

VERY HIGH ASTIGMATISM OUTCOMES WITH PRK AND LASIK

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PURPOSE

To determine the accuracy, efficacy, safety, and stability of laser vision correction (LVC) for high astigmatism greater than -5 D.

METHODS

Retrospective chart review of eyes with greater than -5 D cylinder. All eyes underwent aspheric PRK or LASIK targeting emmetropia. 6 month or greater postop manifest refraction, UDVA and CDVA were compared to preop measurements. RM-ANOVA with Holms-Sidak post hoc tests and vector analysis (VA) were performed.

RESULTS

208 eyes, preop sphere -0.82 ± 2.32 D (-6.75 – $+5.50$ D) and cyl -5.89 ± 0.77 D (-5.00 – -7.75 D). 88 postop of 6+ months, mean FU 12.9 ± 5.8 months. Postop sphere $+0.08 \pm 0.48$ D (-1.50 – $+1.25$ D), cyl -0.67 ± 0.53 D (0 – -2.25 D). 46, 73, 98% within ± 0.25 , ± 0.50 , ± 1.00 D. Cumulative UDVA 20/20, 20/25, 20/40 in 34, 65, 94%, preop CDVA in 48, 82, 98%; efficacy index 0.9 ± 0.2 . 2 lines CDVA loss-1%, 1 line-5%, no change-55%, gain of ≥ 1 lines-39%. No loss > 2 lines; safety index 1.1 ± 0.2 . MRSE stable. 30 (14%) had retreat. VA: correction ratio 0.95 ± 0.10 , error ratio 0.11 ± 0.08 , axis shift $-3.2 \pm 36.7^\circ$. Error of magnitude and axis 0.32 ± 0.62 D and $-0.44 \pm 2.65^\circ$.

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CONCLUSIONS

LVC for very high astigmatism (greater than -5 D) has excellent accuracy, efficacy, and safety profiles. Vector analysis demonstrated a high degree of precision in treating these highly astigmatic eyes.