Segmental study of the median nerve versus comparative tests in the diagnosis of mild carpal tunnel syndrome

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摘要

Abstract

Objective

The aims of this study were to analyze normative data of nerve conduction studies (NCS) by optimal transformations, and compare the utility of electrodiagnostic tests in detecting mild carpal tunnel syndrome (CTS).

Methods

In 131 hands of patients with mild CTS and 136 hands of controls, the segmental study of the median nerve between the digit−palm and palm−wrist segments, and the median-to-ulnar and median-to-radial comparative tests were performed. Normal limits were derived by calculating the mean±2 standard deviations of the optimally transformed data of the controls. The specificity, sensitivity, and misclassification rate were calculated to evaluate the utility of each test.

Results

All tests had high specificities, ranging from 98.5 to 100%. The distoproximal latency ratio (DPLR) of the median nerve showed the highest sensitivity and the difference between the median and radial sensory latencies (D1M−D1R) the second highest, but there was no statistical difference between them. The difference between the median and ulnar mixed nerve latencies in the palm-to-wrist segment (PM−PU) showed the lowest sensitivity. Misclassification rates of the DPLR, D1M−D1R, and PM−PU were 6.9, 3.8, and 6.1%, respectively.

Conclusions

Optimal transformation of NCS data is mandatory to diminish the effect of skewness and enhance the diagnostic accuracy. As compared to the comparative tests, the segmental

study of the median nerve is more easily applied and yields higher sensitivity in detecting mild CTS.

Significance

With a high diagnostic yield and easy application, the segmental study of the median nerve may routinely be used to evaluate patients with mild CTS.