

XXXI Bárány Society MEETING



MADRID, MAY 9th-11th 2022

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SYMPOSIUM FORM

- ORGANIZER'S NAME and SURNAME: Georges DUMAS, Sébastien Schmerber
- ORGANIZER'S E-MAIL: georges.dumas10@outlook.fr
- ACADEMIC/HOSPITAL AFFILIATION: CHU Grenoble Alpes
- SESSION TITLE: Skull vibration induced nystagmus

3 or 4 SPEAKERS PER SYMPOSIUM:

- SPEAKER 1

NAME AND SURNAME: Georges DUMAS
TOPIC DESCRIPTIVE TITLE: The Skull Vibration-Induced Nystagmus Test (SVINT): Characteristics.
ACADEMIC / HOSPITAL AFFILIATION: Department of Oto-Rhino-Laryngology, Head and Neck Surgery, University Hospital, Grenoble, France
EA 3450 DevAH, Development, Adaptation and Disadvantage, Faculty of Medicine and UFR STAPS, University of Lorraine, Villers-lès-Nancy, France

- SPEAKER 2

NAME AND SURNAME: Roberto Teggi
TOPIC DESCRIPTIVE TITLE: The skull vibration induced nystagmus test in Menière's disease, Benign recurrent vertigo and vestibular migraine.
ACADEMIC / HOSPITAL AFFILIATION: ENT Division, San Raffaele Scientific Institute, Milano, Italy; teggi.roberto@hsr.it, Milano, Italy

- SPEAKER 3

NAME AND SURNAME: Solara SINNO
TOPIC DESCRIPTIVE TITLE: The skull vibration induced nystagmus test in children.
ACADEMIC / HOSPITAL AFFILIATION: EA 3450 DevAH, Development, Adaptation and Disadvantage, Faculty of Medicine and UFR STAPS, University of Lorraine, Villers-lès-Nancy, France
Laboratory for the Analysis of Posture, Equilibrium and Motor Function (LAPEM), University Hospital of Nancy, F-54500 Vandoeuvre-lès-Nancy, France

- SPEAKER 4

NAME AND SURNAME: Angel Batuecas-Caletrío
TOPIC DESCRIPTIVE TITLE: Skull vibration Induced Nystagmus as predictor of vertigo attacks after intratympanic gentamicin.
ACADEMIC / HOSPITAL AFFILIATION: Otoneurology Unit, Department of Otorhinolaryngology, University Hospital of Salamanca, IBSAL, UNiversity of Salamanca. Salamanca, Spain;

• **A BRIEF (<300 WORDS) DESCRIPTION OF THE THEME AND TARGET AUDIENCE:**

A 100-Hz bone-conducted vibration applied to either mastoid induces instantaneously a predominantly horizontal nystagmus, with quick phases beating away from the affected side in patients with a unilateral vestibular loss (UVL). The same stimulus in healthy asymptomatic subjects has little or no effect. The skull vibration-induced nystagmus (SVIN) is a useful, simple, non-invasive, robust indicator of asymmetry of

vestibular function and the side of the vestibular loss. The nystagmus is precisely stimulus-locked: it starts with stimulation onset and stops at stimulation offset, with no after nystagmus. It is sustained during long stimulus durations; it is reproducible; it beats in the same direction irrespective of which mastoid is stimulated; it shows little or no habituation; and it is permanent—even well-compensated UVL patients show SVIN. The SVIN -SPV must be $> 2.5^\circ/s$. Stimulus frequency, location, and intensity modify the results. We describe the optimum method of stimulation. Recent neural evidence clarifies which vestibular receptors are stimulated, how they cause the nystagmus. This presentation focuses not only on the optimal parameters of the stimulus and response of UVL and SCD patients but also on the criteria of positivity of SVIN. We conclude that the presence of SVIN is a useful indicator of the asymmetry of vestibular function.

