

SC217

OUTLASTING CORTICOMOTOR EXCITABILITY CHANGES INDUCED BY 25HZ WHOLE-HAND MECHANICAL STIMULATION

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The objective was to investigate if whole-hand mechanical stimulation (MSTIM) in the tapping-flutter frequency range induces outlasting post-stimulus changes in the hand region of the primary motor cortex. MSTIM was delivered to 12 healthy subjects for 20min using a therapeutic stimulation device (Swisswing BMR 2000). Frequencies of 10 and 25Hz were tested in separate sessions, and for control additionally the foot sole was stimulated at 25Hz. Motor evoked potentials (MEPs) after single (recruitment curves) and paired-pulse transcranial magnetic stimulation (TMS) were recorded from FDI and APB muscles of the right hand. TMS assessments were carried out at baseline (T0), immediately after (T1), 30min (T2), 1h (T3) and 2h (T4) after end of MSTIM. After vibration with 25Hz, MEP recruitment curves were increased at all post stimulation assessments in both muscles. The most significant effect was achieved at T3 (1h). Intracortical inhibition was decreased within the first hour, while intracortical facilitation was increased at all post stimulation assessments. No significant effects were found following MSTIM with 10Hz and following foot-vibration. We conclude that 20min sensory stimulation, applied to the hand palm by MSTIM of 25Hz, induces outlasting plastic changes in the primary motor cortex. Paired pulse stimulation further confirms that intrinsic intracortical mechanisms are involved in these changes. Spinal adaptation could be excluded (F-wave assessments). These results could be of relevance for hemiplegic patients with motor deficits, to improve the rehabilitation outcome with vibration exercise in combination with motor training.

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CLINICAL APPLICATION OF A NEW OBJECTIVE TEST OF SEMICIRCULAR CANAL DYNAMIC FUNCTION - THE VIDEO HEAD IMPULSE TEST (vHIT)

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Introduction: The horizontal vestibulo-ocular reflex (h-VOR) during otoneurological examination can be tested with a safe, simple and fast clinical vestibular test - the head impulse test (HIT), also called the head thrust test, or the Halmagyi-Curthoys test or the Halmagyi test.

Background: In this study we sought to test semicircular canal function by using a new technique in healthy subjects and in patients. We used high-speed light-weight head-mounted cameras to measure eye velocity during brief, passive, unpredictable, yaw head rotations in response to high acceleration stimuli - the video head impulse test (vHIT) to interpret impulsive VOR results.

Objective: To use high speed video techniques to provide objective validated measures of the eye velocity response to the head velocity stimulus during brief, unpredictable, passive head rotations.

Material and methods: In the present study eye and head rotation during manually applied horizontal head impulses rotation were measured from 77 healthy subjects compared with results obtained from 33 superior vestibular neuritis patients and 12 unilateral vestibular deafferentation.

Results: VOR gain in normals was close to unity and symmetric over the entire head-acceleration range. Patients with VN and UVD showed VOR gain asymmetry, with larger ipsilesional than contralesional deficits. In these subjects increasing head acceleration ipsilesional VOR gain decreased and VOR gain asymmetry increases with larger deficits for ipsilesional rotations than for contralesional rotations. In pathological subjects catch-up saccades can occur during or after head rotation.

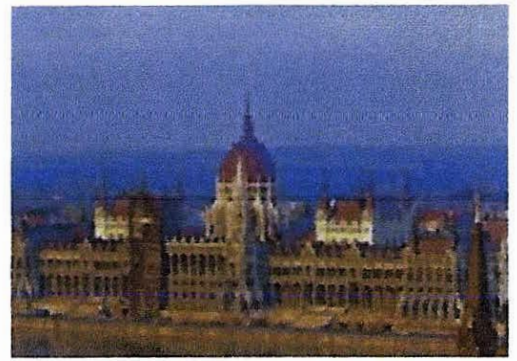
Conclusions: The vHIT method provides objective measures of the VOR during head impulses in normals and pathologic and shows accurate gain results.

15th Congress of the European Federation of Neurological Societies

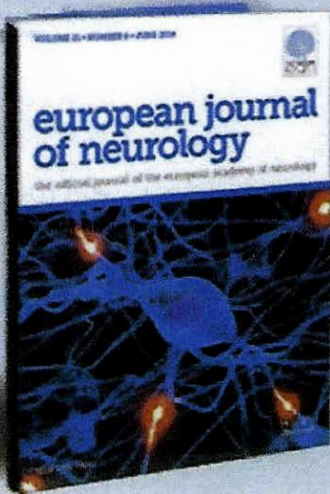
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15TH CONGRESS OF THE EUROPEAN FEDERATION OF NEUROLOGICAL SOCIETIES MONDAY, SEPTEMBER 12, 2011

FINAL PROGRAMME

MONDAY, SEPTEMBER 12, 2011

11:00 - 12:30

HALL C

SHORT COMMUNICATIONS 2: CLINICAL NEUROPHYSIOLOGY

CHAIRPERSONS:
HILKKA SOININEN, KUOPIO, FINLAND
DOMINIK STRAUWMANN, ZÜRICH, SWITZERLAND

SC213	Clinical and neurophysiologic study of botulinum toxin-A toxin effect on neurogenic detrusor overactivity A. Conte ¹ , A. Giannantonio ² , S. Proietti ³ , S. Giovannozzi ⁴ , A. Berardelli ⁵ ¹ ROME, ² PERUGIA, ³ ITALY	11:00
SC214	Ocular and cervical vestibular-evoked myogenic potentials to air conducted sound vs. 500Hz Fz bone conducted vibration in semicircular canal dehiscence L. Manzari ¹ , A. Burgess ² , L. McGorvie ³ , I. Curthoys ⁴ ¹ CASSINO, ² ITALY, ³ SYDNEY, ⁴ NSW, AUSTRALIA	11:15
SC215	Quantitative tremor analysis during stereotactic DBS surgery in Parkinson's disease A. Kamondi, D. Fehó, L. Fritz, A. Tokkás, G. Tomás, M. Bokor, L. Erőss BUDAPEST, HUNGARY	11:30
SC216	Cognitive associated EEG changes after switch from selegiline to rasagiline in patients with Parkinson's disease D. Wiltfried ¹ , J.A. Hoffmann ² , C. Oehlwein ³ , T. Müller ⁴ , Wetzlar, ¹ MOERFELDEN-WALDORF, ² GERA, ³ BERLIN-WEISSENSEE, ⁴ GERMANY	11:45
SC217	Outlasting corticomotor excitability changes induced by 25Hz whole-hand mechanical stimulation S. Golaszewski ¹ , M. Seidi ¹ , M. Christov ² , A. Kunz ³ , Y. Krenn ⁴ , E. Gallasch ⁵ , R. Nordone ⁶ , F. Gerstenbrand ⁷ , E. Trinka ⁸ ¹ SALZBURG, ² GRAZ, ³ AUSTRIA, ⁴ MERAN, ⁵ ITALY, ⁶ VIENNA, ⁷ AUSTRIA	12:00
SC218	Clinical application of a new objective test of semicircular canal dynamic function - the video head impulse test (vHIT) L. Manzari ¹ , A.M. Burgess ² , H.G. MacDougall ³ , A.P. Brodshov ⁴ , G.M. Holmgqvist ⁵ , I.S. Curthoys ⁶ ¹ CASSINO, ² ITALY, ³ SYDNEY, ⁴ NSW, ⁵ AUSTRALIA	12:15
	Lunch Break, Exhibition and Poster Visit	12:30