ISCRS IN KERATOCONUS

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Purpose: To evaluate refractive effects of ISCR implantation in keratoconus patients.
Methods: The 1583 keratoconic eyes of 921 patients keratoconus (II-III st) were treated with ISCR implantation with one or two segments according the special nomograms. Pre and post operative examination included Snellen uncorrected distance visual acuity (UDVA) and CDVA, manifest refraction, slitlamp biomicroscopy, fundus evaluation, ultrasound pachymetry, and corneal topography and aberrometry Orbscan system.
Results: Pre Op: UCVA – 0.12 $\pm$ 0.07; BCVA – 0.3 $\pm$ 0.2; K-readers: 53.1 $\pm$ 3.7 (steep meridian), 46.8 $\pm$ 3.7 (flat meridian); PBFS – 54.75 $\pm$ 1.9; SE – 7.2 $\pm$ 3.5; astigmatism 6.1 $\pm$ 1.5. Post Op: UCVA – 0.7 $\pm$ 0.2; BCVA – 0.7 $\pm$ 0.2; K-readers: 45.9 $\pm$ 3.7 (steep meridian), 42.8 $\pm$ 2.7 (flat meridian); PBFS – 51.0 $\pm$ 2.1; SE – 2.0 $\pm$ 1.5; astigmatism 2.5 $\pm$ 0.7.
Conclusion: ISCS implantation improves all main parameters of corneal topography; it flattens central optical zone, which results in increase of UCVA and remained stable over the follow-up period. The reduction in segment diameter seems to be of great importance to better and effective control of astigmatism. However, if the segments are nearer from the pupil margins, visual quality can be adversely affected by scattered rays of light reaching the retina inducing blur and glares. Therefore, a compromise between ring effect and visual quality should be found. Having 4 arc-length options (90, 120, 160 and 210 degrees) makes ISCRs to be more flexible in surgical planning to achieve the better refractive outcomes.

OUTCOMES OF STANDARD CORNEAL CROSS-LINKING FOR PROGRESSIVE KERATOCONUS

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Purpose: Evaluating the clinical results of standard collagen cross-linking (CXL) in patients with progressive keratoconus.
Methods: This prospective study comprised 80 eyes of 53 patients with progressive keratoconus. All eyes were treated by standard CXL with 5 year of follow-up. All patients underwent complete ophthalmologic testing that included pre- and postoperative uncorrected visual acuity, corrected visual acuity, spherical error, spherical equivalent, corneal astigmatism, simulated maximum, minimum, and average keratometry, pachymetry, endothelial cell density and Ocular Response Analyzer (ORA)**.** To evaluate the visibility and the depth of the stromal demarcation line after CXL was using anterior segment optical coherence tomography (ASOCT). The solution used for standard CXL comprised riboflavin 0.1% and dextran 20.0%.). Iso-osmolar riboflavin solution was used for corneas with thinnest pachymetry above 400 mm (after deepithelization), hypo-osmolar solution was used for thinner corneas (less than 400 after deepithelization). Ultraviolet-A treatment was performed with UV-X System at 3 mW/cm^2 for 30 minutes.
Results: Mean age was 35.5±6.9 years (range: 15–37 years). Mean preoperative UDVA was 0,4 (SD ±0.15). UDVA improvement observed at the 3-month postoperative time and became statistically significant at the 12-month. All topographic parameters (K_{min}, K_{max}, and mean K) showed a statistically significant improvement (reduction in steepest keratometry) at 12 months post-surgery. Topographic indices (SAI and SRI) showed minimal improvement. Mean depth of the corneal stromal demarcation line after CXL was 318,5±15,2 mm. Stromal demarcation line was visible for 85% of the crosslinked corneas. Pachymetry at the thinnest point decreased significantly