- **A 150-WORD ABSTRACT FROM EACH OF THE SPEAKERS:**

ABSTRACT 1

Skull-Vibration-Induced-Nystagmus Test (SVINT), a non-invasive first line examination test, stimulates both otolith and canal structures and shows instantaneously a vestibular asymmetry. The purpose of this study was to establish normative data for SVINT that can be used clinically in the assessment of vestibular disorder in children. Hence a total of hundred twenty healthy children were recruited and equally distributed according to age and gender to each of the following age groups: 5-8, 9-11, 12-14, and 15-17 years old. Participants had a comprehensive otological and neurological assessment prior to inclusion in the study. All participants were able to perform SVINT, and the majority of healthy children tolerated it well (n=89, 74%), the others found it mildly disturbing. In normal children, clinically significant nystagmus was recorded in only 2.50 % of the cases (N=3), a negative SVINT result was observed in the rest (97.50 %) in accordance with the criteria defined. The SVINT results are conformed in both adults and children.

ABSTRACT 2

Vestibular Migraine (VM) and Menière's Disease (MD) are the most frequent long-lasting episodic vertigo. Diagnoses, above all in early stages is troublesome. We compared positivity for this test in two samples, the first composed by 605 MD and the second by 200 VM subjects. We found that 59.2% MD subjects presented a positive SVINT while only 6% VM. Since SVINT is positive above all in a peripheral vestibular deficits, we think that our data support the hypothesis that, in the pathophysiology of VM attacks central vestibular pathways are mainly involved.

Moreover, we studied 28 migraneurs subjects presenting episodic vertigo without cochlear symptoms during the first attacks; in the follow-up they presented cochlear symptoms addressing toward the diagnosis of MD. Results of SVINT was compared with a group of 48 definite VM. Ten patients with MD (35.7%) and seven with VM (14.6%) had a positive SVINT during the first consultation.

ABSTRACT 3

Skull-Vibration-Induced-Nystagmus Test (SVINT), a non-invasive first line examination test, stimulates both otolith and canal structures and shows instantaneously a vestibular asymmetry. The purpose of this study was to establish normative data for SVINT that can be used clinically in the assessment of vestibular disorder in children. Hence a total of hundred twenty healthy children were recruited and equally distributed according to age and gender to each of the following age groups: 5-8, 9-11, 12-14, and 15-17 years old. Participants had a comprehensive otological and neurological assessment prior to inclusion in the study. All participants were able to perform SVINT, and the majority of healthy children tolerated it well (n=89, 74%), the others found it mildly disturbing. In normal children, clinically significant nystagmus was recorded

in only 2.50 % of the cases (N=3), a negative SVINT result was observed in the rest (97.50 %) in accordance with the criteria defined. The SVINT results are conformed in both adults and children.

ABSTRACT 4

The usefulness of Skull-Vibration-Induced-Nystagmus Test (SVINT) in detecting vestibular asymmetry is well known. Previous studies determine that there is a good correlation between the presence of the Skull-Vibration-Induced-Nystagmus (SVIN) and the vestibular function measured through the caloric test or the vHIT. Furthermore, the Slow Phase Velocity (SPV) of the SVIN is related to the severity of unilateral vestibular deficit. We studied a group of 88 patients with definitive Meneire's disease who had been instilled with intratympanic gentamicin to control their vertigo attacks. We started the follow-up of these patients after six months without suffering vertigo attacks after intratympanic gentamicin. We studied the patients using vHIT and SVIN and separated them into two groups based on whether or not they had suffered from vertigo attacks again during their follow-up. 70/88 patients (79.5%) did not have vertigo attacks again and both the vHIT and the SPV of the SVIN did not change. 18/88 patients (20.5%) suffered from vertigo attacks again in the follow up. These generally appeared in the first year of follow-up and 15/18 patients showed a recovery of gain in the vHIT. 18/18 patients showed a decrease in SPV of the SVIN when vertigo attacks reappeared, with a mean reduction of the SPV of 40% over the SPV at the beginning of the follow-up. The SPV of the SVIN could be a good follow-up parameter for patients treated with intratympanic gentamicin in order to determine the recovery of vestibular function and the possibility of vertigo attacks relapsing.