

[LB3.1] SYSTOLIC INTER-ARM BLOOD PRESSURE DIFFERENCE IS ASSOCIATED WITH INCREASED CARDIOVASCULAR AND ALL-CAUSE MORTALITY IN HYPERTENSION: META-ANALYSIS

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Introduction: National UK clinical guidelines describe blood pressure (BP) differences < 10mmHg between arms as normal, and attribute differences > 20mmHg to peripheral vascular disease. Subjects with a 10–20mmHg systolic difference are not discussed, but represent 15% of hypertensive populations. Our UK cohort study associated an inter-arm difference with reduced survival. With access to two further cohorts (from UK and Italy) we were able to undertake meta-analysis of published and unpublished studies to assess the current level of evidence.

Methods: Systematic review and meta-analysis. We retrieved studies reporting prospective survival outcomes with inter-arm BP difference. Unpublished analyses were sought and included. Primary outcome measure was a hazard ratio (HR) for cardiovascular or all cause mortality.

Results: One published study reported prospective survival data in hypertension. Unpublished new data from this cohort and two unpublished cohorts contributed to the meta-analysis. With systolic inter-arm BP differences \geq 15mmHg, pooled data showed a HR of 2.3 (95%CI 1.1–4.9; $p < 0.05$) for all cause mortality and 1.7 (1.1–2.7; $p < 0.05$) for cardiovascular mortality. For systolic differences \geq 10mmHg HRs were 1.9 (1.0–3.6; $p = 0.06$) and 2.3 (1.2–4.5; $p < 0.05$) respectively.

Conclusions: Systolic inter-arm BP difference in hypertension is associated with increased cardiovascular and all-cause mortality for a difference \geq 15mmHg, and increased cardiovascular mortality for a \geq 10mmHg difference. This supports suggestions that inter-arm difference is due to peripheral vascular disease. An inter-arm difference should be considered a marker of elevated cardiovascular risk, and its detection should prompt aggressive lifestyle and risk factor intervention.

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