



## **Global Conference on Medical and Health Sciences**

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### **CIRCADIAN BLOOD PRESSURE PATTERNS IN TYPE 2 DIABETIC PATIENTS WITH CARDIOVASCULAR FORM OF DIABETIC AUTONOMIC NEUROPATHY**

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#### **Aim of the study:**

To analyze the 24-hour blood pressure profile in patients with type 2 diabetes mellitus (T2DM) with the cardiovascular form of diabetic autonomic neuropathy (CAN). Materials and methods: Based on the time-domain and frequency-domain analysis of 24-hour Holter ECG monitoring, the patients were divided into two groups. Group 1 included patients without this complication — CAN (–). Group 2 consisted of patients with CAN (+). Group 1 comprised 62 patients with a mean age of  $54.9 \pm 0.69$  years and a mean disease duration of  $7.54 \pm 0.28$  years (39 women and 23 men). Group 2 included 84 patients with T2DM, mean age  $56.3 \pm 0.61$  years, mean disease duration  $7.5 \pm 2.6$  years (52 women and 32 men). None of the included patients were taking antihypertensive medications. The next stage of the study was 24-hour ambulatory blood pressure monitoring (ABPM) in the examined patients with T2DM. Results: According to ABPM data in patients with T2DM, the mean integrated blood pressure indicators were analyzed for daytime and nighttime periods. Blood pressure (BP) is considered definitely elevated if daytime values exceed 140/90 mmHg and nighttime values exceed 120/70 mmHg. In Group 1 (CAN–): Daytime SBP:  $122.29 \pm 6.29$  mmHg, Daytime DBP:  $77.6 \pm 5.05$  mmHg, Nighttime SBP:  $117.1 \pm 6.89$  mmHg, Nighttime DBP:  $70.08 \pm 3.77$  mmHg. In Group 2 (CAN+): Daytime SBP:  $136.2 \pm 8.46$  mmHg, Daytime DBP:  $85.49 \pm 8.16$  mmHg, Nighttime SBP:  $135.6 \pm 8.7$  mmHg, Nighttime DBP:  $84.5 \pm 9.99$  mmHg. The pressure load index reflects the impact of elevated BP on



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target organs and is a risk factor for cardiovascular complications. Analysis of the diastolic BP circadian index in the CAN(+) group showed: Dippers — 35.7% ,Non-dippers — 53.6% ,Night-peakers — 10.7%. In healthy individuals under 60 years of age, the 24-hour BP variability is approximately 10% of the mean SBP and DBP levels. High BP variability is an independent risk factor for target organ damage. Normal variability values are: daytime SBP <15.5 mmHg, daytime DBP <13.3 mmHg, nighttime SBP <14.8 mmHg, nighttime DBP <11.3 mmHg. In the CAN(-) group: Daytime SBP variability:  $15.37 \pm 5.14$  mmHg ,Nighttime SBP variability:  $16.1 \pm 5.69$  mmHg. In the CAN(+) group: Daytime DBP variability:  $14.2 \pm 4.05$  mmHg ,Nighttime DBP variability:  $14.8 \pm 5.93$  mmHg. In patients with CAN(+), SBP and DBP variability was higher compared to those without this complication.

### Conclusion

According to 24-hour ambulatory blood pressure monitoring, patients with type 2 diabetes mellitus and cardiovascular autonomic neuropathy had a significantly higher proportion of individuals with a pathological circadian BP profile compared to patients without this complication. Specifically, the frequency of “night-peakers” was 14.3%, while “non-dippers” accounted for 53.6% (versus 38.2% in the group without CAN). In contrast, the normal type of circadian profile (“dippers”) was registered significantly less frequently in patients with cardiovascular autonomic neuropathy (33.3% vs. 64.5%). Similar patterns were observed in the analysis of diastolic blood pressure. In patients with cardiovascular autonomic neuropathy, the proportion of “night-peakers” was 10.7%, “non-dippers” — 53.6% (versus 38.2% in the group without the complication), while “dippers” were less common — 35.7% versus 61.3%, respectively.