From Clinic to Videonystagmography: Presbivertigo

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Introduction: Imbalance is one of the reasons patients seek an ENT. It becomes more frequent with age. With a suggestive anamnesis and observation it is possible to infer a diagnosis, but with more complex symptoms or in case of clinical doubts, one must consider a videonystagmography (VNG). Presbivertigo still does not have a clear definition, although for many authors it could be defined as vertigo of the elderly due to degenerative lesions in the vestibule.

Objectives: Clinical characterization and correlation of VNG and audiometric results in a population over 60 years old.

Methods: Retrospective study regarding a clinical series and respective complementary diagnostic exams focusing on VNGs, from 01/01/2014 to 31/07/2015. Data were analyzed using SPSS 22 for Mac.

Results: The study included 111 patients, with a mean age of 71.3 years old, of which 74% were women. Regarding personal history: 47.2% had hypertension, 7.5% had thyroid pathology, and 3.8% admitted suffering from depression. In terms of medication, 27.8% were taking benzodiazepines, 11.3% were taking antidepressants, and 50.9% were taking betahistine. Comparing to the total VNG pool, normal tests dropped from 25% to 18.8%, respecting people over 60. Audiometric results showed a type of curve corresponding to a strial aging process, according to Schuknecht. The pure tone average loss was 32.4 dB and the average threshold at 8000 Hz was 58.4 dB. In this study it was not possible to identify a statistically significant relation between tinnitus and other variables.

Conclusions: 1) There was a statistically significant correlation between the audiometric results and: a) the type of curve (classification of Schunecht); b) pure tone average loss; and c) thresholds at 8000 Hz. 2) There was a statistically significant relation between patients with vestibular hyporeflexia on the VNG and their thresholds at 8000 Hz, which suggests a specific anatomical location of the aging process.

From Clinic to Videonystagmography: Results from the HSJ ENT Department

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Introduction: Balance disorders are frequent complaints in daily clinical practice, described by patients as vertigo, instability, dizziness, gait instability, and feeling of being in a boat, among others. The literature estimates that symptoms of vertigo and dizziness are present in 5–10% of the world population, and more common in people over 65 years, in whom it is estimated that prevalence reaches 85%. It is important to note that falls are frequent in this population and the consequences can lead to death. Such disturbances have a major impact on the patient's quality of life because of its unpredictability, causing anxiety, depression, and social isolation. Videonystagmography (VNG) is a complementary diagnostic test that identifies, through an eye movement record, disorders of different systems, whatever its cause and nature. This examination plays an important role in the diagnosis of vertigo.

Objectives: Clinical characterization of patients that underwent VNG, the analytical differentiation of VNG, and its correlation with audiometric tests.

Methods: We conducted retrospective clinical and complementary tests focusing on VNGs between 01/01/2014 to 31/07/2015 totaling 192 patients. Data were analyzed using SPSS 22 for Mac.

Results: There were 25% men and 75% women aged between 21 and 90 (mean 61.1 years). 28% patients had bilateral vestibular hyporeflexia, 21.7% had left vestibular hyporeflexia, 19.4% had right vestibular hyporeflexia, 2.9% had suspicion of positional vertigo, 2.9% had suspicion of central causes, and 25.1% had normal responses.

Conclusions: The main conclusion of this study is that a good clinical history and an appropriate physical examination are fundamental to select the right patients to perform VNG. With this kind of procedure it is easier to select the group of patients with indications for VNG and those with no indications, having to continue therapy and follow up. A balance disorder consultation is essential as well as a standard medical history and a VNG protocol.

