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Abstract

Metabolic syndrome and menopausal characteristics modulate pulse wave velocity in postmenopause women

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Arterial stiffness (AS) has been shown, for the general population, as an independent risk factor for cardiovascular events and mortality. In postmenopausal women, the association of AS with age, cardiovascular disease, and metabolic syndrome (MetS) is not yet well established. Analyse the influence of MetS, age, body mass index (BMI), and menopausal characteristics on the variation of AS in early (EP) and late (LP) postmenopause. The sample consisted of 121 women (58.10±6.46 years old), 57% with LP. Waist circumference (WC) was measured at a level midway between the bottom of the rib cage and the superior margin of the iliac crest, and BMI (obesity: BMI≥25.5 kg/m^2) was calculated using the standard equation. MetS was defined as the coexistence of at least 3 of the following 5 risk factors: WC≥80 cm, triglycerides≥150 mg/dL or treatment for dyslipidaemia, high-density lipoprotein <50 mg/dL or treatment for dyslipidaemia; systolic blood pressure≥130 mm Hg and/or diastolic blood pressure≥85 mm Hg or

antihypertensive therapy; fasting glucose ≥100 mg/dL or hypoglycaemic treatment. The AS was measured through carotid femoral Pulse Wave Velocity (cfPWV) using the SphygmoCor® Atcor device. Student t-tests were applied, and stepwise multiple regressions were conducted to evaluate explanatory factors associated with AS in EP and LP using continuous (age and BMI) and dummy (MetS, nature of menopause and hormone therapy) variables. The statistical significance level was $p<0.05$. Most women reported natural menopause (92.3%) and absence of hormone therapy (84.6%). The mean value of carotid-femoral Pulse Wave Velocity (cfPWV) was 7.42 (±1.11) m/s, and MetS was diagnosed in 31.4% of the women. Fifty-nine participants had a BMI≥35 kg/m^2. LP women were older and showed higher values ($p\leq 0.02$) of AS and systolic blood pressure. Groups were not different for BMI and WC. Age was the only significant predictor of AS in EP and LP ($p<0.01$), explaining 17% ($\beta=0.435$) and 16% ($\beta=0.412$) of its variance, respectively. This study found an increase in AS with age in postmenopausal women, independent of BMI, menopausal characteristics, and the presence of MetS.