Therapeutics

Intensive versus standard blood pressure treatment improves cardiovascular outcomes without any difference in patient-reported outcomes

10.1136/bmjebm-2017-110879

David McCartney, Richard J McManus

Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, UK

Correspondence to: Professor Richard J McManus, Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford OX2 6GG, UK; richard.mcmanus@phc.ox.ac.uk

Commentary on: Berlowitz DR, Foy CG, Kazis LE, *et al*. Effect of intensive blood-pressure treatment on patient-reported outcomes. *N Engl J Med* 2017;377:733–44.

Context

The Systolic Blood Pressure Intervention Trial (SPRINT) was a large, multicentre, randomised controlled trial (RCT) originally reported in 2015.[1] The trial randomly assigned 9361 individuals with hypertension at high risk of cardiovascular disease (but without diabetes or stroke) to intensive blood pressure (BP) control (systolic BP less than 120 mm Hg) or standard BP control (systolic BP less than 140 mm Hg). There was a significant reduction in cardiovascular events and mortality in the intensive treatment group and the trial was stopped early. The original trial reported a doubling of treatment-related serious adverse events including symptomatic hypotension, syncope and acute kidney injury in the intensive treatment group.[1] This follow-on analysis presents the patient-reported outcomes of physical and mental health, and patient-reported adherence to treatment.[2]

Methods

SPRINT was an open-label RCT and recruited individuals over 50 years of age with a systolic BP between 130 and 180 mm Hg at an increased risk of cardiovascular disease but without diabetes or previous stroke.[1 2] Ninety per cent were already taking antihypertensive medication at baseline. The trial was conducted according to the Consolidated Standards of Reporting Trials guidelines using appropriate methods of randomisation and allocation. Six key patient-related outcomes were assessed using well-validated measures: physical and mental health-related quality of life, depressive symptoms, patient satisfaction with BP care and with BP medications, and medication adherence. The data related to these outcomes were collected at baseline and at yearly follow-up (except for satisfaction and adherence scores, which were collected up to 48 months). Multiple outcome comparisons were made according to both prespecified and exploratory subgroups—no statistical adjustment was made for this.

Findings

The SPRINT trial was ended early due to the all-cause and cardiovascular mortality benefits of intensive BP control group, limiting longer term data for patient-reported outcomes. However, over the follow-up period, there were no statistically significant differences between groups in physical and mental health-related quality of life or depressive symptoms.[2] This was unchanged in subgroup analyses, including age and number of coexisting conditions. At 12 months, there was a reported small difference in satisfaction with care between groups, with a statistically greater but unlikely to be clinically significant proportion of participants in the intensive treatment group being satisfied or very satisfied with care than in the standard treatment group (88.6% vs 88.2%). No differences in medication adherence were observed.

Commentary

SPRINT is a contentious study that resulted in all-cause mortality and cardiovascular event benefits for those intensively treated, but also resulted in an increase in adverse events such as syncope, acute kidney injury and electrolyte disturbance. A number of methodological issues were also raised, such as the method of BP measurement and deprescribing of antihypertensives in the less intensive group. Patient-reported outcomes are therefore important when considering the pros and cons of intensive treatment for individuals with hypertension. This further analysis of the SPRINT trial provides some reassurance that over a short follow-up period, quality of life, symptoms of depression and patients satisfaction were not materially different in those receiving a more intensive treatment regimen. This is despite a dislike of side effects and concerns over long-term antihypertensive use previously reported in qualitative studies to drive non-adherence to medication.[3]

In interpreting these results, it is important to bear in mind the limitations of the study—notably the lack of long-term follow-up in relation to satisfaction of care and adherence (due to early trial cessation), which might have missed important changes. Multiple testing without adjustment may have resulted in some of the clinically insignificant small differences between groups but is unlikely to have resulted in the general lack of difference in patient-reported outcomes, which is the major finding. Moreover, research participation itself may have biased behaviour-related outcomes such as adherence and satisfaction[4] (noting also that the intensive group had one more clinic visit per year).[5] Patients are known to have fairly high thresholds for willingness to take treatment.[6] The extent to which these trial findings can be extrapolated to a general population is therefore limited.

Implications for practice

The results from this latest analysis offer some reassurance to high-risk patients with hypertension, that in the short term a more intensive treatment regimen will not affect quality of life or satisfaction of care while offering cardiovascular and mortality benefit at the expense of increased adverse effects. However, there are still many unanswered questions, and a careful consideration on an individual basis incorporating patient preference is needed.

Contributors DM wrote the first draft, which was subsequently edited and approved by both authors.

Funding RJM is funded by an NIHR Professorship (NIHR-RP-R2-12-015) and by NIHR Oxford CLAHRC. DM is funded by an NIHR In-Practice Fellowship.

Disclaimer The views expressed in this publication are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

Competing interests RJM has received blood pressure monitoring equipment for research purposes from Omron and Lloyds Pharmacies.

Provenance and peer review Commissioned; internally peer reviewed.

To cite: McCartney D, McManus RJ. *BMJ Evidence-Based Medicine* 2018;**23**:114–115.

References

1. **Wright JT**, Williamson JD, Whelton PK, *et al*. A randomized trial of intensive versus standard blood-pressure control. *N Engl J Med* 2015;**373**:2103–16.
2. **Berlowitz DR**, Foy CG, Kazis LE, *et al*. Effect of intensive blood-pressure treatment on patient-reported outcomes. *N Engl J Med* 2017;**377**:733–44.
3. **Marshall IJ**, Wolfe CD, McKevitt C. Lay perspectives on hypertension and drug adherence: systematic review of qualitative research. *BMJ* 2012;**345**:e3953.
4. **McCambridge J**, Kypri K, Elbourne D. In randomization we trust? There are overlooked problems in experimenting with people in behavioral intervention trials. *J Clin Epidemiol* 2014;**67**:247–53.
5. **Bress AP**, Bellows BK, King JB, *et al*. Cost-effectiveness of intensive versus standard blood-pressure control. *N Engl J Med* 2017;**377**:745–55.
6. **Albarqouni L**, Doust J, Glasziou P. Patient preferences for cardiovascular preventive medication: a systematic review. *Heart* 2017;**103**:1578–86.