

# Corneal Cross-Linking in Pediatric Patients With Progressive Keratoconus.

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## Abstract

**Purpose:** To evaluate corneal cross-linking (CXL) in the treatment of keratoconus in pediatric patients. Specifically, this study investigates the impact of CXL on uncorrected distance visual acuity (UDVA), best-corrected distance visual acuity (BDVA), manifest refraction, keratometry (K) measurements, and higher order aberrations.

**Methods:** This is a retrospective, observational case series of patients 18 years old or younger with progressive keratoconus who underwent CXL from January 2009 to August 2013. Preoperative and 1-year postoperative data including BDVA, manifest refraction, mean K readings, and corneal aberration measurements were extracted from clinical charts and topographical imaging. Visual acuity was converted to logarithm of the minimum angle of resolution (logMAR) scale, and mean refractive spherical equivalent (MRSE) was calculated from manifest refraction.

**Results:** The group consisted of 39 eyes from 28 patients, including 21 males and 7 females (mean age = 16.3 years, range: 11–18, standard deviation [SD] = 1.81). UDVA did not change significantly (preoperative UDVA = 1.20 logMAR, SD = 0.57, and postoperative UDVA = 0.90 logMAR, SD = 0.67,  $P = 0.19$ ). BDVA did not change significantly (preoperative BDVA = 0.34 logMAR, SD = 0.27, and postoperative BDVA = 0.34 logMAR, SD = 0.23,  $P = 0.50$ ). There was no significant change in mean K (preoperative K = 48.49, SD = 5.44, and postoperative K = 48.25, SD = 4.74,  $P = 0.34$ ). Mean MRSE did not change significantly (preoperative MRSE =  $-3.29$  D, SD = 4.04, and postoperative MRSE =  $-3.53$  D, SD = 4.07,  $P = 0.31$ ). Corneal aberration measurements were available for 10 eyes, and stability of measurements was demonstrated. There were no complications noted.

**Conclusions:** This study suggests that CXL is a safe and effective procedure that halts the progression of keratoconus in pediatric patients at 1-year follow-up. To validate these findings, longer follow-up is required.