

عنوان مقاله:

Axial and Posterior Wall Thickness Elastic Modulus of Eyes in Age-related Macular Degeneration (ARMD) Patients Compared to Healthy Individuals
Using Ultrasound Images

محل انتشار:

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خلاصه مقاله:

Background & Aims: Age-related macular degeneration (ARMD) is one of the common retina disorders that can lead to loss of vision by increase in age. In this study, the efficacy of a non-invasive ultrasound technique for the evaluation of alastic properties of eye in the diagnosis of ARMD has been evaluated. **Methods:** For estimation of the elastic modulus of eye, spatial loading system designed and constructed. Then an external stress (2614 ± 146 Pascal) less than intraocular pressure of eye was applied to 10 eyes belonged to ARMD patients and 25 eyes belonged to age-matched control subjects. Ultrasound images of Bmode, A-mode and RF signals were taken before and after applying stress and saved in the computer by multimedia board. The scans were aligned vertically and placed at the temporal edge of the macula. After image processing the elastic properties were compared in the two groups. Relative changes of eye axial length, posterior wall thickness and retina-choroid were measured by ultrasound images. Based on applied stress, elastic modulus of eye axial length, posterior wall thickness and retina-choroid were estimated. Independent paired t-test analysis was used for comparison of the two groups. **Results:** There was a significant difference ($P < 0.05$) in the eye axial length elastic modulus between the ARMD group (109100 ± 37017 Pa) and control group (63920 ± 36212 Pa). There was also significant difference ($P < 0.001$) in elastic modulus of ocular posterior wall thickness between the ARMD group (58911 ± 15884 Pa) and control group (21154 ± 13116 Pa). While, there was no significant difference in retina-choroid complex axial elastic modulus between the ARMD group (17700 ± 3675 Pa) and control group (20175 ± 4956 Pa). **Conclusion:** It is concluded that elastic modulus of eye axial length and posterior wall thickness can be used for differential diagnosis of eyes with ARMD.

کلمات کلیدی:

(Ultrasonography, Elastic modulus, Age-related macular degeneration (ARMD)

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