

## **INCREASED PULSE PRESSURE, SYSTOLIC x HEART RATE DOUBLE PRODUCT AND INCIDES OF CARDIOVASCULAR AUTONOMIC NEUROPATHY IN MIDDLE-AGE PATIENTS WITH TYPE 2 DIABETES.**

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### **Background :**

Arterial pulse pressure (PP) is considered as an independent cardiovascular risk factor in patients with type 2 diabetes mellitus (T2DM). We compared PP and systolic blood pressure (SBP) x heart rate (HR) double product during an active orthostatic test in patients with T2DM and in nondiabetic individuals matched for age (40-60 years), body mass index (BMI) and sex ratio (1/1).

**Methods :** 40 patients with T2DM (mean age 50 years, diabetes duration 8 years, BMI 29.7 kg/m<sup>2</sup>), without renal insufficiency or treated hypertension, were compared to 40 nondiabetic subjects (50 years, BMI 28.6 kg/m<sup>2</sup>). All patients were evaluated with a continuous arterial blood pressure monitoring (Finapres®) in standing (1min), squatting (1min) and again standing position (1min). Cardiovascular autonomic neuropathy (CAN) was assessed by the baroreflex gain measured by comparing HR and SBP changes during the transition from squatting to standing.

**Results :** Overall, despite similar mean BP (88 vs 86 mmHg), T2DM patients had significantly higher PP (58 vs 52 mm Hg,  $p<0.05$ ) and SBPxHR (11172 vs 10195 mmHg/min,  $p<0.01$ ) than matched nondiabetic overweight/obese individuals. T2DM patients had also lower baroreflex gain (2.19 vs 3.29,  $p<0.03$ ), reflecting mainly dampened maximal post-squatting orthostatic tachycardia (+13 vs +21 bpm,  $p<0.001$ ).

**Conclusion :** Patients with T2DM have higher PP, an indirect marker of arterial stiffness, and higher SBPxHR double product, an index of cardiac workload, than nondiabetic patients with similar age and BMI, as well as markers of CAN, which all may contribute to the higher cardiovascular risk associated with T2DM.