

## **Treatment of keratoconus with Ferrara ICRS and consideration of the efficacy of the Ferrara nomogram in a 5-year follow-up.**

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### **Source**

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### **Abstract**

#### **PURPOSE:**

To investigate Ferrara intrastromal ring segments (FIRS) as a therapeutic opportunity to treat keratoconus (KC), to reduce the necessity for cornea transplant, and to improve quality of vision of patients with this disease. We demonstrate that the procedure is safe, reversible, and reliable, and can delay/stop the KC progression.

#### **METHODS:**

A total of 130 eyes of 83 patients with KC, intolerant to contact lenses, implanted with FIRS were considered. Average follow-up was 37 months with a minimum of 2 years and a maximum of 5 years. For all patients, manifest refraction, uncorrected visual acuity (UCVA), best-corrected visual acuity (BCVA) corneal map, Orbscan, and intraoperative pachymetry were performed and were compared to postoperative measurements.

#### **RESULTS:**

A total of 93.84% (122 patients) of the eyes gained lines of UCVA and only 1.53% (2 eyes) lost them. A total of 97.69% (127 patients) of the treated eyes gained lines of BCVA and no eyes lost them. The value of K1 and K2 were considerably reduced over 5 years. The preoperative value of K average of 49.27 D became 4.68 D postoperatively. Both the UCVA and the BCVA showed an increase. The UCVA changed from 0.14 lines preoperatively to 0.32 postoperatively while the BCVA changed from 0.40 to 0.59. The spherical equivalent changed from -8.34 D before the operation to -2.83 D after the operation.

## **CONCLUSIONS:**

FIRS make KC cornea more regular and the patients have increased corrected and uncorrected visual acuity postoperatively. The progression of KC was stopped and the cornea thickness minimally, but regularly, improved.