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Visual, keratometric and corneal biomechanical changes after intacs SK implantation for moderate to severe keratoconus

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Aim: Current study is designed to report visual outcomes and corneal biomechanical changes after Intacs SK implantation in keratoconic eyes.

Methods: In a prospective interventional case-series comprised 32 keratoconic eyes of 25 patients (mean age: 24 years) with a clear central cornea and contact lens intolerance. Intacs SK was implanted using a Technolas femto-second laser platform. Uncorrected (UDVA) and corrected (CDVA) distance visual acuity, refraction, manifest refraction spherical equivalent (MRSE), keratometry, central corneal thickness (CCT), corneal hysteresis (CH) and corneal resistance factor (CRF) were measured preoperatively and at 1, 3 and 6 months post-operatively.

Results: The mean UDVA improved from 0.81 ± 0.3 logMAR preoperatively to 0.53 ± 0.2 logMAR at 6 months ($P < .001$). At 6 months, MRSE was better significantly only in eyes with moderate KCN (mean change = $+2.61 \pm 0.54$ diopter [D]; $P < .001$). A significant improvement in sphere (mean change = $+1.92 \pm 0.37$ D; $P < .001$) and mean keratometry reading (mean change = -3.34 ± 0.47 ; $P < .001$) was observed. Mean CCT increased from $446.1 \pm 38 \mu\text{m}$ preoperatively to $462.2 \pm 50 \mu\text{m}$ at 6 months ($P < .001$). CRF decreased from 6.5 ± 1.6 mmHg to 5.9 ± 1.1 mmHg at 6 months ($P = .02$). CDVA, cylinder and CH did not change significantly ($P = .48, .203$ and $.55$ respectively). 19 eyes (60%) gained ≥ 2 lines of UDVA while 5 eyes (16%) lost ≥ 2 lines of UDVA.

Conclusion: Generally, visual, refractive and keratometric indices improved remarkably in a parallel fashion. CRF was inversely correlated with CCT. Fluctuations in corneal hydration might explain trends of changes in biomechanical parameters and CCT during the early postoperative months.

Biography

Joobin Khadamy has completed his MD from Tehran University of Medical Science. He has finished his Ophthalmology specialty. He is an Ophthalmologist Researcher at Eye research Center, Rassoul Akram Hospital, Iran University of Medical Sciences. He has published 4 papers in reputed journals and has been serving as a reviewer for well known journals.

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