients (4.1%) after an average of nine months following the implantation of the phakic IOL. Patients ranged in age from 29 to 49 years, averaging 37 years. All LASIK procedures were performed using the Hansatome microkeratome (Bausch & Lomb) and a Technolas Keracor 217 scanning-spot-excimer laser, (Bausch & Lomb).

Dr Meltendorf reported that the implantation of a phakic IOL led to a reduction of the spherical equivalent and a decrease in the mean astigmatism in all six patients. Only 14% achieved uncorrected visual acuity of 0.8 or better, before LASIK. One month following LASIK however, all patients achieved at least 0.8. None of the patients experienced a reduction in vision following LASIK retreatments.

The researchers evaluated patients prior to implantation of the Artisan lens, three months following phakic IOL implantation, before LASIK, and one month following LASIK surgery. They analysed refractive data with the Datagraph medical outcomes analysis software program.

Before phakic IOL implantation, the mean spherical equivalent of the study participants was –9.13D, ranging from -6.38 D to -13.13D. The mean sphere was –8.32 D, ranging from –5.25 D to -12.00 D. The mean amount of cylinder was -1.61 D, ranging from -0.25 D to -2.25 D.

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After phakic IOL implantation, but prior to LASIK, the mean spherical equivalent and mean sphere were greatly improved, at –1.09 and –0.39 D ± 0.80 D respectively. However, the mean amount of astigmatism remained high at -1.39 D, ranging widely from -0.75 D to -2.00 D.

Dr Meltendorf said that one month after LASIK, the mean spherical equivalent was reduced to +0.05 D, the mean sphere was reduced to +0.29 D, and the mean cylinder to -0.46 D.

The researchers said that the visual results of LASIK as seen in seven eyes one month following treatment was good. Fourteen percent showed visual acuity of 1.2 or better; 71% had vision of 0.9 to 1.0, and another 14% had vision of 0.8. By comparison, 29% of the patients had vision of 0.32 or worse, 29% had 0.5, 20% were between 0.6 - 0.7, and only 14% had 0.8, before LASIK.

"In terms of safety and predictability, 71% of patients had unchanged BCVA after LASIK and the remaining 29% have improved vision of one line. The spherical equivalent following LASIK was within a dioptre of intended refraction in 100% of cases and within 0.5 D in 86%," he said.

The investigators reported a very low complication rate. Two patients developed transient grade I or II diffuse lamellar keratitis and another two developed dry eye. There were no long-lasting complications. There were no cases of endothelial decompensation, halos, blinding, cataract development, incision complications, IOL decentration, epithelial ingrowth, or increased IOP.

Dr Meltendorf commented that although LASIK appeared to be a safe and effective treatment in the correction of residual error following the implantation of phakic IOLs, larger case studies were needed to verify these results.

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