Editorial Commentary

Hypertension Guidelines
Is It Time to Reappraise Blood Pressure Thresholds and Targets?

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Heart disease, stroke, and renal failure are leading causes of death with hypertension being the predominant risk factor. Extensive evidence from randomized controlled trials has clearly demonstrated benefit of antihypertensive treatment and blood pressure reduction in reducing cardiovascular events in individuals with hypertension. Accordingly effective blood pressure control is essential to prevent the adverse sequelae of hypertension. Although modern drugs have the capacity to reduce blood pressure in almost every patient with hypertension, the actual blood pressure thresholds at which treatment should be initiated and the target levels at which blood pressure should be maintained still remain a topic of much discussion and debate.

To inform healthcare providers and to provide pragmatic clinical suggestions and recommendations, international, regional, and national hypertension guidelines have been developed by expert groups globally. Most major hypertension treatment guidelines currently suggest that clinicians should strive to treat adults to a blood pressure target of ≤140/90 mmHg. About goals of older individuals, a 2014 report from panel members of the Eighth Joint National Committee (JNC8) suggested that in patients aged ≥60 years, blood pressure should be targeted to <150/90 mmHg. The French guidelines recommend that individuals aged ≥80 years should be treated to a target of 150/90 mmHg, whereas the Canadian guidelines suggest that in the very elderly (≥80 years), the threshold for initiating drug treatment should be 160 mmHg.

Hypertension guidelines, in large part, are evidence based and are usually dictated by randomized controlled trial data and observational studies. Although there is general consensus between major guidelines that treatment should aim at lowering blood pressure in adults to 140/90 mmHg, what has been less clear is whether there is further cardiovascular benefit when blood pressure is treated more intensively to a goal lower than 140/90 mmHg.

Exactly how low blood pressure should be targeted remains a matter of intense discussion. This is highlighted by the many studies that have demonstrated that below a certain level of blood pressure, more aggressive reductions may not be associated with benefit and actually increase the risk of harm. The notion of the J curve, defined as the occurrence of additional cardiovascular events when the blood pressure is lowered beyond the level required to maintain tissue perfusion, refers primarily to diastolic blood pressure. Exactly what the critical diastolic blood pressure is, particularly in the population at large, still unclear, but treatment to a level ≤65 mmHg has been suggested to be associated with additional harm.

Current guidelines suggest treatment targets for diastolic blood pressure <90 mmHg, which seems safe in the J-curve phenomenon. But what about systolic blood pressure? Is there a J-curve for systolic blood pressure and is 140 mmHg truly the level associated with maximum benefit? Despite guidelines suggesting this, until recently, there was little evidence that lower systolic blood pressure targets may have greater cardiovascular protection. However, 3 recent important studies, the Systolic Blood Pressure Intervention Trial (SPRINT) and 2 large meta-analyses clearly showed that lower systolic blood pressures may indeed be better. The main finding in SPRINT was that a primary composite outcome of cardiovascular disease and death was reduced by 25% and all-cause mortality by 27% in patients treated intensively to a systolic blood pressure target of <120 mmHg. However, it should be stressed that SPRINT was restricted to hypertensive adults, including the elderly (>75 years), at above-average risk of cardiovascular disease and that diabetic patients and those who had already had a stroke, were excluded. In a meta-analysis of 44000 patients, showed that intensive blood pressure—lowering <140 mmHg was associated with improved cardiovascular and renal outcomes. Ettehad et al reported in a systematic review and meta-analysis of 613000 participants that lowering blood pressure to a systolic blood pressure of <130 mmHg significantly reduced cardiovascular events and mortality.

Although these recent meta-analyses, together with the SPRINT findings, are highly suggestive that there is increased benefit when patients with hypertension are treated to systolic blood pressures below the currently suggested target of 140 mmHg, there are some important aspects of these studies that should be highlighted. In particular, the meta-analyses comprised trials with heterogeneous cohorts and thus identifying those individuals who would benefit most from intensive treatment to lower blood pressure targets is difficult. In addition, in all 3 studies, the focus of intensive therapy was on systolic blood pressure and it remains unclear whether a concomitant

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reduction in diastolic blood pressure (which is likely with intensive antihypertensive treatment) would also result in a reduced rate of cardiovascular events. Notwithstanding some of these issues, the potential impact of SPRINT and the recent meta-analyses, on diagnosing, treating, and managing patients with hypertension, is immense, not only from the healthcare and patients well-being point of view but also from the societal and health economic position. It is likely that these studies will lead to changes in clinical practice. Accordingly, it is now timely to rethink blood pressure thresholds and targets. As hypertension experts we have the responsibility to re-evaluate current evidence and reappraise guidelines for diagnosis and management. Exactly what the future recommendations will be remain uncertain because the data from the recent studies\textsuperscript{19–21} still need to be digested and further analyzed in the context of current evidence-based studies, but it is very likely that there will be a strong move toward more aggressive control of hypertension to lower blood pressure targets. With the awaited new American College of Cardiology/American Heart Association guidelines soon to be finalized, reassessment of existing guidelines and more SPRINT substudies to be published, the landscape of diagnosing and treating hypertension may change significantly in the near future.

Over the next few months, we will seek opinions and comments from key leaders involved in regional and international hypertension guidelines. As such we will provide views from across the world on the potential impact of the new findings of lower systolic blood pressure targets and future guidelines. Through this platform, Hypertension, as the premier journal in the field, will serve the hypertension community by keeping readers abreast of how the new landmark studies will influence major guidelines and decision making for best practice.

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References


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