

Abnormal muscular response

Abnormal muscular response (AMR) has been widely used in the [intraoperative monitoring](#) of [microvascular decompression](#) due to its advantages for the identification of responsible arteries and the evaluation of adequate decompression.

abnormal muscle response (AMR), which can be elicited by one facial nerve branch stimulation in muscles innervated by other branches of the facial nerve, is specific for patients with HFS, and the AMR consists of a constant response occurring about 10 ms after the stimulus and an afterdischarge with long duration (variable response, autoexcitation). The F-wave in facial muscles is a small recurrent discharge that antidromically propagates to the facial motonucleus and returns orthodromically down the same axon. We measured the AMRs and F-waves of facial muscles in HFS patients in order to investigate the relationship of both potentials and the origin of the AMRs. We obtained facial nerve evoked electromyograms from 10 HFS patients. The afterdischarges of the AMRs and the enhanced F-waves were always elicited at the same time by marginal mandibular branch stimulation of the facial nerve. There was a linear correlation between the duration of these two potentials in each case. Between the duration of the afterdischarge of the AMRs elicited in the mentalis muscles by the zygomatic branch stimulation of the facial nerve and that of the F-waves in the mentalis muscles, there was also a linear correlation in 10 cases. These results suggest that the F-wave and the afterdischarge have the same origin and that the AMR is an exaggerated F-wave ¹⁾

Liu et al. reported a 48-year-old man with an unusual [abnormal muscular response](#) (AMR) during microvascular decompression under endoscope assistance. The morphology and number of AMRs were influenced by different stimulation and recording sites. Abnormal muscular response disappeared and [hemifacial spasm](#) was completely relieved without [facial paralysis](#) postoperatively ²⁾.

¹⁾

Ishikawa M, Ohira T, Namiki J, Ajimi Y, Takase M, Toya S. Abnormal muscle response (lateral spread) and F-wave in patients with hemifacial spasm. J Neurol Sci. 1996 May;137(2):109-16. doi: 10.1016/0022-510x(95)00308-o. PMID: 8782163.

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Liu Y, Liu L, Wang J, Ge S, Qu Y. An Unusual Abnormal Muscular Response During [Microvascular Decompression](#) Under [Endoscope](#) Assistance. J Craniofac Surg. 2021 Oct 5. doi: 10.1097/SCS.00000000000008264. Epub ahead of print. PMID: 34611105.

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Last update: **2024/06/07 02:59**

