

Study evaluates 'normal range' systolic bp levels after ischemic stroke and risk of recurrent stroke

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Among patients who experienced an ischemic stroke, systolic blood pressure levels of less than 120 mm Hg, or higher than 140 mm Hg, were associated with an increased risk of subsequent stroke, according to a study appearing in the November 16 issue of *JAMA*, a theme issue on cardiovascular disease. This issue is being released early online to coincide with the American Heart Association Scientific Sessions.

"[Recurrent stroke](#) prevention guidelines suggest that larger reductions in systolic blood pressure (SBP) are positively associated with a greater reduction in the risk of recurrent stroke and define an SBP level of less than 120 mm Hg as normal. However, the association of SBP maintained at such levels with risk of vascular events after a recent ischemic stroke is unclear," according to background information in the article.

Bruce Ovbiagele, M.D., M.Sc., of the University of California, San Diego, and colleagues evaluated the association of SBP maintained within a low-normal range vs. high-normal range with [clinical outcomes](#) among patients who recently experienced an ischemic stroke. The study consisted of an observational analysis of a multicenter trial involving 20,330 patients (age 50 years or older) with recent non-cardioembolic (not due to small [blood clots](#) originating within the heart) ischemic stroke from who were recruited from 695 centers in 35 countries from September 2003 through July 2006 and followed up for 2.5 years (follow-up ended in February 2008). Patients were categorized based on their

average SBP level: very low-normal (less than 120 mm Hg), low-normal (120 to less than 130 mm Hg), high-normal (130 to less than 140 mm Hg), high (140 to less than 150 mm Hg), and very high (150 mm Hg or greater).

Occurrence of the primary measured outcome (stroke) was greatest in the very high SBP level group (14.1 percent), followed by the high SBP group (8.7 percent), the very low-normal SBP group (8.0 percent), the low-normal SBP group (7.2 percent), and then the high-normal SBP group (6.8 percent). Occurrence of the secondary outcome (stroke, heart attack, or vascular death) followed a similar pattern. Rates of all-cause mortality and death due to vascular causes were highest in the very low-normal SBP group and very high SBP group.

The analyses revealed that compared with the high-normal SBP level group, the risk of stroke was significantly higher in the very low-normal SBP group, in the high SBP group, and in the very high SBP group.

"Compared with the high-normal SBP level group, risks of the secondary outcome were significantly higher in the very low-normal SBP group, in the low-normal SBP group, in the high SBP group, and in the very high SBP group," the authors write.

"Our results indicate that there may indeed be thresholds of benefit or harm with regard to short-term to longer-term SBP levels after a recent non-cardioembolic ischemic stroke, and imply that clinicians regularly caring for stroke patients in the outpatient setting may need to be vigilant about how low a given patient's BP is within the normal range to promote favorable outcomes."

"In conclusion, these data are hypothesis generating and the notion that aggressively and consistently lowering BP levels within the normal range in the short term to longer term after an index ischemic stroke is not beneficial remains unproven, and will require the conduct of dedicated

clinical trials comparing intensive with usual BP reduction in the stable follow-up period after a [stroke](#)," the authors write. They add that, in the meantime, the results of this analysis support aiming for consistent SBP levels of less than 140 mm Hg and less than 90 mm Hg for diastolic [blood pressure](#) among recent [ischemic stroke](#) patients.

More information: *JAMA*. 2011;306[19]:2137-2144.

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