

Study of reliability and validity of VOG Perea® and GazeLab® and calculation of the variability of their measurements

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Abstract

Objective: To determine the reliability and validity of VOG Perea® (VP) and GazeLab® (GL), their correlation and concordance with cover test (CT), and define the margins of variability of the measurement of angle deviation in primary position.

Methods: Forty-four orthotropic patients were included. Alternating prism CT, an examination with VP, and GL were performed. Intraclass correlation coefficient (ICC) was calculated to determine the reliability, and mean comparison was used to study validity. Correlation coefficient (R) between CT and each video-oculographer was calculated. Bland-Altman diagrams were used to determine concordance. All measurements were expressed in prismatic dioptres (PD).

Results: The mean horizontal deviation was -0.571 PD with CT; 0.22 PD with VP and 0.4 PD with GL. ICC was 0.246 (95% CI: [-0.402]-0.595) in GL and 0.984 [95% CI: 0.970-0.992]] in VP. Mean comparison between CT and GL was -0.9286 (CI 95%: [-1.822]-[0.0355], P=.042) and -0.8423 (95% CI: [-1.7190]-0.03450, P=.0593) for CT-VP. Correlation coefficient for VP was R=0.5704 (95% CI: 0.319-0.747, P=.0001) and R=0.4539 (95% CI: 0.174-0.666, P=.0025) for GL. Margins of variability for a single horizontal measurement in primary position with VP were ±5.22 PD and ±2 DP for GL.

Conclusion: Both VP and GL are reliable and valid devices. Margins of variability for a horizontal measurement are ±5.22 PD in VP and ±2 PD in GL.

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