## Summary

Corneal hysteresis is an important indication of the biomechanical properties of the cornea. It is an indicator of viscous damping in the cornea during inward and outward applanation pressure events that is the ability of the tissue to absorb and dissipate energy, a property that is determined by the visco-elastic properties of the corneoscleral shell.

CH can be measured in vivo using ORA, In which a patented dynamic bi-directional applanation process enables measurement of corneal biomechanical properties using an applied force-displacement relationship. An air jet similar to that used in traditional air-puff tonometers generates force / pressure on the cornea. It also provides a pressure measurement that is significantly less affected by the corneal properties than other methods of tonometry.

Changes in CH due to many factors, diseases and previous ocular surgeries, were recorded. Some increasing, some decreasing, and others still doubtful, till now, as aging process lowers CH,but in diabetic patients, the studies done, till now, were controversial.
Chronic smoking increases CH. Myotonic dystrophy doesn't affect CH significantly. In twins, the monozygotic correlations were higher than dizygotic for CH. In corneal diseases, as keratoconus and Fuchs, CH decreases significantly.

CH has positive but moderate correlation to the CCT; the higher the CCT the higher the CH.
In glaucoma patients, CH is significantly lower than average with a much wider range when compared to normal subjects.

Corneal hysteresis may reflect the structure of the eye and its susceptibility to glaucoma .It will be as diagnostic tool for patients of glaucoma, glaucoma suspect and normal tension glaucoma.

Corneal hysteresis was significantly reduced, which may reflect changes in the viscoelastic properties of the cornea caused by the surgery and post LASIK ectasia may occur if IOP increased.

A lower corneal hysteresis value is recently found to be associated with progressive visual field loss in glaucomatous patients in addition, lower than average hysteresis values have been observed in patients with normal tension glaucoma.

In glaucoma patients, but not in ocular hypertension patients, low corneal hysteresis was associated with greater shallowing of the optic cup i.e. possibly a more mobile lamina cribrosa, after sustained reduction of IOP.

The results suggest that CH an anterior segment biomechanical parameter is related to degree of laminar deformation, a biomechanical parameter of posterior segment/optic nerve complex.

This would open the door for studying the significance of this relation in the pathophysiology of glaucoma, to identify high risk glaucoma patients and to identify novel molecular therapeutic targets for glaucoma

Finally, we must note that all studies, done till now, are tailed " for further, long term studying and investigations.