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Comparison of dynamic visual acuity Optotype (DYOP) and static visual acuity Optotypes (printed and computerized logMAR) in normal subjects and subjects with retinal diseases

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ABSTRACT

Purpose: To compare and validate computerized dynamic visual acuity Optotype (DYOP) and static visual acuity optotype (Printed logMAR and computerized logMAR) measurements in normal subjects, and subjects with various retinal diseases.

Method: A cross-sectional study investigated visual acuity measurement using three charts. Twenty-five subjects having a retinal disease with a mean age of 61.41±9 and thirty controls with a mean age of 52.3±10.7 were recruited. Distance visual acuity with habitual correction was measured with a 3-meter printed logMAR, computerized logMAR, and dyop, out of which computerized logMAR and dyop acuity chart were displayed on the monitor at 3meter. The agreement between the static and dynamic visual acuity optotype measurements was seen using Bland Altman models. Regression models were seen between the static and dynamic visual acuity Optotype.

Results: The mean difference between visual acuity measured in retinal disease patients with printed logMAR and DYOP chart was -0.02(±0.248) with lower LOA and upper LOA of -0.51 and 0.46 respectively. The mean difference between visual acuity measured in retinal disease patients with computerized logMAR and DYOP chart was -0.013(±0.261) with lower LOA and upper LOA of -0.52 and 0.49respectively. The mean difference between visual acuity measured in controls with printed logMAR and DYOP chart was 0.02(±0.09), with lower LOA and upper LOA of -0.17and 0.20 respectively. The mean difference between visual acuity measured in controls with computerized logMAR and DYOP chart was 0.02(±0.16), with lower LOA and upper LOA of -0.29 and 0.33 respectively.

Conclusion: Visual acuity measured in subjects with retinal diseases and normal subjects by the dynamic visual acuity optotype (Dyop) was comparable to the static visual acuity optotype (printed LogMAR chart and computerized logMAR).