A clinical study of the subjective visual vertical during unilateral centrifugation and static tilt

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Abstract

Conclusion: The present study demonstrates that various response patterns of subjective visual vertical (SVV) can be identified during unilateral centrifugation (UC). It is proposed that these response types correspond to different degrees of compensation after disease. This is advantageous for monitoring the effect of rehabilitative measures and is useful in medico-legal issues. It also emerges that diagnosis of unilateral utricle function requires the determination not only of asymmetry ratio but also offset of SVV estimates. *Objectives:* A retrospective clinical study of SVV test results was performed to establish a classification and model of response types in patients with suspected otolith disorder. *Methods:* SVV measurements were made in 473 patients recruited from the dizziness clinic. A control group of healthy subjects (n = 43) was tested with the same protocol. Testing with bilateral stimulation (stationary upright, 15°, 30° tilt) and UC was performed. A mathematical model for the UC results was developed. *Results:* During UC testing 61% of the patients showed an asymmetric response indicating a unilateral utricular hypofunction/dysfunction. These results could be classified into three subgroups, indicating different degrees of compensation. The model parameters can be adapted to reflect this classification.

Keywords

Otolith, utricle, diagnosis, dizziness, vertigo, eccentric rotation, spatial orientation