A lthough hypertension is the leading risk factor for cardiovascular disease, there is a continuous debate regarding the optimal target BP. This controversy has been recently fuelled by the SPRINT trial.1 The trial enrolled more than 9300 participants aged 50 years and older without diabetes or a previous stroke. The patients were randomized to either a standard treatment group that received an average of two antihypertensive drugs to achieve an SBP target <140 mm Hg or to an intensive treatment group that received on average three drugs to achieve an SBP target <120 mm Hg. A target SBP <120 mm Hg was associated with a 25% reduction in the rate of the composite primary outcome (myocardial infarction, other acute coronary syndromes, stroke, heart failure, or death from cardiovascular causes) and a 27% reduction in the risk of all-cause mortality vs an SBP target <140 mm Hg. However, it remains controversial whether the results of the SPRINT study can be implemented directly into the hypertension guidelines to aim for a lower SBP target than the currently recommended target <140 mm Hg. Several aspects should be taken into account when assessing the implications of the SPRINT trial for clinical practice.

First, the intensive treatment did not reduce the risk of myocardial infarction or stroke, and the positive outcome of the trial was primarily driven by a reduction in the incidence of heart failure. It should be noted that the majority (over 90%) of the patients were treated before randomization, and many of them had an SBP slightly above 130 mm Hg. In a substantial proportion of the patients randomized to an SBP target <140 mm Hg, the previous pharmacotherapy (including diuretics, which were recommended to adjust the treatment) was downtitrated. The opposite happened in the intensive group, suggesting that possible differences in the use of diuretics may have unmasked latent heart failure to drive the difference in mortality favoring the intensive arm.²

Second, achieving an SBP <120 mm Hg may reduce the DBP to levels that could compromise myocardial perfusion. Indeed, a recent analysis of the ARIC cohort¹ showed that a low DBP, especially in subjects with an SBP close to 120 mm Hg, might harm the myocardium, and it is associated with subsequent coronary artery disease.

Third, there is growing concern regarding the adverse outcomes of the SPRINT trial. Controversy remains as to whether the potential benefits of intensive BP lowering exceed the risk of harm¹⁻⁵ because the patients in the intensive treatment group of the SPRINT trial had more hypotension, syncope, electrolyte disturbances, acute renal injury, and acute renal failure. An analysis of the SPRINT-MIND trial, a SPRINT substudy, will evaluate the effects of reducing SBP on cognitive function and all-cause dementia, and it should provide novel insights into the overall benefits of intensive BP lowering.

Fourth, the trial did not include patients with diabetes mellitus, a history of stroke, or institutionalized elderly subjects, which limits the generalizability of the results.⁶ Importantly, the HOPE-3 trial showed that BP-lowering therapy was not beneficial in the intermediate-risk patients with baseline SBP levels <130 mm Hg.⁷

Finally, the most important aspect differentiating SPRINT from all other trials is the method of blood pressure assessment, which was based on unattended automated office measurements.⁸ The manual of operations and central training called for the study personnel to leave the room, and the device was set to 5 minutes before starting the measurement. Consequently, the SPRINT investigators were able to avoid the alert reaction or so-called “white coat” effect. However, previous studies in treated hypertensive patients have shown that unattended automated office SBP is comparable to or even lower than daytime ambulatory SBP, and it is up to 20 mm Hg lower than conventional in-office SBP measurements.⁹ A very recent study carried out in more than 300 treated hypertensive patients showed a difference of 16 mm Hg.¹⁰ Therefore, the BP measured in the
SPRINT trial cannot be directly compared with the BP measurements from other trials. In fact, the intensive treatment arm of the SPRINT trial may correspond to an office SBP <136 mm Hg, which is not very different from the SBP <140 mm Hg recommended by the current ESH/ESC hypertension guidelines.

In conclusion, the SPRINT trial has limited implications for clinical practice. The in-office blood pressure target <140/90 mm Hg recommended by the current European guidelines seems sufficient for most patients; however, this target should be reached soon and controlled over time. We should use well-tolerated antihypertensive drugs tested in clinical trials. Our efforts must focus on the improvements in patient compliance to obtain every benefit from the current effective therapeutic strategies. The growing spectrum of fixed-dose double and triple combinations can clearly facilitate this task.

REFERENCES

2. Kjeldsen SE, Narkiewicz K, Hedner T, Mancia G. The SPRINT Study: outcome may be driven by difference in diuretic treatment demasking heart failure and study design may support systolic blood pressure target below 140 mmHg rather than below 120 mmHg. Blood Press. 2016;25:63-66.