
Recent data suggest that visit-to-visit variability of blood pressure is associated with stroke incidence. Correlates of increased visit-to-visit variability in blood pressure and the relationship between variability and all-cause mortality were examined using data on US adults ≥ 20 years of age from the Third National Health and Nutrition Examination Survey (n = 956). Three consecutive blood pressure readings were taken during 3 separate study visits from 1988 to 1994. Based on the mean of the second and third measurements from each visit, visit-to-visit blood pressure variability for each participant was defined using the standard deviation and coefficient of variation across visits. Mortality was assessed through December 31, 2006 (median follow-up = 14 years; n = 240 deaths). The mean of the standard deviation for systolic blood pressure across visits was 7.7 mm Hg. After multivariable adjustment, older age, female gender, history of myocardial infarction, higher mean systolic blood pressure and pulse pressure, and use of angiotensin converting enzyme inhibitors were associated with higher standard deviation in systolic blood pressure. The multivariable adjusted hazard ratios for all-cause mortality associated with a standard deviation of systolic blood pressure of 4.80 to 8.34 mm Hg and ≥ 8.35 mm Hg, versus <4.80 mm Hg, were 1.57 (95% CI, 1.07 to 2.18) and 1.50 (95% CI,
1.03 to 2.18), respectively. Results were similar when coefficient of variation for systolic blood pressure was evaluated. Visit-to-visit variability for diastolic blood pressure was not associated with mortality. In this population-based study of US adults, higher levels of short-term visit-to-visit variability in systolic blood pressure were associated with increased all-cause mortality.

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