IN VIVO MEASUREMENT OF THE ATTENUATION COEFFICIENT OF THE SCLERA AND CILIARY MUSCLE FROM TRANSSCLERAL OPTICAL COHERENCE TOMOGRAPHY IMAGES

Gabrielle Mesquita1, Yu-Cherng Chang1, Florence Cabot1,3, Marco Ruggeri1, Sonia Yoo1-3, Jean-Marie Parel1-4, Fabrice Manns1,2

1 Ophthalmic Biophysics Center, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL; 2Department of Biomedical Engineering, University of Miami, Coral Gables, FL; 3Anne Bates Leach Eye Hospital, Bascom Palmer Eye Institute, University of Miami College of Engineering, Coral Gables, FL; 4Vision Cooperative Research Centre, Brien Holden Vision Institute, UNSW, Sydney, NSW, Australia

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PURPOSE

- Images of accommodation-induced changes in the ciliary muscle acquired using Optical Coherence Tomography (OCT) can provide insight into the mechanism of accommodation1-3.
- Optimization of ciliary muscle imaging parameters requires a better understanding of the optical properties of sclera and ciliary muscle.
- The purpose of this study was to quantify the attenuation coefficients of the sclera and ciliary muscle in vivo.

METHODS

- A Spectral-Domain OCT System (Thorlabs Telesto, Newton, NJ) coupled with an accommodation module4 was used to image the ciliary muscle in the left eye of:
  - 16 subjects (range 20 to 50 y/o) in the relaxed state.
  - 7 subjects (range 24 to 48 y/o) at 0, 2, and 4D.
- The boundaries of the sclera and ciliary muscle in the selected A-line passing through apex were determined from visual inspection of the OCT images.
- The attenuation coefficient of the sclera and ciliary muscle were calculated from the axial reflectivity profile.

RESULTS

- There are significant inter-individual variations in the attenuation coefficient of the sclera and ciliary muscle in vivo from OCT images.
- There is no apparent trend in sclera and ciliary muscle attenuation coefficients with accommodation stimuli.

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REFERENCES