

Prevalence of Diabetic Neuropathy in Young Adults with Type 1 Diabetes and the Association with Insulin Pump Therapy

Aims: The aim was to investigate the prevalence of diabetic sensorimotor polyneuropathy (DSPN) and cardiovascular autonomic neuropathy (CAN) in a Danish population of young adults with type 1 diabetes (T1D) using both established and novel measuring modalities. Furthermore, to investigate the association between continuous subcutaneous insulin infusion (CSII) treatment and these complications.

Materials and Methods: CAN was assessed by cardiovascular autonomic reflex tests. DSPN was assessed not only by perception of light touch and pain, vibration perception threshold (VPT), Brief Pain Inventory (BPI), and Michigan Neuropathy Screening Instrument questionnaires but also by novel modalities: electrochemical skin conductance (ESC), sural nerve conduction velocity (SNCV), and sural nerve amplitude potential (SNAP).

Results: The study comprised 156 young adults with a mean age of 22 years (standard deviation 1.6). The prevalence of CAN and early CAN was 9% and 28.1%, respectively. Subclinical DSPN was 55.1% and confirmed DSPN was 2.6%. Prevalence of abnormal SNAP was 23.8%, SNCV was 37.1%, ESC on the hands and feet was 4% and 8%, respectively, VPT was 1.3%, and BPI questionnaire was 1.9%. No association was found between CSII treatment and the measures of DSPN and CAN.

Conclusion: DSPN and CAN are prevalent in young adults with T1D with no association found with CSII treatment. The use of novel measuring modalities identified a higher number of subjects with DSPN compared with established measures. Screening for diabetic neuropathy in young adults may be beneficial to detect and prevent nerve damages at early stages.

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