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Overall safety and predictability of solid state refractive laser

Session: Refractive surgery new techniques - 6 minutes

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Abstract Details:

Purpose:

To assess the Solid State Laser for refractive surgery use.

Setting:

1.Srivision Eye Institute, India. 2. University of Western Australia, School of Animal Biology, Australia. 3.Institution of Vision and Optics, University of Crete, Greece. 4.Research and Development, CustomVis, Australia.

Methods:

Comparison of histological changes at corneal level performed after an ablation was performed with the solid state laser and excimer laser. For clinical effects a retrospective chart review of 258 (166 LASIK and 92 PRK) corneal refractive surgery procedures performed with Solid State Laser, and operated by one surgeon from June 2007 to May 2008. They all had at least 3 months of follow up. The visual and refractive results were analyzed.

Results:

Ablation characteristics, DNA damage, Cytotoxicity, Mutagenicity, Free Radical production and Endothelial Cell Count were similar in 213nm and 193nm lasered corneas. Apoptosis was similar but there were a significant number of keratocytes found 3 days after 193nm ablation, suggesting more inflammation with 193nm. The absorption coefficients in BSS and NaCL were much lower for 213nm than 193nm. Overall clinically 91% achieved Uncorrected Visual Acuity of 6/6 or better and 95% achieved 6/9 or better. The Lasik and PRK groups had similar results.

Conclusions:

Histological characteristics showed great similarity between 213nm and 193nm. Predictable visual and refractive results following LASIK and PRK using Pulzar Z1 solid state technology is achieved. This makes Solid State a good alternative to excimer laser.

Financial Disclosure:

3