Posturographic Assessment in Yoga Practitioners and Non-Practitioners: Balance Benefits

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Introduction: Balance is a complex process resulting from the interaction between the following systems: sensorial (input), central nervous system (coordinator), and motor (output).The aging of the vestibular system, central nervous system, and the rest of the body systems may contribute to balance dysfunction. Balance dysfunction is the main symptom in the population aged over 70 years (47% men and 66% women).Treatment can be pharmacologic, chirurgic, or balance rehabilitation. Additionally, there are some balance improvement exercises like pilates, shiatsu, tai chi, and yoga. Yoga is an old discipline originating from India. According to *Baptista & Dantas* 2002, each physical posture adopted in yoga practice

generates organic, physical, emotional, and energetic effects, improving physical balance. Recently, yoga was classified as a way of complementary and alternative medicine by *The National Center for Complementary and Alternative Medicine, USA*.

Objective: The aim of this project was to investigate the relationship between balance and yoga through computerized dynamic posturography (CDP). Further, what was the relation between sensory inputs (vestibular, visual, and proprioceptive) and yoga practicing time.

Methods: For this study were selected 50 participants aged between 50 and 80 years: 25 yoga practitioners (experimental group, EG) and 25 non-practitioners (control group, CG) according to exclusion and inclusion criteria. The exclusion criteria for both groups was health-based: no motor, neurologic, visual, or vestibular problems, no hearing loss, and no medication affecting the central nervous system. The inclusion criteria was the practising of at least 2 hours of yoga per week. The evaluation of balance was performed with a computerized dynamic posturography NeuroCom System Version 8.0.1, which included the modified Test of Sensory Interaction and Balance (mCTSIB) and limits of stability test (LOS). The mCTSIB is a simplified variation of the sensorial organization test (SOT) that analyses the patient's functional balance control to quantify postural sway velocity during four sensory conditions. The LOS quantifies the maximum distance a person can intentionally displace their center of gravity (COG) in 8 positions. The measured parameters were: reaction time (RT), COG movement velocity (MV), directional control (DC); end-point excursion (EPE), and maximum point excursion (MPE).

Results/Conclusions: The statistical analysis revealed significant differences between groups for most variables – RT, MV, EPE, and MPE for anterior movements ($p<0.05$). Proprioception was the most significantly input for balance in CG, but in EG it was the vestibular input; in both groups vision contributed the least to balance. The increase of yoga practicing time gave an RT decrease and a MV increase. These results suggest that yoga practice gives an improvement in the maintenance of orthostatic balance. Yoga could be used as a prevention for balance disorders in the elderly.

Subjective Patient Benefits from Hearing Aid Technology Developments in the Last 20 Years

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Introduction: Self-assessment questionnaires are now considered an important tool in the evaluating listening skills and in gauging how well patients adapt to hearing aids. The APHAB questionnaire is an essential tool that assesses the difficulty in communication or noise in everyday situations and has been used in studies of hearing aids, bone anchored implants, middle ear performance, and electroacoustic stimulation.

Objectives: 1) Determine normative values of the APHAB for the current population. 2) Assess changes in the patient's subjective benefit of wearing hearing aids, considering the technological advances of the past 20 years.

Methodology: A cross-sectional study was performed on 35 patients over 60 years old, binaurally adapted with digital hearing aids and with a minimum experience of hearing aid use of 6 months and a maximum of 18 months. Patient selection was independent of whether the prosthetic adaptation had been better or worse and also of the type of hearing aid (CIC, IC, ITE, RITE, RIC, BTE). Data was collected between January and June 2015. The APHAB results were compared with previously published studies (1995–2010).

Results: Our results show an overall improvement in subjective benefit in each of the subscales, FC (47%), RF (16%), and RV (20%). Regarding noise aversion AV, patients experience less discomfort (8%) than obtained on previous studies. However, the difficulties of communication under environments with background noise and reverberation remain stable. Patients experience difficulties at a rate of 40%.

Conclusions: The benefits, gauged by hearing aid users on the various APHAB sub-scales, have improved in the last 20 years. Communication difficulty in favorable conditions, and in the presence of background noise, situations with reverb, and discomfort caused by noise environments, are lower than those reported previously. Advances in technology provide more comfort and convenience to hearing aid users. On the other hand, hearing aid users still have difficulties, so it is important to continue looking for new ways to improve the benefits in noisy and reverb environments.