Effect of Different Mechanical Compressive Forces on MNCV of Median Nerve in Normal Females

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Abstract

The study was conducted on 30 normal females ranging in age from 19-20 years to evaluate the effect of different mechanical compressive forces (50 mm Hg & 100 mm Hg) on motor nerve conduction velocity (MNCV). Conduction Velocity of left Median Nerve was measured at normal body temp. MNCV was measured three times in each subject. First testing of MNCV was done without applying any proximal compression force while second and third MNCV measurements were taken by applying proximal compressive forces above the elbow level equal to 50 mm Hg & 100 mm Hg respectively. The results indicate significant decline in the MNCV after applying compression to the nerve. The decline was related to the magnitude of compression.

KEYWORDS: Motor nerve conduction velocity, Mechanical compression, Median nerve

Introduction

The nerve conduction studies have an important role in the evaluation of peripheral and entrapment neuropathies by confirming the clinical suspicion of neuropathy. Identifying the predominant pathophysiology such as conductive block, axonal degeneration or demyelinating; sensory or motor; and temporal course of disease i.e. acute, sub acute or chronic, and the Nerve Conduction studies provide an objective and qualitative measure of nerve function and help in predicting the prognosis of neuropathy *(Michael, 1999).*

Rydevik et al (1981) and Lung Borg et al (1982) illustrated that direct nerve compression at 30 mm Hg for 2-4 hours produces reversible changes, whereas prolonged compression above this time period at the same pressure level may cause irreversible damage to the nerve. *Parry et al (1981)* reported that during transient paralysis experimentally induced in humans by an inflated cuff around the arm, the conduction velocity falls by as much as 30 percent. A complete conduction block occurs after 25-30 minutes of compression.

The main objective of the present study was to find the changeability in the nerve conduction velocity before and after the compression of the peripheral nerve.

Materials & Methods

Two hundred girl students studying in the Department of Physiotherapy, Sardar Bhagwan Singh Post Graduate Institute of Biomedical Sciences and Research (SBSPGIBSR), Balawala, Dehradun were chosen as the study for population. Thirty subjects were selected from the department of physiotherapy based on the inclusion and exclusion criteria. Normal (medically fit) girl students between 19-20 years of age,