Root motor conduction time

Root motor conduction time (RMCT) can noninvasively evaluate the status of the proximal root segment. However, its clinical application remains limited, and wider studies regarding its use are scarce. Park et al. aimed to investigate the association between C8/T1 radiculopathy and RMCT.

Methods: This was a retrospective cross-sectional study. Subjects were extracted from a general hospital's spine clinic database. A total of 48 C8/T1 root lesions from 37 patients were included, and 48 C8/T1 root levels from control subjects were matched for age, sex, and height. RMCT was measured in the abductor pollicis brevis muscle and the assessment of any delays owing to C8/T1 radiculopathy.

Results: The RMCT of the C8/T1 radiculopathy group was 1.7 ± 0.6 ms, which was significantly longer than that in the control group (1.2 ± 0.8 ms; p = 0.001). The delayed RMCT was independently associated with radiculopathy (adjusted odds ratio, 1.15; 95% confidence interval, 1.06-1.27; p = 0.011) after adjusting for the peripheral motor conduction time, amplitude of median compound motor nerve action potential, and shortest F-wave latency. The area under the Receiver Operating Characteristic curve for diagnosing C8/T1 radiculopathy using RMCT was 0.72 (0.61-0.82). The RMCT was significantly correlated with symptom duration (coefficient = 0.58; p < 0.001) but was not associated with the degree of arm pain.

The findings illustrate the clinical applicability of the RMCT by demonstrating its utility in diagnosing radiculopathy at certain spinal levels [1].

1)
Park D, Lee SE, Cho JM, Yang JW, Yang D, Kim M, Kwon HD. Detection of C8/T1 radiculopathy by measuring the root motor conduction time. BMC Neurol. 2022 Oct 20;22(1):389. doi: 10.1186/s12883-022-02915-8. PMID: 36266617.

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