

Peripheral Neuropathy

The peripheral neuropathy (PNP) term represents diseases that affect motor, sensory and/or autonomous peripheral nerves, and it can be genetics-based or acquired (Streckmann et al., 2014). Diabetic peripheral neuropathy (DPN) is a kind of PNP associated with diabetes type 1 or 2 (i.e. metabolic etiology) with 50% or more of diabetics afflicted by DPN (Ites et al. 2011; Streckmann et al., 2014).

Chronic hyperglycemia (and high sorbitol accumulations) disrupts microvascular circulation (via impaired cellular communication) and causes nerve damage (axonal thickening, decreased blood flow) (Ites et al., 2011). This results in problems including delayed reflexes in response to positional changes/perturbations, decreased position/vibration sense and sensory ataxia which can lead to gait and balance issues even when recruiting compensatory measures such as visual cues (Akbari, Jafari, Moshashae, & Forugh, 2012; Ites et al., 2011; Streckmann et al., 2014).

There is no one-size-fits all intervention strategy for DPN or PNP; it must be individualized. Generally speaking, interventions for DPN may start with management of the diabetic's medications and/or nutrition striving for good management of blood glucose (also the best thing for prevention of DPN) (Ites et al., 2011; Streckmann et al., 2014). Medications management (especially in the presence of comorbidities) and vigilance is important as some medications for various conditions can cause dizziness. Weight management and aerobic exercise are also primarily beneficial in DPN as it is a metabolically-induced form of PNP (Streckmann et al., 2014). Resistance training (particularly lower body) would also help in weight management and issues with muscular weakness (Streckmann et al., 2014). Gait and balance training are generally beneficial for those with PNP, but programs should be tailored to the individuals' needs as PNP symptoms can vary quite a bit (Ites et al., 2011; Streckmann et al., 2014). Vibration training, sensorimotor training, and Tai Chi show potential, but mixed results (Streckmann et al., 2014).

Managing one's diabetes can prevent DPN, delay onset of DPN, or slow down the worsening of DPN if one already has it.

References

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