

Hidasi E. Electroneurographic examinations in some diseases with the involvement of the central and peripheral nervous system

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We evaluated the involvement of the peripheral nerves in patients with **diabetes mellitus**, **multiple sclerosis** and **mitochondrial disorders** with electroneurography. The diabetic polyneuropathy predominantly affects the peripheral nervous system (PNS), whereas the MS is first of all the disease of the central nervous system (CNS). The mitochondrial pathies are „borderline cases” in this point of view, affect both the CNS and PNS.

First we constructed and validated an electroneurographic (ENG) score. Then we examined the thermal sensitivity of the median nerve with ENG in diabetic and MS patients compared with healthy controls. The possible correlation between the decreased cerebrovascular reserve capacity (CRC) and the severity of polyneuropathy in diabetes mellitus was also evaluated. Finally we analysed the degree of the peripheral nerve involvement in patients with mitochondrial pathies.

- The statistical analyses verified the validity of our ENG score: patients with more severe clinical symptoms had significantly higher ENG score.
- We found that the thermal sensitivity of some of the nerve conduction parameters (first of all the areas of the potentials) decreased with the progression of diabetic polyneuropathy.
- We have found increased distal and proximal motor latencies during the first and also the follow-up measurements in MS patients compared with the healthy controls, which could be the sign of demyelination of the peripheral nerves in MS. There was also worsening in some of the nerve conduction parameters (in durations and areas of the CMAP) of MS patients, but we couldn't find any statistically significant changes in healthy controls in the follow-up study. These findings support the involvement of the PNS in multiple sclerosis.
- We didn't find correlation between the severity of polyneuropathy and the impairment of CRC in diabetes. Decreased CRC in diabetic patients might be rather due to structural changes of resistance arteries or to metabolic than to neurogenic factors.
- The ENG results were abnormal in every patients suffering from mitochondrial pathy. The electroneurography revealed predominantly axonal and sensory type of polyneuropathy. The severity of the nerve damage - based on our ENG score - was mild in every cases.

**Kulcsszavak:** electroneurográfia, polyneuropathia, diabetes mellitus, sclerosis multiplex, mitochondrial pathiák

**Keywords:** electroneurography, polyneuropathy, diabetes mellitus, multiple sclerosis, mitochondrial disorders