Within-visit variability of blood pressure and all-cause and cardiovascular mortality among US adults.

The association between within-visit variability of systolic blood pressure (SBP) and diastolic blood pressure (DBP) and all-cause and cardiovascular (CVD) mortality was examined using the Third National Health and Nutrition Survey (n=15,317). Three SBP and DBP readings were taken by physicians during a single medical evaluation. Within-visit variability for each participant was defined using the standard deviation of SBP and DBP across these measurements. Mortality was assessed over 14 years (n=3848 and n=1684 deaths from all causes and CVD, respectively). After age, sex, and race-ethnicity adjustment, the hazard ratios (95% confidence intervals) for all-cause mortality associated with the 4 highest quintiles of within-visit standard deviation of SBP (2.00-2.99 mm Hg, 3.00-3.99 mm Hg, 4.00-5.29 mm Hg, and ≥5.30 mm Hg) compared with participants in the lowest quintile of within-visit standard deviation of SBP (<2.0 mm Hg) were 1.04 (0.87-1.26), 1.09 (0.92-1.29), 1.06 (0.88-1.28), and 1.13 (0.95-1.33), respectively (P=.136). The analogous hazard ratios for CVD mortality were 0.95 (0.69-1.32), 0.96 (0.67-1.36), 0.95 (0.74-1.23), and 1.04 (0.80-1.35), respectively (P=.566). No association with mortality was present after further adjustment and when modeling within-visit standard deviation of SBP as a continuous variable. Standard deviation of DBP was not associated with mortality.

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