

## **FEMTOSECOND LASER-ASSISTED AUTOKERATOPLASTY IN KERATOCONUS: A PILOT STUDY**

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**Purpose.** Development of a new method of autokeratoplasty with the use of femtosecond laser in advanced keratoconus. **Material and methods.** 20 patients were included in the study (15 men, 5 women) mean age  $33 \pm 8.4$  years old. Minimal corneal thickness was  $381 \pm 33.82 \mu\text{m}$ , Ks  $60.1 \pm 5.7 \text{ D}$ , Kf  $54.8 \pm 5.8 \text{ D}$ , cylinder  $9.1 \pm 3.8 \text{ D}$ . Femtolaser-assisted refractive autokeratoplasty (FRAK) was performed with the use of «IntraLase 60 kHz». Initially, circular corneal cut at an angle to the surface is fulfilled to a depth of up to 90% of corneal stroma. A second circular corneal cut perpendicular to the surface, on distance from 150 to 300 mm from the first one, is performed so that the cuts intersected at a predict depth and the circular corneal flap with wedge-shaped profile was formed. After flap removal corneal wound is suturing with the single buried sutures 10-0. **Results.** Operation and early post-op period were uneventful. Mean UCVA significantly improved from  $0.07 \pm 0.03$  to  $0.26 \pm 0.13$  to 3 months after surgery. Between 3 to 6 months after surgery, we observed an increase of visual functions (like UCVA and BCVA). The improvement of BCVA was observed in 90%, and in 75% of cases the increase was more than 3 lines. The cylinder decreased from  $9.1 \pm 3.8$  to  $4.4 \pm 2.75 \text{ D}$ . **Conclusions.** FRAK is a new non-penetrating in nature surgical method, which helps to improve optical capacity of cornea, allows to save the patient's own cornea, improve both UCVA and BCVA in advanced keratoconus.