

Ah ha! Why hypertensives feel dizzy even when normotensive

Article of Interest

Strandgaard J et al. Autoregulation of Brain Circulation in Severe Arterial Hypertension. British Medical Journal. 1973. ([Click to Access](#))

Context and Study Objective

Patients can report dizziness with antihypertensive therapy even in the absence of hypotension. Interpreted as a drug "allergy," the medication is withdrawn. Strandgaard et al sought to explore whether the above neurologic symptoms of cerebral hypoxia were the result of the brain's inability to maintain constant cerebral perfusion irrespective of fluctuations in systemic blood pressure (i.e. autoregulate).

Design, Setting, Participants

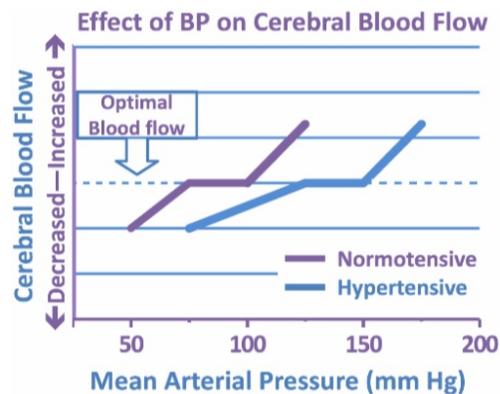
Ten hypertensive individuals with a mean arterial pressure (MAP) in excess of 125 mm Hg (160/110 mm Hg; a BP of 120/75 mm Hg corresponds to a MAP of 90 mm Hg) were studied. All had end-organ damage from their hypertension. After enrollment, blood pressure (BP) was manipulated with pressors/antihypertensives. Changes in systemic BP, cerebral blood flow, and neurologic symptoms arising from abnormal cerebral perfusion were recorded .

Results

- Figure: Cerebral autoregulation resulted in a constant level of blood flow to the brain over a wide range of systemic BPs. However, once systemic BP fell below or rose above a certain threshold, autoregulation was lost and the level of cerebral BP mirrored that of systemic pressures.

- For example, mean pre-study MAP among controls was 112 mm Hg (144/94mm Hg). Cerebral autoregulation did not fail until the MAP declined to 70 mm Hg (94/58 mm Hg). Thereafter, symptoms of cerebral ischemic (malaise, somnolence) developed.

- In contrast, mean pre-study MAP among hypertensives was 146 mm Hg (196/122 mm Hg). When the MAP fell to less than 120 mm Hg (168/96 mm Hg), autoregulation was lost and symptoms of cerebral hypoxia became manifest.



Clinical Perspective

- This data demonstrates why those with chronic hypertension can be asymptomatic despite readings of 200/140 mm Hg yet experience neurologic symptoms of hypotension as the BP is controlled. Why? Despite this marked hypertension, the cerebral arteries can constrict to ensure these pressures aren't transmitted to the brain's vasculature. However, as systemic pressure falls, the brain's vasculature cannot dilate sufficiently to preserve adequate blood flow to the brain. This decrease in cerebral blood flow results in symptoms of neurological hypoxia.

- Therefore symptoms of hypoperfusion should not be confused with a medication "allergy." A gradual reduction in pressure should be pursued. Blood pressure control will facilitate normalization of cerebral autoregulation thresholds and the resolution of symptoms.

- Study Shortcomings: It contained but 12 patients. The controls suffered from vertigo or mild hypertension. Nonetheless, these results are consistent with the literature.

- Disclosures: I have no conflicts to declare.