An audit of ICare rebound tonometry in a tertiary glaucoma centre
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Purpose: In tertiary referral centres there is continuing strive towards improving patient experience in often very busy clinics. As part of our departments effort in achieving this goal, the ICare rebound tonometer as part of the patients’ initial assessment before examination by the doctor, was introduced. This audit was carried out to assess the accuracy of ICare rebound tonometry in an outpatient clinic setting.

Methods: A retrospective case note review of patients attending the glaucoma clinic over a four-week period, commencing two weeks after the introduction of ICare, was carried out. ICare rebound tonometry was performed by the nursing and ancillary staff as part of the initial patient assessment. All patients also had Goldman Applanation tonometry (GAT), using easyton disposable prisms, carried out by the attending doctor, which included senior residents, fellow or consultants in the glaucoma clinic. The results from the two measurements were compared, and any correlation between the magnitude of difference between the two methods and patient factors including age, central corneal thickness (CCT) and visual acuity (VA) was also examined.

Results: Seventy-two patients (152 eyes) were analyzed. The average age of the patients was 67 years. The average difference between ICare and GAT was 1.14 ± 4.30 mmHg with a minimum and maximum difference of -10 and +17 mmHg. The Bland Altman Plot had a level of agreement of -7.3 to 9.6 mmHg. An accuracy of ±1 mmHg in the ICare measure was found in only 34% of the eyes. There was no correlation between age ($r = -0.12, p < 0.27$), CCT ($r = 0.15, p < 0.14$), VA ($r = -0.01, p < 0.88$) and the difference in values obtained between the two intraocular pressure measurement devices.

Conclusions: The accuracy of the ICare rebound tonometer when compared to GAT as described above, appears to be unpredictable and has no relationship with any patient factors that could potentially affect measurements. It is possible that there may be a discrepancy in the exact method of use of the ICare device amongst the operators in the current study. Until this is further explored, Goldman Applanation tonometry remains the current preferred method of intraocular pressure measurement.

Note: This abstract has also been submitted to ARVO 2014 meeting.