

05 - 07 December 2019

International CXL Experts Meeting 2019

Presentation Format: Oral, Submission ID: 45

Early term results of the stress-strain index in patients with keratoconus submitted to corneal cross-linking

Bernardo Lopes¹, Junjie Wang², Ashkan Eliasy¹, Ahmed Abass¹, Ahmed Elsheikh¹

¹Univeristy of Liverpool, Liverpool, UK

²Wenzhou Medical University, Wenzhou, China

Purpose

To test the early term effect of corneal cross-linking (CXL) on the stress-strain index (SSI) in patients with keratoconus.

Materials and Methods

Medical records of 31 patients undergoing CXL were retrospectively evaluated before and at least 4 weeks after the procedure. All patients underwent complete ophthalmic examination including Corvis ST (OCULUS Optikgeräte GmbH; Wetzlar, Germany). The main outcome measures were SSI and other dynamic corneal response (DCR) parameters.

Results

The mean follow-up time was 53 ± 42 days (28 – 196). The SSI was significantly increased from 0.82 ± 0.17 at the postoperative to 0.91 ± 0.24 at the postoperative ($p=0.002$). Among the DCR parameters integrated inverse radius (IIR), time to reach the first applanation (A1 time) and corneal deflection during this time (A1 Deflection) were significantly reduced ($p<0.05$). Central corneal thickness (CCT) was significantly reduced, $-17.54 \pm 15.17\mu\text{m}$ ($p<0.001$), while intraocular pressure estimates provided by the device, was significantly increased ($1.03 \pm 2.53\text{mmHg}$, $p=0.030$), there was a smaller change in the biomechanically corrected intraocular pressure for soft corneas (bIOPs, $0.67 \pm 1.27\text{mmHg}$, $p=0.004$)

Conclusion

Corneal stiffening induced by crosslinking could be directly observed by means of SSI at the early postoperative of patients submitted to crosslinking.