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Visual acuity while walking and oscillopsia severity in healthy subjects and patients with unilateral and bilateral vestibular function loss.

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Author information

Abstract

OBJECTIVES: To assess visual acuity (VA) while the patient is walking and to evaluate oscillopsia severity in patients with bilateral vestibulopathy (BV) and in patients with unilateral vestibular loss (UVL).

DESIGN: Prospective study with a group of patients with BV, a group of patients with UVL, and a control group of healthy subjects.

SETTING: Tertiary academic center.

PARTICIPANTS: Thirty seven patients with BV (age range, 29-80 years), 11 patients with UVL (age range, 48-75 years), and 57 healthy subjects (age range 20-77 years).

INTERVENTION: Computation of the difference between the VA measured in static conditions and in dynamic conditions while walking on a treadmill at 2, 4, and 6 km/h. Oscillopsia severity was assessed with a questionnaire that we developed.

MAIN OUTCOME MEASURES: Differences in VA at 2, 4, and 6 km/h and oscillopsia severity score.

RESULTS: As a group, patients with BV showed a significant increase of the VA differences compared with healthy subjects ($P < .001$) and patients with UVL ($P < .001$) for all 3 walking velocities. Normality thresholds were defined as healthy subjects' 95% CI. Sensitivity of the test was 97% for discriminating patients with BV. Moderate to extreme oscillopsia severity was found in 81% of patients with BV and in 9% of patients with UVL. Differences in VA did not correlate with oscillopsia severity scores in patients with BV ($P > .05$ for all comparisons).

CONCLUSIONS: We designed a highly sensitive, simple, cost-effective protocol to assess dynamic VA under physiologic conditions and a questionnaire to determine oscillopsia severity. Both tools could be used for the evaluation of new treatments for BV and patients with UVL.

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