

Can ischemic preconditioning make spinal cord resistant to infarction?

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We present the longitudinal clinical and electrophysiological study of 41 patients with spinal stroke and 25 patients with vascular chronic myelopathy. Thirty healthy subjects were considered as a group of references. All cases were confirmed by MRI examinations. Electrophysiological examination included needle electromyography, sensitive and motor electroneurography, F-wave study, Hoffmann reflex and motor-evoked potentials. In spinal stroke patients three vascular syndromes were considered: anterior spinal artery syndrome, syndrome of complete transversal lesion and posterior spinal arteries (artery) syndrome. The patients with chronic ischemic myelopathy were divided in several groups according to dominant clinical syndrome: spastic, spastic-atrophic and atrophic. Clinical and electrophysiological findings were assessed in each case together with etiological factors and the level of ischemic spinal lesion. Electrophysiological abnormalities were founded in 100% of cases. Based on statistical analysis of the results, electrodiagnostic criteria were elaborated for the discrimination of each syndrome of spinal stroke and chronic ischemic myelopathy. In addition to this data were founded that chronic ischemic damage of spinal cord tissue causes functional reorganization of motor units. Moreover, as a result of ischemic preconditioning and neuronal plasticity at the level of spinal cord new program of motor function was established. The general conclusion of this work is that multimodal electrophysiological investigation as a consciously extension of clinical examination can give important arguments that ischemic preconditioning protect spinal cord to infarction.