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P112 Influence of Cuff Blood Pressure Accuracy on Identification of Isolated Systolic Hypertension

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ABSTRACT

Introduction: Isolated systolic hypertension (ISH) is the most common form of hypertension in older people. However, accurate identification of ISH may be hindered because cuff blood pressure (BP) underestimates systolic BP (SBP) and overestimates diastolic BP (DBP). This study aimed to determine the influence of cuff BP accuracy on the identification of ISH.

Methods: Cuff BP and invasive aortic BP were measured simultaneous (or near-simultaneously) in 1737 subjects (63 ± 12 years, 68% male) during coronary angiography. Data was derived from 32 studies, using 20 different cuff BP devices, from the Invasive Blood Pressure Consortium (INSPECT). ISH was defined as ≥140/<90 mmHg according to cuff BP and invasive aortic BP.

Results: According to cuff BP, 25% of subjects (n = 430) had ISH, however, 37% (n = 648) were identified with ISH from invasive aortic BP. There was 77% concordance between cuff and invasive BP for identifying ISH. Among the 23% (n = 408) of subjects misclassified by cuff BP, 38% (n = 155) of misclassification was from SBP underestimation (mean: −16.6, 95% CI: −18.9 to −13.9 mmHg), whereas 35% (n = 143) was from DBP overestimation (15.6, 11.9 to 19.0 mmHg) and 20% (n = 83) from SBP overestimation (17.6, 14.4 to 20.5 mmHg). Subjects misclassified were on average 2.7 years older and had greater body mass index (0.8 kg/m^2) than those correctly classified.

Conclusion: Approximately one quarter of older subjects have ISH misclassified, mostly because of underestimation of cuff SBP and overestimation of cuff DBP. This demonstrates a need to improve the accuracy of cuff BP methods for greater precision in identifying ISH.

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