

Vascular factors and neuropathy in lower limb of diabetic patients

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Asymmetric clinical presentation in some patients with diabetic polyneuropathy may result from the different vascular environments in both lower limbs. The aim of the study is to determine the association of neuropathy with vascular factors in each lower limb of diabetic patients. A total of 102 patients (204 lower limbs) given a diagnosis of diabetic polyneuropathy were enrolled. The primary end points are sensory nerve action potential (SNAP) amplitude and conduction velocity (CV) of the sural nerve and independent variables are vascular and nonvascular factors. Vascular factors include mean arterial pressure and pulse pressure at the ankle, ankle-brachial index, and arterial stiffness assessed by pulse wave velocity. Nonvascular factors include age, gender, height, body weight, body mass index, total cholesterol, and hemoglobin A₁C. Age, hemoglobin A₁C, and ankle pulse pressure were inversely correlated with SNAP amplitude of the sural nerve, while no factors were correlated with CV of the sural nerve. Increased arterial stiffness was significant in the limbs group with abnormal SNAP amplitude of the sural nerve, while increased height was significant in the limbs group with abnormal CV of the sural nerve. Vascular factors were more significantly associated with decreased SNAP amplitude rather than decreased CV of the sural nerve in the nerve conduction study of diabetic patients.