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Vestibular Evoked Myogenic Potentials: Studies in a Portuguese Population

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Introduction: Vestibular evoked myogenic potentials (VEMPs) are inhibitory electrical responses from the saccule, produced by acoustic stimulation or vibration of high intensity. This non-invasive and painless technique makes it possible to evaluate the integrity of the saccule, the inferior vestibular nerve, and its central connections. It is thus important in finding the etiology of vertigo. cVEMP serves as a complement to tests such as electronystagmography/videonystagmography.

Objectives: Find an average parameters for the latency of waves P1 and N1, the amplitude of the complex, and its asymmetry in a Portuguese population aged 18 to 30 years old. As a secondary objective, we wanted to investigate differences between stimuli (500 Hz tone-burst and click) and the patient's gender (male or female).

Methods: Quantitative experiments in which only individuals with normal otoscopy, type A tympanogram, present estapedic reflexes, and a normal audiometry (BIAP 02/1) were included. These exams were done to verify the absence of any hearing or vestibular deficit. The volunteers could not show signs of tinnitus, neurological dysfunction, cervical issues, history of exposure to noise, or use of ototoxic medication. cVEMP was conducted with 500 Hz tone-burst and click stimulation of intensities 100, 95, and 90 dB nHL in both ears. The volunteer's skin was cleaned with alcohol and abrasive paste and then surface electrodes were placed on the vertex (neutral), sternoclavicular joint (active/non-inverted), and on the medial portion of the sternocleidomastoid muscle (reference). The patient was in the supine position with head slightly raised (30°) and rotated it for contralateral stimulation. To decrease muscle fatigue, there was a pause between stimulations.

Results: 32 individuals (19 females; 13 males) were evaluated and differences were found compared to other studies already carried out: at 100 dBnHL intensity, the average latency of P1 and N1 was found to be 14.89±1.35 ms and 22.33±3.02 ms in the right ear; and 15.35±1.45 ms and 22.91±2.64 ms in the left ear. The amplitude of P1-N1 was 369.4±227.9 μV (right) and 268.5±189.4 μV (left). The amplitude of the P1N1 complex tended to decrease with decreasing intensity and values were different between right and left sides. The results indicate significant differences in the paths of 500 Hz tone-bursts and clicks. As for the relationship between VEMP and gender, no significant differences were found.

Conclusions: Stimulation with a 500 Hz tone burst gives a better extent and quality of waveform compared with a click stimulus. Gender is not a factor in VEMP. Larger normative studies using a wider age range and comparing right and left ears are suggested.

'Burnout' in Portuguese Audiologists

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Introduction: Lack of resources and the pressure to achieve results are moving working people closer to physical and emotional breakdown. An OECD study stresses the connection between psychological issues and labor conditions in between 15% to 20% of the working population. Among 34 countries, Portugal is the seventh worst country. 'Burnout' is the final stage of a chronic professional stress situation, having its focus on emotional exhaustion, depersonalization (lack of personal identity), and on low professional accomplishment. This term was introduced by Freudenberger in 1974.

Objective: The purpose of this study was to evaluate the extent of burnout in Portuguese audiologists. Furthermore, it was intended to investigate the association between burnout and some sociodemographic variables and indicators of employment status, and assess the impact on quality of life of these professionals.

Methodology: Three questionnaires were used to collect data, created in the Study Center of the University of Coimbra: to analyze personal features, *LimeSurvey,* a professional and sociodemographic data questionnaire; to analyze *burnout* levels, a Portuguese version of the *Copenhagen Burnout Inventory* (CBI); and to analyze everyday impact, a questionnaire to evaluate quality of life. The Portuguese Audiologists Association and Coimbra's Technology and Health Higher School supported use of the data retrieval questionnaire. Data were analyzed by the statistical analysis program Statistical Package for Social Sciences (SPSS) version 21 for Windows. Concerning the population in question (n=241), 94 individuals (39%) answered the questionnaire. The final sample comprised 86 Portuguese audiologists; 77.2% of the sample was female, the average respondent's age was 22.8 years; 73.1% of the professionals were single; 59.3% worked in auditory rehabilitation; and the average time in the profession was 5.3 years.

Results: Average *burnout* levels on the personal *burnout* scale were 35.0; in work-related *burnout* 41.3; and on the patient-related *burnout* scale the average was 29.5. In terms of the family situation, married people presented higher personal and work-related *burnout* levels, with significant statistical differences. The more hours a professional worked at his main job location, the bigger was the *burnout* level. Higher *burnout* levels were directly related to lower quality of life indicators.

Conclusions: This data points to a low *burnout* level among Portuguese audiologists, with the variables family status and number of weekly work hours influencing *burnout* levels, which results in a lower quality of life.