

R1 R2 R3 PG0 PG1 Estagiário Tecnólogo PIBIC

Last Name - Helena

First Name - Marco

Middle - Cezar

Service (sector)

Refractive Surgery

Nº CEP

Keratocyte Apoptosis After Corneal Surgery

Author: Helena, M.C.; Baerveldt, F.; Woo, J.K.; Steve, E.W.

Purpose: Programmed cell death (apoptosis) induces minimal collateral damage to surrounding tissue and occurs during normal development, homeostasis and wound healing. Keratocyte apoptosis is an initiating factor in the wound healing response after refractive surgical procedures. To evaluate the effects a different corneal manipulations, Keratocyte apoptosis was examined qualitative and quantitatively in rabbit corneas after traditional epithelial scrape photo refractive Keratectomy (PRK), Tran epithelial PRK and laser-assisted in sit Leratomileusis (LASIK).

Methods: Refractive surgical procedures or the components were performed in 28 rabbit eyes. Keratocyte apoptosis was monitored using the terminal deoxyribonucleotidyl transfers-mediated dUTP-digoxigenic nick-end labeling assay to detect DNA fragmentation. Ceclular morphologic

Changes were evaluated by transmission electron microscopy.

Results: Keratocyte apoptosis was noted with each refractive procedure or corneal manipulation and was variable from eye to eye with each procedure. Tran epithelial PRK was associated with the lowest levels of central corneal apoptosis. Keratocyte apoptosis was confined to the superficial stroma extending to a depth of approximately 50 microns after epithelial scrape-PRK and Tran epithelial PRK. Apoptosis was noted in the deeper central corneal keratocytes located anteriorly and posterior to the lamellar cut in LASIK.

Conclusion: There are qualitative and quantitative differences in keratocyte apoptosis among epithelial scrape-PRK, Tran epithelia PRK and LASIK. The level and distribution of Keratocyte apoptosis, along with subsequent repopulation by activated stromal keratocytes, are likely to be important determinants of corneal wound healing associated with variability and regression after PRK and LASIK. Tran epithelial PRK induces low levels of keratocyte apoptosis, and therefore this approach may be useful for treating higher levels of myopia and for pretreatment after regression.