

SUMMARY

In this thesis, 76 peripheral neuropathic patients was studied and diagnosed by electromyography. According to EMG criteria, the subjects were divided into 2 main groups. Group 1 consisted of 44 pure peripheral neuropathic patients with 3 subgroups—mild, moderate and severe degree (13, 21 and 10 cases respectively). Group 2 was the group of 32 peripheral neuropathic patients with nerve root compression syndrome, 21 cases in mild degree and 11 cases in moderate degree. Sensory conduction in the median nerve and motor conduction in the common peroneal and median nerves were performed. Electrophysiological parameters in the same patient were compared to find out their clinically diagnostic significance. The results were summarized into 3 parts as the followings:

1. Electromyography. In group I, there was proximodistal gradient of fibrillation potentials in nearly all patients. Grade of fibrillation was higher in the distal than in the proximal muscles and higher in the muscles of the foot than in the muscles of the hand. Polyphasic potentials occurred at an early stage of the disease and were the first abnormal potentials recorded but they could not be utilized as the main index for determining degree of severity.

In group 2, EMG findings were in similar pattern compared to group 1 with exception that in the case which fibrillation potentials were below grade +2 in the distal muscles, there was evidence of fibrillation in the proximal ones more frequently. Moreover, there was more incidence of sign of denervation that did not follow the proximodistal gradient especially in the case of cervical nerve root lesion.

2. Nerve conduction studies. The results obtained from patients of group 1 and 2 were the same. The common peroneal nerve was affected more often than the median nerve. Sensory or motor nerve conduction was slowed predominantly in the distal segment. Abnormalities in the proximal segment were found in the more advanced degree. Not only amplitude and duration parameters in sensory and motor nerve conduction studies but also the shape of nerve potentials were the insensitive indicator of mild involvement. On the other hand, increase in number of phases of the muscle potentials was the first abnormality which could be detected by this technique. However, number of the phase could not indicate the degree of severity.
3. Electromyography and nerve conduction studies. There was a rough correlation between motor nerve conduction abnormalities and the grading of severity obtained by

electromyographic findings in over - all tested muscles. There was increased incidence of abnormalities in motor nerve conduction studies with more advanced degree of severity revealed by EMG. The results of sensory nerve conduction seemed to be less correlated to EMG findings than that of motor nerve conduction. Among the three techniques, electromyography was shown to be the most sensitive indicator for detecting the presence and determining the degree of severity of peripheral neuropathy. Next to the presence of fibrillation potentials, abnormalities in sensory conduction were a more sensitive indicator than motor conduction. However, the combination of these 3 electrophysiological methods would yield the best information.

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