



P34 24-Hour Ambulatory Brachial Versus Aortic Systolic Blood Pressure: Relationship with Left Ventricular Mass Significantly Differs. Pooled Results from the International 24 Hour Aortic Blood Pressure Consortium (i24ABC)

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ABSTRACT

Background: There is evidence of a closer relation between 24 hour aortic systolic blood pressure (aSBP) and left ventricular mass (LVM) compared with 24 hour brachial SBP. However, sample sizes are relatively small and there is some inconsistency in findings. We sought to address this by pooling data from 16 centers in Asia, Europe and Latin America to determine the relationship between LVM and brachial office, as well as brachial and aortic 24 hour ambulatory SBP.

Methods: In all centers, brachial and aortic SBP was measured with the same validated oscillometric device, using a transfer function for aortic pressure, and mean/diastolic pressure calibration. LVM was determined by echocardiography.

Results: We studied 2092 participants (972 women) with a mean age of 52 years. Mean brachial office BP was 137/84 mmHg, and mean 24 hour bSBP and aSBP was 126 [118;134] and 131 [120;137] mm Hg, respectively. Mean LVM indexed to body surface area was 88.4 g/m², and 27.2% of participants had left ventricular hypertrophy (LVH). The correlation coefficients between LVM and brachial office SBP, 24 hour bSBP, and 24 hour aSBP were 0.24, 0.35, and 0.43, respectively ($p < 0.001$ for differences). The areas under the curve for prediction of LVH were 0.62, 0.67, and 0.70 for brachial office SBP, 24 hour bSBP, and 24 hour aSBP, respectively ($p < 0.001$ for differences).

Conclusion: In this pooled analysis of international data, we demonstrate that aortic ambulatory SBP, measured with an oscillometric cuff, shows a significantly closer association with hypertensive cardiac organ damage (left ventricular mass and hypertrophy) than brachial office/brachial ambulatory systolic blood pressure.

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