The use of evoked potentials for clinical correlation and surgical outcome in cervical spondylotic myelopathy with intramedullary high signal intensity on MRI

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摘要

Abstract

Objective: To investigate the use of motor evoked potentials (MEPs) and somatosensory evoked potentials (SEPs) for clinical significance and surgical outcome in patients with cervical spondylotic myelopathy (CSM) with intramedullary high signal intensity on T2 weighted MRI. Methods: Forty nine patients were scored according to the modified Japanese Orthopaedic Association (JOA) score for cervical myelopathy. MEP and SEP studies were performed and the results were categorised as normal or abnormal. Thirty nine patients who had received surgical decompression were re-evaluated after 6 months. Surgical outcome was represented by the recovery ratio of the JOA score. Results: Abnormal MEPs were observed in 44 patients (arm: 43; leg: 30). Abnormal SEPs were found in 32 patients: (median: 24; tibial: 23). Patients with abnormal SEPs had a worse JOA score than those with normal SEPs. Thirty nine patients received surgical treatment. Patients younger than 55 had better recovery ratios than those who were 55 or older (p = 0.005, two sample Student's t test). Patients with normal median SEPs also had better recovery ratios than those with abnormal median SEPs (p=0.007, two sample Student's t test). Among median SEP variables, only N9-20 was significantly associated with recovery ratio (p=0.016, stepwise linear regression), with age factor controlled (p=0.025, stepwise linear regression). Conclusion: Arm MEP was the most sensitive EP test for detecting myelopathy in patients with chronic CSM. Median and tibial SEPs correlated well with the severity of myelopathy while normal median SEPs correlated with good surgical outcome. Among median SEP variables, only N9-20 correlated with surgical outcome