Abstracts

Edited By Dr. Qasim Lateef Chaudhry

Corneal cross-linking as a treatment for keratoconus four-year morphologic and clinical outcomes with respect to patient age

Vinciguerra R, Romano MR, Camesasca FI, Azzolini C, Orth ST, Morenghi E, Vinciguerra P
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Riccardo Vinciguerra et al have reported the 4-year outcomes of corneal cross-linking (CXL) for progressive keratoconus in a population of different age groups in this retrospective, single – center, nonrandomized clinical study. Four hundred consecutive eyes treated with corneal CXL for progressive keratoconus from April 2006 through April 2010 were included in this study. In CXL procedure after removal of the epithelium, the cornea was irrigated for 30 minutes with a solution of 0.1% riboflavin and 20% dextran, followed by irradiation with an ultraviolet A light of 3 mW/cm2 for 30 minutes. The main outcome measures noted were best-corrected visual acuity (BCVA), sphere and cylinder refraction, corneal topography,Sche impflug tomography, and aberrometry. These findings were assessed at baseline and at 1, 6, 12, 24, 36, and 48 months after corneal CXL treatment. The compiled data were stratified according to age (group A, younger than 18 years; group B, 18–29 years; group C, 30–39 years; and group D, older than 40 years). Comparative analysis included 400 eyes of 301 patients. Functional results showed a significant increase in BCVA in group A by a mean reduction of –0.11 logarithm of the minimum angle of resolution (logMAR) after 12 months, in group B by a mean reduction of –0.31 logMAR after 36 months, in group C by a mean reduction of –0.33 logMAR after 36 months, and in group D by a mean reduction of –0.26 logMAR after 36 months. Morphologic results showed an analogous regularization of corneal shape with a significant reduction of opposite sector index by a mean value of –0.53 at 12 months in group A, –1.14 at 36 months in group B, –1.10 at 36 months in group C, and –0.55 at 12 months for group D. Optical quality improvement was demonstrated by a mean significant reduction of coma –1.52 m after 12 months in group A, –1.58 m after 24 months in group B, –2.57 m after 36 months for group C, and –0.25 m after 36 months in group D. The authors concluded that these outcomes stratified by age indicate the efficacy of corneal CXL in stabilizing the progressionof ectatic disease in all age groups and improving the functional and morphologic parameters in select groups. These results also indicated better functional and morphologic results in the population between 18 and 39 yeavgf87-rs of age.

Effect of corneal collagen cross-linking on corneal innervation, corneal sensitivity, and tear function of patients with keratoconus

Kontadakis GA, Kymionis GD, Kankariya VP, Pallikaris AI
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Georgios et al studied the effect of corneal collagen cross – linking (CXL) on corneal innervation, corneal sensitivity, and tear function in patients with keratoconus. In this prospective, interventional case series *t*wenty-four patients with bilateral keratoconus (30 eyes) who presented to the Institute of Vision and Optics, University of Crete, from May 2008 to October 2008 were enrolled and underwent CXL. Confocal microscopic analysis of corneal sub-basal nerve plexus (total nerve length per image), corneal sensitivity (assessed with the Cochet–Bonnet esthesiometer), basic tear secretion (assessed with Schirmer's I test with anesthesia), and tear film stability (evaluated by means of tear film break-up time [TFBUT]) were assessed preoperatively and at 1, 3, 6, 9, 12, 18, and 24 months postoperatively. The main outcome measures were comparisons between preoperative and each postoperative value of total nerve length per image, corneal sensitivity, Schirmer's I test results, and TFBUT. The results showed that total nerve length per image and corneal sensitivity were significantly decreased until postoperative month 6 (for both parameters: *P*_0.05 paired-samples *t* test at 1, 3, and 6 months postoperatively). Total nerve length per image tended to increase up to 2 years postoperatively, when it reached the preoperative level, but differences with

the preoperative values after the sixth post-CXL month were insignificant. The results of Schirmer's I test and TFBUT had no statistically significant difference at any time point. The authors concluded that a transient decrease in corneal innervation and corneal sensitivity can be observed up to 6 months after CXL. No significant effect of CXL could be detected on basic tear secretion and tear film stability in these patients.

