

## Ulnar Nerve Changes Associated with Carpal Tunnel Syndrome and Effect on Median Versus Ulnar Comparative Studies

**Authors :** Emmanuel K. Aziz Saba, Sarah S. El-Tawab

**Abstract :** Objectives: Carpal tunnel syndrome (CTS) was found to be associated with high pressure within the Guyon's canal. The aim of this study was to assess the involvement of sensory and/or motor ulnar nerve fibers in patients with CTS and whether this affects the accuracy of the median versus ulnar sensory and motor comparative tests. Patients and methods: The present study included 145 CTS hands and 71 asymptomatic control hands. Clinical examination was done for all patients. The following tests were done for the patients and control: (1) Sensory conduction studies: median nerve, ulnar nerve, dorsal ulnar cutaneous nerve and median versus ulnar digit (D) four sensory comparative study; (2) Motor conduction studies: median nerve, ulnar nerve and median versus ulnar motor comparative study. Results: There were no statistically significant differences between patients and control group as regards parameters of ulnar motor study and dorsal ulnar cutaneous sensory conduction study. It was found that 17 CTS hands (11.7%) had ulnar sensory abnormalities in 17 different patients. The median versus ulnar sensory and motor comparative studies were abnormal among all these 17 CTS hands. There were statistically significant negative correlations between median motor latency and both ulnar sensory amplitudes recording D5 and D4. There were statistically significant positive correlations between median sensory conduction velocity and both ulnar sensory nerve action potential amplitude recording D5 and D4. Conclusions: There is ulnar sensory nerve abnormality among CTS patients. This abnormality affects the amplitude of ulnar sensory nerve action potential. The presence of abnormalities in ulnar nerve occurs in moderate and severe degrees of CTS. This does not affect the median versus ulnar sensory and motor comparative tests accuracy and validity for use in electrophysiological diagnosis of CTS.

**Keywords :** carpal tunnel syndrome, ulnar nerve, median nerve, median versus ulnar comparative study, dorsal ulnar cutaneous nerve

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