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Comparison of the Goldmann-applanation, Schiotz-impression & noncontact tonometers in different glaucoma patients & the effect of central corneal thickness
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Aim: Comparison of the Goldmann-applanation tonometer, the Schiotz-impression tonometer & the Noncontact tonometer (NIDEK NT-1000) in normal population, POAG, PACG and OHT patients.

Material & methods: 248 eyes of 60 healthy subjects, 31 patients with POAG, 16 patients with PACG & 17 patients with OHT underwent IOP evaluation with NCT, GAT & Schiotz tonometer. CCT, Corneal curvature, and Axial length were also measured & the influence of corneal thickness on these tonometers’ readings was also noted. Coefficient of Ocular rigidity was calculated for all patients. A statistical analysis (Student’s t test) was carried out to correlate the IOP readings of the 3 tonometers. A p value of < 0.05 was considered statistically significant.

Results: We found that there was not much difference in the IOP readings measured in either the patients of glaucoma, OHT or normal healthy subjects, that is, the mean values of the IOP measured with NCT, GAT or Schiotz were not statistically significantly different in either glaucoma, OHT or normal group (p value > 0.05). There was a poor correlation between CCT and tonometers’ readings in all groups, with the exception of OHT where there was a positive correlation. Visual acuity in glaucomatous eyes was independent of corneal thickness, that is there was no statistically significant relationship (p value > 0.05).

Conclusion: IOP as recorded by the three tonometers was not statistically significantly different from each other, so any of these tonometers can be safely used for routine glaucoma workup.