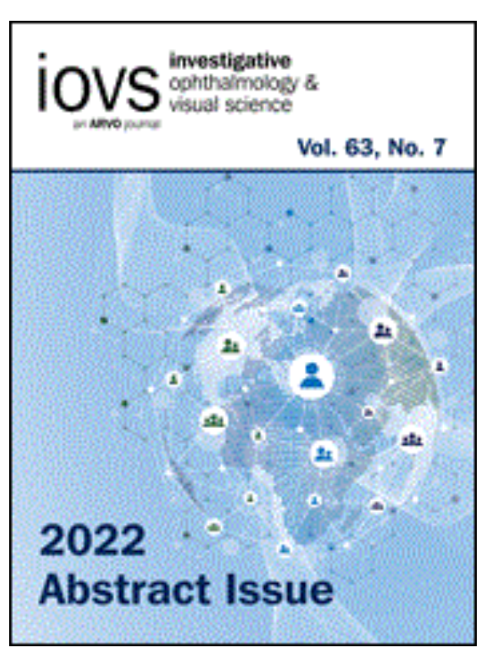

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Correlation Between SITA Fast Visual Field Strategy Measurements and Augmented Reality-Based Heru re:Vive Visual Field Strategy Measurements

Catherine Johnson; Nadine Rady; Valeria Lopez; Georgeana Mijares; Mary Durbin, PhD; Alexandra Nicklin, OD; Mohamed Abou Shousha

Author Affiliations & Notes

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Abstract

Purpose : The SITA Fast (SF) visual field (VF) strategy was developed as a faster alternative to the SITA Standard (SS) VF strategy and is routinely used in clinical centers due to its shorter duration. In this study, we correlate visual field measurements of SF on the Humphrey Field Analyzer (HFA) (Carl Zeiss Meditec, Inc, Dublin, CA) with those of the Heru re:Vive VF strategy (Heru Inc, Miami, FL) downloaded onto an augmented reality (AR) headset.

Methods : Thirty-seven eyes from thirty-five subjects underwent visual field testing with SITA Fast and Heru re:Vive strategies. Subjects with a range of neurologic and ophthalmologic pathology were recruited from a tertiary eye institute during their regular clinic visit. Subjects either had a same-day SF VF scheduled or had been tested with SF within three months of study visit, with either the 24-2 (n = 28) or 30-2 (n = 9) field patterns. Eyes with visual acuities of 20/400 or worse or having had intraocular surgery within 6 months of study date were excluded. Heru re:Vive testing was done in a darkened room using the Magic Leap 1, size 2 headset (Magic Leap, Plantation, FL) and lenses were inserted into the headset for refractive correction. For the two tests, HFA and Heru, the correlation coefficient was determined for metrics of mean deviation and mean sensitivity and test duration was compared.

Results : Strong correlations between Heru and HFA tests were found for metrics of both mean sensitivity (R=0.82, p<0.001) (fig. 1) and mean deviation (R=0.83, p<0.001) (fig. 2). Sensitivity analysis included all 37 eyes tested and mean deviation analysis included 28 eyes, excluding the 9 eyes tested with the 30-2 VF pattern. Mean test time of both tests were similar (4.27 minutes for Heru versus 4.38 minutes for HFA).

Conclusions : VF measurements of mean sensitivity and mean deviation obtained using the Heru re:Vive strategy installed on a portable headset correlate well to those from the SITA Fast HFA test among neurologic and ophthalmologic patients.

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