



Conference Abstract

P.54 Biomarkers and Haemodynamic Predictors of Left Atrial Strain in Early Hypertension

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Keywords

Arterial stiffness
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ABSTRACT

Background: In the early stages of atrial remodeling, increased aortic stiffness might indicate atrial fibrosis.

Objective: This study aimed to investigate the association between left atrial (LA) mechanical function, assessed by two-dimensional speckle tracking echocardiography and aortic stiffness and whether this association is mediated by circulating biomarkers in early hypertension.

Methods: We studied 34 patients, mean age 47.5 ± 11.6 years, 56% females. All parameters for arterial stiffness including 24 hour central systolic pressure, augmentation index and pulse wave velocity were measured non-invasively using Mobil-O-graph PWA. All patients underwent standard two-dimensional echocardiography with Speckle tracking analysis for left atrium (LA). Circulating biomarkers including renin, aldosterone and morning cortisol were measured using ELISA.

Results: LA strain showed a significant relationship with central aortic systolic pressure; 24-hr ($r = -0.46, p < 0.05$), daytime ($r = -0.50, p < 0.05$) and nighttime ($r = -0.55, p < 0.01$) with no relationship with central diastolic or brachial pressures. There was a significant positive association between LA strain and aldosterone ($r = 0.49, p < 0.05$), aldosterone-renin ratio ($r = 0.30, p < 0.05$) and cortisol ($r = 0.66, p < 0.01$) with no relationship observed with plasma renin activity. In a stepwise regression model, central systolic pressure, aldosterone and cortisol emerged as predictors of LA strain independent of age, gender, brachial pressure and LAVi.

Conclusions: In mild hypertension, central but not brachial systolic pressure determines LA remodeling which in turn may be mediated by circulating aldosterone and cortisol. This study highlights the important role of circulating biomarkers in mediating aortic stiffness and LA fibrosis in early hypertension.

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