Title: In Vivo Confocal Microscopy of the Corneal Surface in Eyes Treated with a Novel Ocular Cooling Device for ChronicOcular Surface Pain

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Category: CORNEA

Topic: Medical and Surgical Ocular Surface

Interested in chairing a panel? Yes

Category to chair: Cataract

Keywords: IVCM, chronic ocular surface pain and dry eye disease

Purpose: To assess corneal surface nerve parameters and cell population using in vivo confocal microscopy (IVCM) in eyes with chronic ocular surface pain (COSP) that have been treated with a novel ocular cooling device targeting the long ciliary nerves of the eye.

Methods: Unilateral treatments were administered to five eyes with COSP and followed for twelve weeks. Corneal nerve fiber density, nerve branch density, and nerve fiber length were evaluated using in vivo confocal microscopy (IVCM).Corneal surface cell population such as immune cells were evaluated using IVCM. Additional parameters collected included adverse event (AE) occurrences, non-contact corneal sensitivity, Visual analogue scale (VAS), and the chronic ocular pain questionnaire (COP-Q).

Results: IVCM image analysis was performed using a validated image analysis software for automated quantification of the following corneal nerve parameters: fiber density, branch density, and fiber length. Additionally, representative IVC images were analyzed in a qualitative-descriptive approach for cell population and nerve structure. Results are pending and will be updated prior to ASCRS abstract update deadline to include AE occurrences, corneal sensitivity, and results of the VAS and COP-Q questionnaires.

Conclusion: IVCM offers a unique analysis of corneal surface nerve parameters in eyes that have been treated with a novel topical/ocular cooling device, offering valuable insights that can be assessed alongside other standard clinical evaluations.

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Disclosures
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