

## **Abstract**

**Purpose:** To evaluate the effect of Femtosecond-assisted intrastromal corneal cross-linking to stabilize early and moderate keratoconus.

**Methods:** Twelve eyes of 9 consecutive patients (6 male), with early keratoconus (K > 48.00 D, Skewed Steepest Radial > 22°, superior–inferior difference on the 5 mm circle > 2.5 D, inferior– superior difference > 1.5 D), minimum corneal thickness > 380 µm, age < 50 years included in the study studied.

**Results:** Stabilization of keratoconus during the 1 year follow-up period, with Kmax remaining unchanged and Kmax-Kmin difference reduced after the first postoperative month ( $p < 0.05$ ). There was statistically significant difference in the preoperative and 1 year postoperative value of eccentricity (Topolyser, Oculus Instruments), thinnest corneal point and irregularity in 3mm (Orbscan imaging) ( $p < 0.05$ ). Corrected distant visual acuity, initially decreased ( $p = 0.157$ ), followed by improvement in 3 and 12 months ( $p = 0.042$ ).

**Conclusions:** Riboflavin injected intrastromal in a precisely designed corneal pocket is a painless procedure. This surgical approach provokes topographic stability of the ectatic disease and improvement of CDVA even after 12months. Our study demonstrates the safety and efficacy of the proposed method.

**Key words:** keratoconus, femtosecond, cross-linking.