

Original Article

Short term heart rate variability for early assessment of autonomic neuropathy in patients with type 2 diabetes mellitus: A comparative cross-sectional study

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ABSTRACT

Background: Cardiovascular autonomic diabetic neuropathy (CADN) is an important diabetes-associated complication. Reduced heart rate variation is the earliest indicator of CADN.

Aims: The aim was to study the prospect of using short term heart rate variability (HRV) analysis for early diagnosis of CADN.

Settings and Design: The type of this study was hospital-based comparative cross-sectional study.

Materials and Methods: A total of 30 asymptomatic, type 2 diabetic male patients with duration of diabetes of 1-5 years with random blood sugar ≥ 200 mg/dl (11.1 mmol/L) or fasting blood sugar ≥ 126 mg/dl (7 mmol/L) in the age group of 30-65 years were selected as subjects. Thirty age and sex matched healthy nondiabetics were selected as controls. HRV analysis was performed using electrocardiogram recorded in lead II, at rest, in the supine position for 5 min.

Results: Total power, low frequency power, high frequency power, standard deviation of all R-R intervals, root mean square of successive RR-interval differences, number of intervals differing by >50 ms from adjacent interval (NN50), and percentage of NN50 (pNN50) were significantly less in diabetics when compared to nondiabetics ($P < 0.05$).

Conclusion: Data from the study demonstrated that asymptomatic diabetics with <5 years history had already developed autonomic neuropathy. Short term analysis of HRV can be used as a valuable tool for early diagnosis of autonomic neuropathy.

Key words: Cardiovascular autonomic diabetic neuropathy, short term heart rate variability, type 2 diabetics

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