

# Clinical reviews

Our panel of GPs review recent research papers in their specialist areas that may influence the way you practise

## Reviewers

### Addiction

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### Cardiovascular disease

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### Mental health

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### Paediatrics

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### Sexual health

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### Smoking cessation

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## Mental health

### Does intensive BP lowering reduce risk of dementia?

Intensive blood pressure (BP) control reduces the risk of developing mild cognitive impairment, but not dementia, a US randomised trial has found.

The SPRINT trial recruited participants from 102 clinical sites in the US, including Puerto Rico. Inclusion criteria were: age > 50 years, systolic BP (SBP) 130-180 mmHg, and an increased cardiovascular risk. Exclusion criteria included: diabetes, previous stroke, symptomatic heart failure and advanced chronic kidney disease. Participants had a mean age of 67.9 years and mean SBP of 139.7 mmHg.

A total of 9,361 participants (6,029 men) were assigned to an SBP target of either < 120 mmHg (n = 4,678) or < 140 mmHg (n = 4,683). All major classes of antihypertensive agents were available, but first-line use of thiazide-type diuretics was encouraged.

Cognitive status was assessed at baseline and at two- and four-year follow-up with screening tests. Those with a positive screen were asked to complete extended cognitive and functional assessments. Diagnoses of mild cognitive impairment and probable dementia were made by a panel of experts.

During the intervention period, those in the intensive treatment group had a mean SBP of 121.6 mmHg

compared with 134.8 mmHg in the standard treatment group. The trial was halted early after a median intervention period of 3.34 years due to a significant benefit on the primary outcome (a composite of cardiovascular events). Participants were then returned to primary care management and a final cognitive assessment undertaken two to three years later.

During a total median follow-up of 5.11 years there were 149 cases of incident probable dementia in the intensive treatment group and 176 cases in the standard treatment group: a non significant reduction; hazard ratio (HR) 0.83 (95% CI: 0.67-1.04; P = 0.10).

Intensive treatment did significantly reduce the risk of mild cognitive impairment; HR 0.81 (95% CI: 0.69-0.95; P = 0.007) and the combined rate of mild cognitive impairment and probable dementia; HR 0.85 (95% CI: 0.74-0.97; P = 0.01).

Longitudinal observational studies have found that midlife hypertension increases the risk of all cause dementia, whereas several studies have suggested that late life hypertension is associated with a lower incidence of dementia.<sup>1</sup>

The dementing process is associated with autonomic dysfunction and lowering of BP, and there is evidence that these patients are at risk from cerebral hypoperfusion due to overtreatment of BP.<sup>2</sup> Thus, whereas intensive BP control may be beneficial in middle-aged patients, it is potentially harmful in some elderly patients.

The present study did not exclude those with cognitive impairment. Over a quarter of the participants were aged ≥ 75 and it is possible that a reduction in the risk of dementia among the younger participants was cancelled out by an increased risk in the older ones.

The authors suggest the negative result may be a consequence of the early study termination and the reduction in the between-group SBP difference which occurred after

participants were returned to primary care management. The SPRINT trial itself found that intensive BP control reduced cardiovascular events by 25% but at the cost of an increased risk of adverse events including syncope and acute kidney injury.<sup>3</sup>

The method of BP measurement in the SPRINT trial (unattended automatic measurement) results in lower BP values than conventional clinic BP measurement. It is suggested that the equivalent clinic SBP values for the intensive and standard treatment groups are 130-140 and 140-150 mmHg respectively.<sup>4</sup>

Currently NICE recommends a target BP < 140/90 mmHg for patients aged under 80.<sup>5</sup> However, the latest ESH/ESC guideline recommends a lower SBP target of 120-129 mmHg in most younger patients, but retains a higher SBP target of 130-139 mmHg for those aged 65 and above.<sup>4</sup>

Although the risk of probable dementia was not reduced in this study, I think that there are good reasons to believe that tight BP control in line with the ESH/ESC guideline may reduce the risk of dementia in younger patients. However, for those aged ≥ 65 the emphasis should be on the avoidance of excessive BP lowering – SBP should not be < 130 mmHg.

## DR PHILLIP BLAND

**Williamson JD, Pajewski NM et al. Effect of intensive vs standard blood pressure control on probable dementia. A randomised clinical trial. JAMA 2019;321:553-61**

## REFERENCES

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