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Postural responses with different visual stimulations in patients with central vestibular disorders

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Visual stimuli from the environment usually trigger disabling symptoms in patients with central vestibular disorders (CVD), producing impairing in the postural control and falls. The aim of this study is to know the postural adjustment when patients were stimulated with visual stimuli that reproduce environmental visual stimulation. A normal volunteers population was tested as control. Patients with CVD were divided into two groups: 1) with damage in the cerebellar functions 2) with normal cerebellar functions. All patients were tested with electronystagmography (ENG), audiological testing, and magnetic resonance images or tomography axial computerized. The stimulation paradigm was 1) stand position without stimulation 2) foveal stimuli-pure sinusoids of 0.1 hz and 0.2 hz from the leds bar. 3) retinal stimuli-optokinetic (OK) stimulation (65 deg/s angular velocity) ENG record was performed on line. The postural responses were tested through the platform Accusway, AMTI. Relevant parameters to our study were the area of the 95% confidence ellipse for the 10 seconds record of subjects' center of pressure (COP) sampled at 50 hz, and Theta, the angle between its major axis and the x-axis during visual stimulation. Statistical analysis for the two CVD patients is based on the t distribution. The main difference from normal subjects with foveal stimuli was found in patients with CVD and damage in cerebellar functions. Patients with CVD and without damage in cerebellar function showed a greater increase in the ellipse's area of COP, when foveal and retinal stimulation, in comparison with normal ones. Data related to the therapeutic approach with vestibular rehabilitation procedures are discussed.

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