

Effect of Skin Temperature on Nerve Conduction Velocity and Reliability of Temperature Correction Formula in Indian Females

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Abstract

This was an experimental and co relational study done to determine the change in MNCV with variation in skin temperature. It also assessed the reliability of nerve conduction formula in Indian setup. Forty five females between 18-25 years were included in the study. The forearm skin temperatures were varied from 27^oC to 37^oC using hot packs and cold packs and median nerve MNCV was recorded at an interval of 2^oC. The recorded MNCVs were substituted in the temperature correction formula and each of the obtained corrected MNCV was compared with the MNCV recorded at standard temperature of 33^oC. Conclusion: there was a significant variation in MNCV with variation in skin temperature but the temperature correction formula was found to be reliable.

Keywords: MNCV, Temperature Correction Formula, Skin Temperature

Introduction

Nerve conduction studies are being increasingly used in diagnosis and prognosis of various neurological diseases since years. Nerve conduction studies assess the peripheral motor and sensory functions by recording the evoked response to stimulation of peripheral nerves. They have an important role in evaluation of peripheral and entrapment neuropathies by confirming the clinical suspicion of neuropathy. Identifying the predominant pathophysiology such as conduction block, axonal demyelination, and temporal course of the disease i.e. acute, subacute or chronic, the nerve conduction studies provide an objective and qualitative measure of nerve function and also help in predicting the prognosis of neuropathy. With steady improvement of recording apparatus, nerve conduction studies have become a simple and reliable test of peripheral nerve function. (Aminoff, 1999)

Another major reason for the increasing value of nerve conduction studies has been the improved quantification of both motor and sensory potentials. Quantification allows precise statements about the severity of the disease process, comparison of findings in patient over time as the disease evolves, and comparison of results obtained by different physicians. Importantly, quantification has demonstrated changes that were not recognized on subjective analysis (Halar *et al*, 1981)

The validity of the calculated nerve conduction velocity depends primarily on the accuracy in determining the latencies and the conduction distances. Several factors may contribute to determination of accurate nerve conduction velocity like age, temperature, height etc. Because of these uncontrolled variables, the calculated values only approximate the true nerve conduction values. Of these, age and temperature have a major influence on nerve conduction studies. Temperature variation