

## **Wavefront-Guided LASEK for the Correction of Myopia, Myopic Astigmatism, and High myopia**

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**PURPOSE:** To compare the visual and refractive outcomes of Wavefront-Guided laser-assisted subepithelial keratectomy (LASEK) in the treatment of myopia, myopic astigmatism and High myopia.

**SETTING:** Ophthalmology department of Fajr Hospital and Negah Eye Hospital Tehran, IRAN.

**METHOD:** A retrospective analysis comprised 1044 eyes were assigned to 3 groups: Myopic groups (MG) ; 519 eyes with mean spherical equivalent refraction (MRSE) of  $-3.84 \pm 1.32$  diopters (D), Myopic Astigmatism groups (MAG) ; 435 eyes with MRSE of  $-5.07 \pm 2.43$  D and mean cylinder of  $2.4 \pm 1.07$  D, and High Myopic groups (HMG); 90 eyes with MRSE of  $-7.47 \pm 1.04$  D. After an epithelial flap creation a wavefront-based excimer ablation (Zyoptix ) was performed. All refractive surgery was performed by the same surgeon. Safety, efficacy, predictability, and stability were evaluated at 1 week, 2, 6 and 12 months postoperatively.

**RESULTS:** At 12 months the MRSE was  $-0.19 \pm 0.29$  D in MG,  $0.25 \pm 0.46$  D in MAG and  $0.59 \pm 0.41$  D in HMG. The UCVA was 20/20 in 94.0% in MG, 78% in MAG and 71.10% in HMG, and 20/40 or better in 100%, 97.1% and 89.6% respectively. Efficacy index were 99.9%, 103.69% and 95.9%. 94.6% in MG, 82.6% in MAG and 66.0% in HMG were within  $\pm 0.5$  D of

emmetropia. Safety index were 1.015, 1.068 and 1.045 respectively. 24% in MAG and 16% in HMG gained 1- 2 lines of BSCVA. corneal haze in 4.7%, 6% and 0% of eyes were seen respectively. Late onset haze in 4.4% of HMG eyes were seen.

The between-group differences in Efficacy and Safety index were not statistically significant.

**CONCLUSION:**Wavefront-guided LASEK using Zyoptix is an effective and safe procedure for the treatment of myopia , myopic astigmatism and High myopia . Although in myopic astigmatism the predictability, efficacy and Safety index had been better.