Prevention

ASSOCIATIONS OF CYSTATIN-C WITH PRECLINICAL ORGAN DAMAGE IN UNTREATED HYPERTENSION

Poster Contributions
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Background: Emerging data have been indicated that cystatin-C potentially predicts an increased risk of all-cause mortality and cardiovascular events. However, it remains to be clarified the underlying mechanisms and potential other preclinical cardiovascular markers associated with this sensitive renal indicator in essential hypertension.

Methods: The study population consisted of 319 untreated hypertensive patients, and 193 matched control subjects. In all participants, flow mediated dilation (FMD), carotid-femoral pulse wave velocity (cf-PWV), intima-media thickness of carotid arteries (C-IMT), augmentation index, ankle-brachial index (ABI). The left cardiac indices, regarding left ventricular geometry and function, were assessed by echocardiography. Left ventricular mass index (LVMI) was calculated by Devereux's formula. Serum cystatin-C levels were measured by the ELISA method.

Results: After adjustments for the confounding factors, cystatin-C levels correlated with PWV values both in total (r=0.26, p<0.001) and in hypertensive populations (r=0.23, p<0.001). In univariable analyses, increased levels of cystatin-C (above 75th percentile) correlated with higher PWV values (p=0.002). Cystatin-C levels though, were not significantly correlated with FMD (r=-0.03, p=0.711) and with IMT (r=0.1, p=0.366) in the aforementioned groups. Moreover, they were correlated with LVMI values (r=0.22, p=0.002) in the group of hypertensives. Notably, regression analysis revealed that cystatin-C levels are associated with LVMI (b=0.032, p=0.007) independently of confounders. Also, ANOVA revealed a linear increase of LVMI with cyctatine-C quartiles (82.7±17.3, 80.3±16.2, 86.6±19.5, 95.8±23.0 g/m2, F=5.01, p<0.001), while increased levels of cystatin-C (above 75th percentile) were significantly different both between the first (p=0.009) and the second quartile (p=0.015).

Conclusions: In the present study we found that cystatin-C levels could be used as an early marker of preclinical organ damage in patients with essential hypertension and more specifically, they could identify individuals with arterial stiffness and left ventricular hypertrophy.