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Corneal Thickness in Highlanders.

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Abstract

Patyal, Sagarika, Amit Arora, Arun Yadav, and Vijay K. Sharma. Corneal thickness in highlanders. High Alt Med Biol. 17:000-000, 2016.-Background: Corneal thickness is an important parameter with diagnostic and therapeutic implications. Various studies have highlighted increase in corneal thickness in lowlanders on ascending to high altitude. However, there are no studies in the published literature pertaining to corneal thickness of the highlanders who are inhabitants of such altitudes. Hence, study was carried out with objective to determine the corneal thickness of highlanders living at heights of more than 11,000 feet and compare it with corneal thickness of lowlanders.

MATERIALS AND METHODS: The highlander participants of the study consisted of inhabitants of Ladakh region of India at an altitude of 11,000 feet or more and lowlander participants consisted of inhabitants at an altitude of 1500 feet. A total of 254 highlanders and 212 lowlanders participated. A mean of 25 measurements of central corneal thickness (CCT) of every participant was obtained for each eye using ultrasonic pachymeter.

RESULTS: The mean age of the participants was 41.8 (15.9) and 47.7 (17.7) years among lowlanders and highlanders, respectively. The highlanders had 11.95 μm lower mean CCT reading compared to lowlanders after adjusting for age and sex (p value <0.001). There was no statistically significant difference in mean CCT readings of right eye and left eye in either lowlanders or highlanders. Age also had a significant effect after adjustment for location and gender (p = 0.001). CCT decreased by 0.31 μm with every year increase in the age. Gender had no statistically significant effect.

CONCLUSION: This study found statistically significant difference in CCT measurements between highlanders and lowlanders. The thinner corneas of highlanders may have a bearing on diagnosis and treatment of glaucoma, refractive surgery, contact lens fitting implantation of **Intacs**, and astigmatic keratectomy done on such patients. The study also opens the scope of further research in the area.

KEYWORDS: central corneal thickness; high altitude; highlander; ultrasonic pachymetry

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