

2009 Research Days Abstract Form – Department of Ophthalmology – UNIFESP/EPM

2. SCIENTIFIC SECTION PREFERENCE (REQUIRED): CO

Review the Scientific Section Descriptions. Select and enter the two-letter Code for the one (1) Section best suited to review your abstract.

3. PRESENTATION PREFERENCE (REQUIRED) Check one:

- Paper
 Poster
 FAST Paper

4. The signature of the First (Presenting) Author (REQUIRED) acting as the authorized agent for all authors, hereby certifies that any research reported was conducted in compliance with the Declaration of Helsinki and the 'UNIFESP Ethical Committee'

Scientific Section Descriptions (two-letter code):

- (BE) OCULAR BIOENGINEERING
- (CO) CORNEA AND EXTERNAL DISEASE
- (CA) CATARACT
- (EF) ELECTROPHYSIOLOGY
- (EP) EPIDEMIOLOGY
- (EX) EXPERIMENTAL SURGERY
- (GL) GLAUCOMA
- (LA) LABORATORY
- (LS) LACRIMAL SYSTEM
- (LV) LOW VISION
- (NO) NEURO-OPHTHALMOLOGY
- (OR) ORBIT
- (PL) OCULAR PLASTIC SURGERY
- (PH) PHARMACOLOGY
- (RE) RETINA AND VITREOUS
- (RS) REFRACTIVE SURGERY
- (RX) REFRACTION-CONTACT LENSES
- (ST) STRABISMUS
- (TR) TRAUMA
- (TU) TUMORS AND PATHOLOGY
- (UV) UVEITIS
- (US) OCULAR ULTRASOUND

Deadline: Oct 12, 2009

FORMAT:
Abstract should contain:

Title
Author, Co-authors (maximum 6),
Purpose, Methods, Results,
Conclusion.

Poster guidelines:
ARVO Abstract Book (1.10 x 1.70m)

81. FIRST (PRESENTING) AUTHOR (REQUIRED):

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Service (Sector): Córnea e Doenças Externas

CEP Number: 1970/07

Effect of Collagen Cross-linking in stromal fibril organization in Edematous Human Corneas

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Purpose: To assess structural stromal modifications after riboflavin and ultraviolet-A exposure in edematous human corneas.

Method: Fourteen eyes with corneal edema were enrolled in the study. In the Cross-linking (CXL) group, seven corneal buttons were obtained from six patients that underwent penetrating keratoplasty (PK) 7 to 90 days after the CXL treatment. The control group was composed of seven corneal buttons with bullous keratopathy. After the PK, stromal modifications were investigated using immunofluorescence in all corneal grafts. All patients had at least 3 months of corneal edema and were in the eye bank list waiting for keratoplasty.

Results: All corneas in the treated group showed a pronounced lamellar zone of collagen fibers highly organized in the anterior stroma, but there was not complete homogeneity between the samples. Corneas with advanced disease and stromal fibrosis were less compacted than in the ones with mild disease severity. Similarly, those ones that underwent PK 3 months after CXL also showed a decreased effect compared with those with a reduced time between the CXI and the PK. DAPI staining demonstrated a complete fragmentation of keratocytes nuclei in the anterior stroma in all treated corneas, which were absent in the control group.

Conclusion: Our study showed an immediate effect of CXL with a limited long-term sustainability. Cross-linked corneas had a pronounced anterior zone of organized collagen fibers. Even the treated corneas with advanced bullous keratopathy and stromal fibrosis had histological evidences of collagen fibers organization, but this effect appears to be decreased compared to corneas in initial stages of the disease.

Key Words: *Cross-linking; edematous corneas, bullous keratopathy.*