

Comparison of central corneal thickness measurements with Pentacam, Orbscan II, and ultrasound pachymeter

Yekta, A.-A.^a, Hashemi, H.^{bc}, Khabazkhoob, M.^c, Dostdar, A.^d, Mehravaran, S.^c, Heravian, J.^a, Fotouhi, A.^e

^a Department of Optometry, **Mashhad University of Medical Sciences**, Iran

^b Associate Professor of Ophthalmology, Eye Research Center, Farabi Eye Hospital, Tehran **University of Medical Sciences**, Iran

^c Noor Ophthalmology Research Center, Noor Eye Hospital

^d Department of Optometry, Iran **University of Medical Sciences**, Iran

^e Department of Epidemiology and Biostatistics, School of Public Health, Tehran **University of Medical Sciences**, Iran

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Abstract

Purpose: To compare thickness of central cornea measured using Pentacam, Orbscan II, and ultrasound pachymeter
Methods: Patients with no history of corneal diseases or systemic diseases affecting eyes, who did not wear contact lens or use eye medications, and who with no previous history of corneal surgery were selected for this study. Central corneal thickness (CCT) was measured by three methods using Pentacam, Orbscan II, and ultrasound pachymeter.
Results: Comparison of ultrasound and Orbscan CCT measurements showed a relatively high correlation between these two devices ($P < 0.001$; $r = 0.891$). The 95% limits of agreement (LoA) between these two devices were -52.44 to 20.18 μm . There was also a high correlation between the results obtained through ultrasound and Pentacam ($P < 0.001$; $r = 0.932$). The 95% LoA of CCT with ultrasound and Pentacam were -12.30 to 24.16 μm . There was also a high correlation between CCT measurements carried out by Orbscan and Pentacam ($P < 0.001$) and the 95% LoA were -12.14 to 40.19 μm .
Conclusion: The findings of the present study demonstrated high agreements between the CCT readings measured with Orbscan, Pentacam, and ultrasound. The agreement between the Pentacam and ultrasound measurements was higher than that of between Orbscan and ultrasound, making Pentacam a better substitute for ultrasound. © 2009 by the Iranian Society of Ophthalmology.

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