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Hot from the hypertensive press

Short analysis of clinical studies that may change our practices in the field of hypertension
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Blood pressure reduction and all-cause dementia in people with uncontrolled hypertension: an open-label, blinded-endpoint, cluster-randomized trial

Question: Does blood pressure reduction have an impact on the risk of dementia?

Dementia has a major impact on the affected subjects as well as their caregivers. The most frequent form of dementia is neurodegenerative dementia related to Alzheimer's disease (AD). This is followed by dementia related to neurovascular disease (vascular dementia), especially related to cerebral small vessel disease (SVD). The most important risk factor for SVD is arterial hypertension. Of note, neurodegenerative and vascular mechanisms may occur concomitantly in the affected subjects (mixed-dementia) and vascular pathologies may influence the course and progression of cognitive decline related to AD.

In the current large study from China, comprising more than 30'000 subjects (median age of 63 years) with so far uncontrolled arterial hypertension, the authors analyzed the potential effect of systematic blood pressure (BP) control on the risk of dementia (all-cause dementia). Randomly defined rural villages were cluster-randomized and either assigned to the BP-control intervention (community health care provider, including supervision by a primary care physician) or to the control group with standard of care. The intervention group targeted a systolic BP of <130 mm Hg and a diastolic BP of <80 mm Hg. Over a period of four years, there was a significant BP reduction in the intervention group of 22 mmHg and 9.3 mmHg of the systolic and diastolic BP, respectively ($P < 0.0001$). BP lowering was less intensive in the control cohort (systolic 8 mmHg, diastolic 6 mmHg). To achieve BP reduction in the intervention group, subjects in the intervention group on average took more antihypertensive medication (3 vs 1.2).

Overall, the primary outcome of all-cause dementia was significantly lower by 15% in the intervention group than in the usual care group (risk ratio: 0.85; 95% CI 0.76 to 0.95; $P = 0.0035$), independent of age, education or other relevant factors. Also, rates of serious adverse events were reported to be lower in the intervention group.

The study performed in a large cohort of subjects with arterial hypertension emphasizes the importance of BP control and treatment for cognitive function and the risk of dementia. Although the authors did not differentiate between different forms and underlying conditions of dementia, they eventually captured the clinically meaningful common condition of all-cause dementia. This indicates that vascular mechanisms related to arterial hypertension most likely also have an impact on the clinical course in subjects with neurodegenerative conditions, especially AD. The study was performed in a Chinese population. However, there are no strong indicators that the overall findings are not generalizable to other regions and populations as well. The findings indicate the BP control is - besides neurovascular conditions such as stroke or intracerebral hemorrhage - of relevance for cognitive function.



References:

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