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"THE EFFECTS OF ANODAL IONTOPHORESIS OF EPINEPHRINE ON NEUROMUSCULAR RESPONSES IN HEALTHY MEN AND PATIENTS WITH MYASTHENIA GRAVIS "

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Abstract:

Iontophoresis of epinephrine for assessment of neuromuscular junction response is a new technique that can improve diagnose of neuromuscular dysfunction. The purpose of this study was to investigate the effects of iontophoresis of epinephrine on neuromuscular junction response. Iontophoresis of epinephrine solution (1mg/ml), sodium chloride, calcium gluconate, epinephrine with sodium chloride and distilled water was applied in five groups of healthy men and 7 patients with myasthenia gravis (MG). Amplitude, depolarization, repolarization and recovery times and slops of compound muscle action potential (CMAP) were measured. Also low repetition stimulus tests were applied before and after iontophoresis of epinephrine. Following results were obtained: 1) iontophoresis of sodium ion increased depolarization time, and iontophoresis of sodium and calcium ions increased recovery and duration times of CMAP, 2) slope of depolarization and recovery were reduced by iontophoresis of active ions, 3) iontophoresis of epinephrine increased slope of recovery or Na-K transport at 10 and 15 minutes after iontophoresis, 4) iontophoresis of epinephrine in patients with MG reduced amplitudes of all CMAPs and percentage of decrement between first and fifth signal increased at low frequency stimulus test, and 5) iontophoresis of epinephrine in normal group increased percentage of amplitude increment between first and fifth signal in low frequency stimulation test. Neuromuscular responses in patients with MG in comparison to normal men are sensitive to iontophoresis of epinephrine and demonstrate significant decrement findings to low repetition stimulus tests. Iontophoresis of epinephrine with RNS tests can be useful in assessments of these patients.

Keywords:

iontophoresis ، epinephrine ، neuromuscular junction

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