

# OUTCOMES OF LASER VISION CORRECTION IN MYOPES WITH POST-OPERATIVE CORNEAL CURVATURES LESS THAN 37D

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## PURPOSE

To determine the efficacy, accuracy, safety, stability, and satisfaction of laser vision correction (LVC) in myopes with postop keratometry less than 37 D.

## STUDY DESIGN

Restrospective, single-centre review

## METHODS

All myopes undergoing LVC with postop keratometry (K) of less than 37 D in a single year were included. Post-op manifest refractive spherical equivalent (MRSE), cylinder, uncorrected distance VA (UDVA), corrected distance VA (CDVA), maximum K (Kmax), and minimum K (Kmin) were compared to pre-op. Outcomes measures were accuracy, efficacy, safety, and stability. Zywave aberrometry was performed and a standardized subjective QoV questionnaire was administered 6 months postoperatively. Repeated-measures ANOVA and Holms Sidak post-hoc tests were used.

## RESULTS

108 eyes (65 patients) were identified with post-op keratometry of less than 37D, for an incidence of 1.5%. Attempted MRSE correction was  $-8.48 \pm 1.51$  D (range: -5.13 to -11.63 D). Preop Kmax was  $43.0 \pm 1.3$  D (range: 41 to 46 D) and Kmin was  $41.8 \pm 1.4$  D (range: 39 to 45 D), postop Kmax was  $36.2 \pm 0.7$  D (range: 33.6 to 36.9 D) and Kmin was  $35.6 \pm 0.7$  D (range: 33.0 to 36.8 D). 59%, 76%, and 96% of eyes were within  $\pm 0.25$ ,  $\pm 0.50$ , and  $\pm 1.00$  D of target postop refraction ( $R^2 = 0.914$ ). Cumulative UDVA of 20/20, 20/25, 20/30, and 20/40 or better in 71, 85, 95, and 99% of eyes, respectively, compared to preop

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cumulative CDVA of 81, 94, 99, and 100%, respectively. Efficacy index was 0.98. Only loss of Snellen lines of CDVA was in 1 eye with 1 line loss while 14% gained and 2.6% gained 2 or more lines. Safety index was 1.04. Post-op MRSE was stable at 1, 3, 6 months or later timepoints ( $p=1.00$ ). There were no significant correlations between post-op coma, spherical aberration, or total HOAs with post-op Kmax ( $r=-0.15$ ,  $p=0.43$ ;  $r=-0.19$ ,  $p=0.34$ ; and  $r=-0.26$ ,  $p=0.21$ , respectively), or Kmin ( $r=-0.20$ ,  $p=0.31$ ;  $r=-0.11$ ,  $p=0.58$ ; and  $r=-0.27$ ,  $p=0.19$ , respectively). Patients rated their post-op uncorrected QoV significantly higher than pre-op corrected QoV on a scale of 1-10 ( $8.9 \pm 1.3$  vs.  $7.8 \pm 1.8$ , respectively,  $p=0.01$ ). 94% of patients rated their overall QoV as improved compared to pre-op, 65.6% significantly, 12.5% moderately, 15.6% slightly improved, and 6% unchanged.

## CONCLUSION

LVC in moderate to high myopia with resultant post-op K values between 33 and 37 D has outcomes comparable to those in the literature for eyes without flat Ks. Postop subjective quality of vision was excellent. Predicted flat keratometry post-op should not be a pre-op criterion of exclusion for LVC.