Pathogenetic, Diagnostic, Therapeutic and Prognostic Role of Age in Diabetic Peripheral Neuropathy

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Abstract
This letter to editor was directed to explore the underlying evidence behind the pathogenetic, diagnostic, therapeutic and prognostic role of age in diabetic peripheral neuropathy (DPN) in order to establish an inter-relationship between physiology and pathology in the pathophysiology of DPN in its symptoms, signs, clinical presentation and impact on individual's life.

Keywords: Age; Ageing; Older people; Geriatric neurology, Elderly.

Pathogenetically, Valensi et al.[1] assessed peripheral neuropathy in 135 diabetic patients (28 insulin-dependent diabetes mellitus (IDDM), 85 non-insulin-dependent diabetes mellitus (NIDDM), and 22 insulin-treated NIDDM patients) to determine the risk factors for neuropathy and microangiopathy. The clinical neurological stage was found to correlate with age and in women, nine electrophysiological parameters were more abnormal and correlated with age which demonstrated that age to have an effect on peripheral nerve function in DPN.

Diagnostically, Albers et al.[2] evaluated nerve conduction measures of 429 patients from a multicenter diabetic neuropathy study and found that patients with type II diabetes were older than type I patients (54.5 versus 39.1 years). Age was found to be confounding the effects of gender and diabetes type upon nerve conduction measures, with similar effects as that of gender for type-2 DM but not for type-1 DM.

Armstrong et al.[3] generated age-related reference values from 120 healthy volunteers and found that vibration perception thresholds (VPT) deteriorated significantly with age; expiratory inspiratory (E:I) ratio had a variable relationship with age for patients which appeared to be located below the 5th percentile of normal data. Higher age was found in patients with neuropathy than for those without neuropathy[4] and old age was demonstrated to be a risk factor for carpal tunnel syndrome in DPN by Comi et al.[5] Age above 40-years in people with DPN was also associated with presence of cholesterol gallbladder stone and had undergone

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operation for cholelithiasis.\[6\]

Prognostically, the role of age as a confounding factor was realized and thoughtfully implemented in many case-control studies using age-matched controls by Beylot et al.\[7\] who studied the blood pressure response to standing and the heart rate variations during deep breathing (HRV) and standing; Mueller et al.\[8\] who studied the gait characteristics, the plantar-flexor peak torques, and ankle range of motion; Resnick et al.\[9\] who evaluated pressure sensation, vibration perception threshold, and electrophysiologic function of the peroneal nerve; Salsich et al.\[10\] who assessed the relationships between plantar flexor (PF) muscle stiffness, strength (concentric peak torque), and dorsiflexion (DF) range of motion (ROM); and by Salsich et al.\[11\] who measured passive ankle stiffness and dorsiflexion (DF) range of motion.

Surprisingly, the therapeutic role of ageing was not found in the existing knowledge base, and there is good scope for studying anti-ageing therapies and their role in DPN.

References


