Ocular Biomechanics

Essay

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By

Saeed Ahmed Saber
M. B. B. Ch

Supervisors

Prof. Dr. Ali Mohamed Taha

Professor of Ophthalmology
Faculty of Medicine
Cairo University

Prof. Dr. Hesham Fathallah El Sheikh

Professor of Ophthalmology
Faculty of Medicine
Cairo University

Assist. Prof. Dr. Ahmed Abdallah Abd El Reheem

Assistant Professor of Opthalmology
Faculty of Medicine
Fayoum University

Faculty of Medicine
Cairo University
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ABSTRACT

An important indicator of the biomechanical properties of the cornea is corneal hysteresis. It is an indicator of viscous damping in the cornea during inward and outward application pressure event.

Abnormalities in corneal hysteresis have been detected in a variety of corneal disease including glaucoma suspects, normal tension glaucoma, post-LASIK patients, keratoconus and other corneal pathologies. Corneal hysteresis can be measured using ocular response analyzer and dynamic corneal imaging .

Interaction between sclera and optic nerve head biomechanics, A leading hypothesis is that elevated intraocular pressure (IOP) affects the bio-mechanical environment within the tissues of the of the optic nerve head (ONH), and that the altered biomechanical environment of the ONH contributes to optic nerve damage and consequent loss of vision.

There is a strong association between corneal biomechanical properties and retinal arteriolar caliber, supporting the concept that corneal structure may be linked to the structure of vascular tissues in or around the optic nerve head. We show that lower CH and CRF are associated with narrower retinal arterioles in children with no evidence of glaucoma.

Key Words: corneal biomechanics, comeal hysteresis ocular resonse analyzer, dynamic corneal imaging, sclera and optic nerve head bio-mechanics. retinal arteriolar caliber.