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Service (sector) Refraction and Contact lenses - RS N° CEP

### **A Prospective Comparative Analysis of Wavefront-Guided PRK with Prophylactic MMC Versus Wavefront-Guided LASIK for Myopia**

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**Purpose:** To compare the results of PRK with prophylactic use of MMC and LASIK in wavefront-guided surgeries for correction of myopic virgin eyes.

**Methods:** Prospective, randomized, masked clinical trial. Sixty eight eyes of 34 patients with compound myopic astigmatism and an estimated ablation depth of at least 50  $\mu\text{m}$  in the Alcon LadarWave platform were randomized to receive in one eye customized PRK with intraoperative application of MMC 0.002% for one minute following laser ablation and customized LASIK in the fellow eye. Residual 410  $\mu\text{m}$  corneal pachymetry was observed. Uncorrected visual acuity (UCVA), cycloplegic refraction, biomicroscopy and aberrometry were evaluated.

**Results:** Mean spherical equivalent (SE) correction before surgery was  $-3,56 \pm 1,04$  diopters (range from  $-1,38$  to  $-6,38$  D). Mean ablation depth was  $69 \pm 13,11$   $\mu\text{m}$ . Corneal reepithelialization was completed within 5 days in all PRK eyes. At one month follow up, 97% of eyes (33 eyes) in the LASIK group and 91% of eyes (31 eyes) in the PRK with MMC group achieved 20/20 or better UCVA. All eyes (19 eyes in each group) achieved 20/20 or better UCVA at 3 months follow up. The mean cycloplegic SE refractory error was  $+0,49 \pm 0,55$  D in LASIK eyes and  $+0,54 \pm 0,51$  D in PRK with MMC eyes one month after surgery. SE was  $0,50 \pm 0,54$  D and  $0,41 \pm 0,38$  D respectively at 3 months follow up. Mean high order aberration was  $0,64 \pm 0,19$   $\mu\text{m}$  in the LASIK group and  $0,52 \pm 0,26$   $\mu\text{m}$  in the PRK with MMC group 3 months postoperatively. Significant haze was not observed in any PRK eye during mean 2 months follow up.

**Conclusion:** Wavefront-guided PRK with MMC is an effective method for correcting myopia with similar results to wavefront-guided LASIK surgery. Long-term follow up is necessary to attest its safety.