Blood Pressure Monitoring

2.7 Ambulatory Arterial Stiffness Index and Cardiovascular Risk in a Sample of Hypertensive Adult Population

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Introduction. The ambulatory arterial stiffness index (AASI), calculated through ambulatory blood pressure monitoring (ABPM), was recently associated to higher cardiovascular morbidity and mortality (CV).

Aim. To evaluate the cardiometabolic risk factors possibly associated to AASI in a consecutive sample of hypertensive patients seen at the Outpatient Clinic.

Methods. The sample including 130 patients (66 M and 64 F) underwent the evaluation of ABPM, anthropometric indexes, smoking habits and conventional metabolic risk factors. AASI was calculated as 1 minus regression slope of diastolic on systolic blood pressure values.

Results. The population analysed had an age of 56.1 ± 13.6 years (mean $\pm$ SD), BMI 28.1 ± 5.6 kg/m² and AASI 0.52 ± 0.12 . 48% of patients had abdominal obesity (by NCEP ATP III criteria), 32% hypercholesterolaemia, 15% hypertriglyceridaemia, 17% type 2 diabetes and 19% metabolic syndrome. 17% of participants were cigarette smokers. Significant associations were observed between AASI and respectively age ($r = 0.26$; $p < 0.01$), 24-hour SBP ($r = 0.18$; $p < 0.05$), night-time SBP ($r = 0.40$; $p < 0.001$) and DBP ($r = 0.25$; $p < 0.01$), 24-hour PP ($r = 0.36$; $p < 0.001$), night-time PP ($r = 0.39$; $p < 0.001$) and day-time PP ($r = 0.32$; $p < 0.001$). In the patients showing a non-dipping profile AASI was significantly greater than in dippers (0.58 ± 0.10 vs 0.44 ± 0.10 ; $p < 0.001$). AASI was also higher significantly in diabetic patients (0.59 ± 0.10 vs 0.51 ± 0.11 ; $p < 0.01$), also after adjustment for age and BMI ($r = 0.07$; $p < 0.01$).

Conclusions. The arterial stiffness index calculated by 24-hour blood pressure monitoring (AASI) was elevated in categories of hypertensive patients at high cardiovascular risk, such as non-dipper and diabetic individuals, independently of the main confounding factors.