XXV CONGRESS OF THE ESCRS
STOCKHOLM
8-12 SEPTEMBER 2007

11 September
TUESDAY

14:00-16:00

Laser vision correction using the solid state 213nm laser causes less keratocytes proliferation and migration than the excimer 193nm laser

Purpose: To compare keratocyte proliferation and apoptosis in and around the crater created by laser correction by the Solid State (213nm) and conventional Excimer laser (193nm). Venue: School of Animal Biology, University of Western Australia, CustomVis, Perth Laser Vision Centre

METHODS: New Zealand white rabbits (in groups of 3 to 5) underwent Photo Refractive Keratectomy (PRK). All treatments planned for -5.00 Diopter (D) spherical with 6.5 mm optical zone and 7 mm transitional zone. All rabbits were sacrificed at 1 or 3 days after surgery. Corneas were dissected and fixed. Sections were stained with TUNEL (Promega Dead End TUNEL labeling kit) and counterstained with propidium iodide. Photographs of the sections were taken with a fluorescence microscope. TUNEL positive cells and total cells were counted in each photograph. Values were analyzed using Statview and Bonferroni/Dunn Post Hoc Test.

RESULTS: There was no statistical difference in the number of apoptotic cells detected at 1 and 3 days although there was a trend towards higher numbers in the 193nm groups. At 3 days, greater numbers of keratocytes were detected in the crater of the 193nm lasered corneas compared to the 213 nm lasered corneas. Conclusion: Results demonstrate that the 213nm Solid State laser has similar cell death inducing properties, but causes less keratocyte proliferation/migration than the currently used 193nm Excimer laser, therefore making it a potentially superior tool for refractive surgery. Financial Disclosure : 1,3

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