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Intraocular Pressure, Corneal Thickness, and Corneal Hysteresis in Steinert´s Myotonic Dystrophy

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Purpose
Low intraocular pressure (IOP) is one of the ocular manifestations of Steirnert's myotonic dystrophy. The goal of this study was to evaluate the Goldmann and corneal-compensated IOP, corneal central thickness (CCT), and corneal hysteresis in patients with myotonic dystrophy.
Methods
A total of 12 eyes of 6 patients with Steirnert's myotonic dystrophy were included in the study group. A total of 12 eyes of 6 age-, race-, and gender-matched healthy volunteers were included in the control group. IOP was measured using Goldmann applanation tonometer (GAT), Dynamic Contour Tonometer (DCT) and Ocular Response Analyzer (ORA) in random order. Central corneal thickness was obtained by ultrasound pachymetry. The corneal hysteresis was obtained by the Ocular Response Analyzer (ORA). Three measurements of each device were taken and the mean measurements were used for the analysis. In light of the multiplicity of tests performed, the significance level was set at 0.01 rather than 0.05.
Results
The mean (standard deviation [SD]) IOP provided by GAT, DCT, and corneal-compensated ORA in the study group was 5.4 (1.4) mmHg, 9.7 (1.5) mmHg, and 10.1 (2.6) mmHg, respectively. The mean (SD) IOP provided by GAT, DCT, and corneal-compensated ORA in the control group was 12.6 (2.9) mmHg, 15.5 (2.7) mmHg, and 15.8 (3.4) mmHg, respectively. The differences in IOP between the study and control groups were statistically significant in the GAT (mean, -7.2 mmHg; 99% confidence interval [CI], -10.5 to -3.9 mmHg; $P<0.001$), DCT (mean, -5.9 mmHg; 99% CI, -8.9 to -2.8 mmHg; $P<0.001$), and corneal-compensated ORA IOP (mean, -5.7 mmHg; 99% CI, -10.4 to -1.0 mmHg; $P=0.003$).
The mean (SD) CCT in the study and control groups were, respectively, 542 (31) µm and 537 (11) µm ($P=0.65$). The mean (SD) corneal hysteresis in the study and control groups were, respectively, 11.2 (1.5) mmHg and 9.7 (1.2)

mmHg (*P*=0.04).
Conclusions

The patients with Steinert's myotonic dystrophy showed lower Goldmann and corneal-compensated IOP in comparison with healthy individuals. The CCT and corneal hysteresis in this dystrophy were within the normal range. These facts imply that the low IOP readings found in the myotonic dystrophy are not related to changes in corneal biomechanical properties.