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Letter to the Editor

Neurogenic vestibular evoked potentials in multiple sclerosis patients

We read with great interest the article by Versino and his group entitled "The N3 potential compared to sound and galvanic vestibular evoked myogenic potential in healthy subjects and in multiple sclerosis patients" that was published in volume 17, pp. 39–46, 2007.

In this article, they demonstrated very nicely that the N3 potential was abnormal in 7 out of 15 patients with multiple sclerosis (46.7%). The methodology used was that by Murofushi et al, where masking noise is delivered via the same headphone as the tone auditory stimulus, the former working to cancel output from the cochlea and leaving vestibular signal generation intact.

We have found similar results in our series of multiple sclerosis (MS) patients, with 4/14 (28.6%) patients showing abnormal results [1]. Our methodology differed slightly, though, in that we have shown that the N3 potential can be recorded without brainstem auditory evoked potential contamination, when recorded from the ipsilateral parietal (P3 or P4) derivation and referred to Fpz. In addition, we have shown that using the McDonald criteria for the diagnosis of MS, two of these patients could be moved from the category of possible MS to definite MS when an abnormal N3 result was considered objective clinical evidence of a lesion in the central nervous system. Also, in a separate publication [2], we demonstrated that with increasing involvement of abnormal N3 potentials (36.4% of patients), there was significant correlation with symptoms and signs that could be referred to the vestibular system, such as vertigo and unsteadiness.

It is very nice to see the increasing clinical utility of neurogenic vestibular evoked potentials (N-VsEPs), especially in central nervous system disorders. We may find that N-VsEPs may be sensitive to such central nervous system (CNS) lesions, not only in MS but in other disorders, as the vestibular nervous system is a unique sensory system in ramifying almost all levels of the CNS. The use of these evoked potentials, due to their non-invasive nature and ease of acquisition, may help us in the future in determining how the vestibular system functions.

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References

[1] E.S. Papathanasiou, M. Pantzaris, E. Zamba-Papanicolaou, T. Kyriakides, K. Kleopa, I. Iliopoulos, C. Piperidou and S. Papacostas, Neurogenic vestibular evoked potentials in the diagnosis of multiple sclerosis, *Electromyogr Clin Neurophysiol* **44** (2004), 313–317.

[2] E.S. Papathanasiou, C. Piperidou, M. Pantzaris, I. Iliopoulos, M. Petsa, T. Kyriakides, K.A. Kleopa and S.S. Papacostas, Vestibular symptoms and signs are correlated with abnormal neurogenic vestibular evoked potentials in patients with multiple sclerosis, *Electromyogr Clin Neurophysiol* **45** (2005), 195–201.

[3] T. Murofushi, S. Iwasaki, Y. Takai and H. Takegoshi, Sound-evoked neurogenic responses with short latency of vestibular origin, *Clin Neurophysiol* **116** (2006), 401–405.

[4] M. Versino, L. Ranza, S. Colnaghi, R. Alloni, R. Callieco, A. Romani, R. Bergamaschi, A. Pichiecchio, S. Bastianello and V. Cosi, The N3 potential compared to sound and galvanic vestibular evoked myogenic potential in healthy subjects and in multiple sclerosis patients, *J Vest Res* **17** (2007), 39–46.

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