Evidence-Based Assessment of Pediatric Diabetic Peripheral Neuropathy

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Evidence-Based Recommendations

Although neurological screening for DPN is routine in adults, pediatric patients often are not assessed for this complication. Despite the fact that up to 25% of pediatric diabetic patients have neuropathy, the majority are subclinical possibly explaining this oversight [6]. Furthermore, widely accepted guidelines for neurological screening in this patient population have not been established. Although several studies have evaluated the efficacy of screening tools currently in use, consensus has not been reached on a standardized approach [7]. A summary of relevant research on this topic is found in Table 1.

In light of the known potential complications in adulthood, most experts recommend routine screening for early neuropathy in pediatric diabetic patients even when the condition is subclinical. Research has shown NCVs to be the gold standard for neurological assessment in adult and pediatric patients. Unfortunately, this test is invasive, painful, expensive and time-consuming. A more practical screening method is assessment of vibration perception thresholds (VPTs) with a biothesiometer (Figure 1). Although this method is painless and non-invasive, most clinicians have not purchased the device. Additionally, the test can take several minutes to perform properly and usually requires a dedicated space as the biothesiometer is large and relies on a wall outlet for power.
Another alternative is the newly available ETF128 (Figure 2). This portable, point-of-care instrument combines the standardization of the biothesiometer with the ease of use and speed of the traditional tuning fork test. An integrated timer allows clinicians to perform accurate timed vibration tests to rapidly gauge large fiber nerve function [10,11]. The numerical value obtained from this test can be used to track nerve function over time. A scale on the device provides guidance on levels of neuropathy present. Although new to the market, it is ideally suited to the assessment of diabetic neuropathy in adult and pediatric patients.

References

1. International Diabetes Federation, Facts and Figures.