

Study of Correlation between Body Mass Index and Tibial Nerve Conduction Parameters in Subjects with Type-II Diabetes: A Cross-sectional Study

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ABSTRACT

Introduction: Lipids play a major role to maintain the structural and thus functional integrity of nerves. Body mass index (BMI) is a measure of obesity. Motor nerve conduction study help in understanding the physiological functioning of peripheral motor nerves.

Aim: To correlate the Right Tibial nerve conduction parameters with BMI in subjects with type-II Diabetes mellitus.

Method: Upon meeting the inclusion and exclusion criteria, forty-three age-matched diabetic subjects were included in the study. Standard Nerve conduction protocol with strict sanitization guidelines were followed. Compound motor action potential (CMAP in mV) and Nerve conduction velocity (NCV in m/s) of Right Tibial nerve and body mass index (BMI) were obtained for all subjects. Mean values for all attributes was calculated.

Result: Thirty-five males and eight females participated in the study. Mean BMI=26.03 Kg/m², Mean NCV= 32.59 m/s, mean CMAP= 6.96 mV. Spearman correlation coefficient $r = -0.239$ for NCV and BMI, $r = -0.234$ for CMAP amplitude and NCV. This depicts a negative correlation between BMI and NCV; and BMI and CMAP amplitude of Right Tibial nerve.

Conclusion: This indicates that as BMI increases, Tibial nerve conduction velocity and CMAP value decreases. Thus, obesity affects Tibial nerve conduction parameters. Hence, this biological factor needs to be considered while interpreting NCS results.

Keywords: BMI, Diabetes, Nerve conduction

