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ELECTRONYSTAGMOGRAPHY IN THE DIAGNOSIS OF CENTRAL VERTIGO

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ABSTRACT:

Purpose: The aim of this study was to determine the role of Electronystagmography (ENG) testing in the evaluation of patients with suspected central vertigo.

Methods: Patients were submitted to ENG recording. Patients with a vestibular disorder were excluded. ENG testing was performed with a 5-degree stimulus, mean angular velocity of 120 degrees/sec, for both the slow-phase eye movements and the fast-phase eye movements. All patients were evaluated with ENG recording in both the spontaneous and positional tests.

Results: ENG testing was performed on 30 patients with suspected central vertigo. In all patients, ENG recording provided useful information for the diagnosis of patients. ENG testing was able to differentiate between peripheral and central vertigo.

Discussion: ENG testing is a useful tool in the diagnosis of central vertigo. It allows for the differentiation between peripheral and central vertigo. ENG testing provides useful information for the diagnosis of patients.

Conclusions: ENG testing is a useful tool in the diagnosis of central vertigo. It allows for the differentiation between peripheral and central vertigo. ENG testing provides useful information for the diagnosis of patients.

The patients, head blocked, with a belt applied, sit on a “Toniinis’’ rotational chair (Horn model) which is placed in the middle of a rotational cylindrical chamber (2 meters in diameter and 1.9 meters in height), with its white internal area covered with thirty-two black vertical contrast.

The rotational cylinder is lighted from above by a 100 W bulb and is driven by a direct current engine which turned it clockwise and counterclockwise up to 200 degrees/sec (maximum speed) with peak acceleration from 0.5 degrees/sec.

In order to obtain the two lateral semicircular canals in the horizontal plane, the back of the rotational chair is positioned to allow the anterior inclination of the head to degrees.

All patients underwent eye-electromyography recording.

The characteristics of the rotational cylindrical chamber and tests are the results of several research years (began with Prof. P. Filippi and continued with our chairman Prof. A. Salami) that have allowed the standardization of the equipment and tests.

Electronystagmography recording

1. Rotatory-vestibular stimulation by step test: in the dark, from the constant angular velocity of 90 degrees/sec for 60 sec., reached by a subliminal chair acceleration of 0.7°/sec², in both clockwise (cw) and counterclockwise (ccw) directions.
2. Optokinetic stimulation “stars” type (subjects look at stripes on the internal area of the drum without fixing) in the light, by a rotation of the drum at an angular velocity of 30 degrees/sec for 60 sec, in both ccw and cw directions.
3. Visuo-vestibular interaction by a contemporary post-rotatory and optokinetic stimulation: opening the light on the step test by an angular velocity of 90 degrees/sec, obtained from a chair subliminal acceleration of 0.7°/sec². Making for 60 sec the optokinetic stimulation by rotation of the external drum to demonstrate a nystagmus with a opposite direction to the post-rotatory nystagmus and homodynamic to optokinetic nystagmus (both ccw and cw directions).

Figure 1: Left superior semicircular canal.

Conclusion: These data show the diagnostic role of our visual-vestibular interaction test in patients affected by vertigo.

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Marc A. Deldegano, M. Benenati, L. Crippa, S. Salami.
Electronystagmography to detect peripheral and central vertigo.