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Longitudinal Change in Central Corneal Thickness in the Tema Eye Survey

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ABSTRACT

PURPOSE: To determine the change and rate of change in central corneal thickness (CCT) and their determinants.

DESIGN: Longitudinal observational population-based study.

METHODS: 758 normal and 58 glaucomatous subjects underwent complete eye examination, with CCT measurements at two separate visits. Change and rate of change in CCT were determined. Univariate and multivariate linear regression analyses were performed to determine the factors associated with change and rate of change.

RESULTS: The mean follow-up duration was 8.4 ± 0.7 years. The overall change was -8.9 ± 16.7 μm in OD and -9.8 ± 16.2 μm in OS, both $P < .0001$. Changes in glaucomatous and normal subjects were -14.1 ± 2.2 μm vs. -8.6 ± 0.6 μm in OD ($P = .02$) and -14.5 ± 2.2 μm vs. -9.5 ± 0.6 μm in OS ($P = .03$), respectively. The overall rate of thinning was -1.1 $\mu\text{m}/\text{year}$ (OD) and -1.2 $\mu\text{m}/\text{year}$ (OS). Rates in glaucomatous and normal were -1.7 ± 0.3 vs. -1.0 ± 0.1 $\mu\text{m}/\text{year}$ in OD ($P = .02$) and -1.7 ± 0.3 vs. -1.1 ± 0.1 $\mu\text{m}/\text{year}$ in OS ($P = .03$), respectively. Change and rate of change were associated with baseline CCT ($\beta = -0.1$ to -0.09 and -0.011 , respectively, all $P < .001$) and glaucoma ($\beta = -6.8$ to -5.6 , $P \leq .009$ and -0.75 to -0.69 , $P \leq .007$, respectively).

CONCLUSION: CCT decreased significantly over time. The change and rate of change were greater in glaucomatous than normal eyes, and greater than described in cross-sectional studies.

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