Nervous System

10.2 Baroreflex Sensitivity is Impaired in Post-Menopausal Women with Central Obesity

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Introduction. Menopause is associated with a dramatic increase in incident hypertension and cardiovascular risk. It has been suggested that an impairment of baroreflex sensitivity (BRS) may play a role in this process.

Aim. To evaluate the relationship between BRS and global cardiovascular risk in healthy (NT) and hypertensive (EH) postmenopausal women.

Methods. We evaluated, in 38 EH (mean age 55.2 ± 4.6 years) and 23 NT (55.3 ± 4.2 years) postmenopausal women, BRS, a complete Echocardiogram, office blood pressure and the abdominal circumference (AC). Women who presented $AC > 88$ were defined affected by central obesity (COB). Spontaneous BRS was assessed using Portapres device. Structure and function of their heart was studied by M-Mode, B-Mode and Doppler echocardiography (ATL 5000, probe 2-4 MHz).

Results. EH shown higher blood pressure levels than NT and a bigger interventricular septum (9.4 ± 1.9 vs 8.3 ± 1.5 mm $p < 0.03$) and mass (39.6 ± 10 vs 34.5 ± 7.2 g/m² $p < 0.03$). BRS was inversely associated with interventricular septum ($r = -0.30$, $p < 0.01$), ventricular mass and posterior wall ($r = -0.29$, $p = 0.02$). Patients with geometric remodelling had a significant reduction of BRS in comparison to normal subjects ($p < 0.03$). We observed an inverse association between BRS and degree of diastolic dysfunction ($p < 0.01$). AC was significantly higher in the EH (89.3 ± 8.3 vs. 80.7 ± 10.6 cm), significantly associated to blood pressure values ($r = 0.36$ $p < 0.03$), interventricular septum ($r = 0.35$ $p < 0.01$), posterior wall ($r = 0.36$, $p < 0.01$) and negatively associated with TDI E'/A' ($r = -0.43$ $p = 0.004$) and BRS ($r = -0.34$ $p = 0.02$). Dividing women according to their fat distribution we observed a significant reduction of BRS in women who presented COB (COB: 13.4 ± 5.7 vs. non COB 10.1 ± 3.2 ; $p < 0.05$). We didn't observed any significant association between BRS and blood pressure levels.

Conclusions. In post-menopausal women, the presence of central obesity is associated, independently to the blood pressure levels, with a reduced BRS and with the presence of cardiac organ damage. These findings suggest that an increased central fat distribution, determining an imbalance of the autonomic nervous system, may explain part of the increased cardiovascular risk in postmenopausal women.