

Arterial stiffness, carotid atherosclerosis and left ventricular diastolic dysfunction in postmenopausal women.

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BACKGROUND: Postmenopausal women have an increased cardiovascular morbidity that may be due to the increase in classical cardiovascular risk factors and also to the arterial structure and function alterations. The aim of our study was to evaluate the association of aortic pulse wave velocity (PWV), and carotid intima-media thickness (IMT), with left ventricular diastolic dysfunction (LVDD) in postmenopausal women.

PATIENTS AND METHODS: In 96 women without overt cardiovascular disease (age 62 ± 7.7 years), and with normal left ventricular systolic function, aortic PWV was assessed by using an oscillometric device, intima-media thickness was measured by B-mode ultrasonography and the parameters of left ventricular diastolic function were evaluated by a transthoracic echocardiographic study.

RESULTS: LVDD, defined as an E/A ratio ≤ 1 was found in 50 patients (52%). All of them had mild LVDD. In these patients we found significant increase in age ($p < 0.001$), aortic PWV ($p < 0.001$), carotid IMT ($p = 0.002$) and plaque score ($p = 0.004$) when compared with patients without LVDD. In a logistic regression analyzed, after adjusting for age, only aortic PWV was a significant predictor of LVDD (2.15, 95% CI 1.39-3.31, $p = 0.0006$).

CONCLUSIONS: This study among postmenopausal women provides evidence that increased arterial stiffness as measured by aortic PWV and not carotid IMT may be a marker or a risk factor for LVDD, independent of other classical risk factors.

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Bone metabolism regulators and arterial stiffness in postmenopausal women.

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BACKGROUND: Osteoprotegerin (OPG), osteopontin (OPN) and matrix Gla protein (MGP) are markers of bone metabolism but they are also involved in vascular calcification. However, their precise role is not completely understood. Arterial stiffness is considered an independent predictor of cardiovascular events and it may be one of the causes of the increased cardiovascular risk associated with postmenopausal status. Medial and intimal calcification may increase arterial stiffness. The aim of our study was to assess the relationship of OPG, OPN and

MGP with aortic pulse wave velocity (aPWV) as a marker of arterial stiffness in postmenopausal women.

MATERIALS AND METHODS: Circulating OPG, OPN and serum total MGP were measured in 144 postmenopausal women using the enzyme-linked immunosorbent assay method. Aortic PWV was determined by an oscillometric method.

RESULTS: Osteoprotegerin correlated with age ($p<0.001$, $r=0.27$), aPWV ($p<0.001$, $r=0.32$) and hypersensitive C reactive protein (hsCRP) ($p<0.001$, $r=0.37$), OPN correlated directly with hsCRP ($p<0.001$, $r=0.39$) and inversely with high density lipoprotein cholesterol ($p=0.02$, $r=-0.02$). No significant association was found between total MGP and clinical, biochemical and vascular parameters. The correlation between OPG and aPWV persisted even after the adjustment for various potential confounders ($p=0.02$, $r=0.19$). In multiple regression analysis in the whole study population the most important predictors of aPWV were OPG ($\beta=0.230$, $p=0.006$), hsCRP ($\beta=0.212$, $p=0.01$) and systolic blood pressure ($\beta=0.163$, $p=0.04$). After exclusion of patients treated with statins the independent predictors were hsCRP ($\beta=0.275$, $p=0.005$) and OPG ($\beta=0.199$, $p=0.04$). **C**

ONCLUSION: Circulating OPG, but not OPN and total MGP, is associated with aPWV and may be a marker of the increased arterial stiffness and cardiovascular risk in postmenopausal women.

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Comment from the author (MI) of the Website: In both studies Arteriograph was used.