Displacement of the retina and its recovery after vitrectomy in idiopathic epiretinal membrane

Nitta E, Shiraga F, Shiragami C, Fukuda K, Yamashita A, Fujiwara A
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Eri Nitta et al studied the the displacement of the retina and its change after vitrectomy in idiopathic epiretinal membrane (ERM) in this prospective, interventional case series of fifty-six eyes of 53 consecutive patients with ERM who underwent vitrectomy with ERM removal and internal limiting membrane peeling. Fundus autofluorescence (FAF) imaging was examined before and at 1, 3, 6, and 12 months after vitrectomy. The main outcome measures were the proportion of eyes with retinal displacement for ERM detected by FAF imaging and the recovery rate of retinal displacement after vitrectomy. The results showed that before surgery, FAF photography demonstrated hyperautofluorescent lines within the vascular arcade in 37 (66.1%) of the 56 eyes. The lines seemed to be consistent with the location of the retinal vessels before their displacement. These hyperautofluorescent lines appeared significantly more frequently among patients in whom the disease duration was 3 years or less. In 23 (62.2%) of these 37 eyes, within the first postoperative month, the hyperautofluorescent lines disappeared.

The disappearance of the hyperautofluorescent line was thought to be the result of the return of the retinal vessel to its original position. Greater visual improvements (logarithm of the minimal angle of resolution, ‡ 0.3) were statistically significantly obtained in patients in whom the hyperauto-fluorescent lines had become indistinct at 1 month after surgery (P<.05). So the authors concluded that Hyperautofluorescent lines indicating retinal displace-ment were found by FAF in 66.1% of patients before surgery for ERM. In addition, retinal displacement was significantly more common among patients who had experienced subjective symptoms for 3 years or less. Fundus autofluorescence is useful for predicting postoperative visual acuity improvement.

Excimer laser phototherapeutic keratectomy in eyes with corneal stromal dystrophies with and without a corneal graft

Reddy JC, Rapuano CJ, Nagra PK, Hammersmith KM
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Jagadesh et al evaluated and compared the visual out comes and recurrence patterns of corneal stromal dystrophies after excimer laser phototherapeutic keratectomy (PTK) in eyes with and without a corneal graft in this retrospective, comparative case series done at Cornea Service, Wills Eye Institute, Philadelphia Pennsylvania. The patients were divided into 2 groups. Group 1 comprised patients with no graft who underwent PTK (22 eyes of 15 patients), and group 2 comprised patients who underwent PTK over a previous full-thickness graft (18 eyes of 14 patients). All patients underwent PTK for decreased vision, symptoms of recurrent erosions, or both. Visual outcomes and recurrence patterns of corneal stromal dystrophies were noted as main outcome measures. The results showed that preoperative and postoperative best-corrected visual acuities were 0.46 ± 0.25 and 0.51 ± 0.27 (P [.56), respectively, in group 1 and 0.16 ± 0.13 and 0.21 ± 0.18 (P[.25), respectively, in group 2. Mean preoperative spherical equivalent was 1.54 ± 2.59 diopters (D) andL5.10 ± 5.81 D (P[.01) in groups 1 and 2, respectively, and mean postoperative spherical equivalent was 0.44 ± 1.8 D and L1.8 ± 4.25 D (P [.19) in groups 1 and 2, respectively. There was no statistically significant difference in the efficacy (P[.73) and safety (P[.62) indices between the 2 groups. In group 1, mild recurrence was seen in 7 eyes (32%) and significant recurrence was seen in 4 eyes (18%) at a mean of 32 and 47 months after PTK respectively. In group 2, mild recurrence was seen in 5 eyes (28%) and significant recurrence was seen in 5 eyes (28%) at a mean of 36 and 50 months after PTK, respectively.

The authors concluded that PTK improved central corneal clarity, alleviated symptoms resulting from recurrent erosions, and improved visual acuity in both groups.