

Our Stance towards the 2017 ACC/AHA High Blood Pressure Clinical Practice Guideline: Has the Pendulum Swung Too Far?

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High blood pressure remains the number one attributable cause of death worldwide.¹ In large-scale observational studies, the graded relations between both systolic and diastolic blood pressures and cardiovascular events become obvious and are in a log-linear manner since 115 mmHg and 75 mmHg, respectively.^{2,3} However, before release of results of the Systolic Blood Pressure Intervention Trial (SPRINT),⁴ there had been no studies demonstrating that lowering systolic blood pressures to < 130 mmHg, compared to \geq 130 mmHg, could achieve better clinical outcomes in patients with baseline systolic blood pressures of \geq 140 mmHg, either treated or untreated. In fact, there are several studies suggesting a potential harm with lowering systolic blood pressures to < 140 mmHg, compared to \geq 140 mmHg, in either elderly patients with baseline systolic blood pressures of \geq 160 mmHg or patients with low inherent cardiovascular risk (annual cardiovascular risk < 1%).⁵⁻⁷ This is the background why most international and national hypertension guidelines adopted a more conservative approach, setting systolic blood pressure target of < 140 mmHg in general and < 150 mmHg for vulnerable patients, mainly elderly, in the “pre-SPRINT” era.^{8,9}

On November 13, 2017, the American College of Cardiology/American Heart Association (ACC/AHA), together with other professional societies, issued the 2017 High Blood Pressure Clinical Practice Guideline in the annual meeting of AHA.¹⁰ In contrast to the 2014 Ameri-

can hypertension guidelines,⁸ the current ACC/AHA guideline recommends a far more aggressive approach, which could be summarized in the following 3 aspects: 1) lowering the blood pressure definition of hypertension from \geq 140/90 mmHg to \geq 130/80 mmHg; 2) setting a unanimous target of blood pressure management of < 130/80 mmHg, irrespective of baseline cardiovascular risks and blood pressure levels; and 3) initiation of two first-line antihypertensive agents in patients with baseline blood pressures of \geq 140/90 mmHg (stage 2 by 2017 ACC/AHA guideline and stage 1 by all other guidelines). All these blood pressure targets are based on an average of \geq 2 careful readings obtained from \geq 2 occasions at clinic. The main evidence supporting the 2017 ACC/AHA guideline comes from the SPRINT trial, which includes 9,361 non-diabetic American patients with average blood pressures of 140/78 mmHg at baseline and showed statistically significant reductions in total mortality and fatal and non-fatal cardiovascular events of 27% and 25%, respectively, by targeting a systolic blood pressure of < 120 mmHg compared to < 140 mmHg.¹⁰

The drastic change in the approaches of hypertension management by 2017 ACC/AHA hypertension guideline evokes extensive discussions in numerous medical societies. According to the definition set by the 2017 ACC/AHA guideline, the number of people diagnosed as hypertensive will increase by approximately 40%, mostly in adults aged from 20 to 55.¹⁰ The tolerability in vulnerable patients managed by such an aggressive blood pressure-lowering approach is of serious concern, given that only 5% of participants in SPRINT had baseline systolic blood pressures of \geq 160 mmHg.

The Taiwan Society of Cardiology/Taiwan Hypertension Society released updated Taiwan Hypertension Guidelines in the May 2017 issue of *Acta Cardiologica Sinica*.¹ In the updated Taiwan Hypertension Guidelines, the main changes include: 1) the blood pressure targets

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for elderly (≥ 75 years) hypertensive patients are lowered from $< 150/90$ mmHg to $< 140/90$ mmHg at clinic; and 2) we recommend another set of unattended automated office systolic blood pressure target of < 120 mmHg for hypertensive patients with either coronary heart disease, chronic kidney disease, or age ≥ 75 years, based on the SPRINT findings. It is obvious that these recommendations are more aggressive than most of the other hypertension guidelines. The underlying reasons for the aggressive approach are that East Asian populations, including Taiwan, are prone to develop hypertension, compared to Caucasians or South Asians with similar body habitus,¹¹ and susceptible to hypertension-related vascular events.¹

Given the aggressive manner of Taiwan Hypertension Guidelines, what should be our stance towards the even more aggressive 2017 ACC/AHA guideline? Should we follow the recommendations of 2017 ACC/AHA guideline? The simple answer is “No”. Regarding the definition of hypertension, we will not change our definition of hypertension to $\geq 130/80$ mmHg because the treatment targets are not unanimous and include systolic blood pressures of < 120 , < 130 , and < 140 mmHg according to different risk profiles in Taiwan Hypertension Guidelines. We recognized that patients with East Asian ethnicity in the SPRINT trial are very few ($< 2\%$). Hence, the generalizability of SPRINT findings are not certain in Taiwan. The Heart Outcome Prevention Evaluation-3 (HOPE-3) trial included 3,691 Chinese patients out of 12,705 participants with a mean baseline blood pressure of $138/82$ mmHg and showed patients with baseline systolic blood pressures of ≤ 131.5 mmHg were associated with numerically higher major cardiovascular events.⁷ In the Japanese trial to assess optimal systolic blood pressure in elderly hypertensive patients (JATOS) trial, effects of lowering systolic blood pressure to < 140 mmHg were significantly smaller in patients ≥ 75 years with regard to cerebrovascular events. We therefore refrain from recommending systolic blood pressure target of < 130 mmHg at clinic for elderly hypertensive patients in Taiwan. Likewise, we do not recommend to initiate two antihypertensive agents for all patients with baseline blood pressures of $\geq 140/90$ mmHg.

There are many other issues worthy to be clarified in the field of hypertension. In this issue of the *Journal*, Attar et al. explored whether spironolactone 25 mg daily

was effective in lowering blood pressures in drug-naïve stage 1 hypertensive patients.¹² The authors found that spironolactone treatment for 4 weeks significantly reduced systolic blood pressure of 4.5 mmHg (placebo-corrected), irrespective of baseline potassium levels. They did not examine plasma aldosterone: renin activity ratio, thus not knowing whether there is any differential effect relevant to this ratio. Although spironolactone has not been recommended as the first-line antihypertensive agent in all hypertension guidelines, it is associated with some cardiovascular beneficial effects beyond blood pressure-lowering.¹³ Its status in hypertension management deserves further evaluation. Another important issue is how to improve the cost effectiveness of hypertension management. Accurate risk stratification is essential in this regard. In the previous issues of our *Journal*, we published articles revealing increased epicardial adipose tissue,¹⁴ obstructive sleep apnea,¹⁵ nocturnal non-dipping,¹⁶ and subclinical hypothyroidism¹⁷ all had clinical adverse impacts in hypertensive patients. Despite whether incorporation of these “novel” risk factors may refine our risk-stratification tool merits further evaluation, it seems valid that assessment of these comorbidities and sharing results to the patients may enhance their adherence to antihypertensive treatments, which is essential for chronic disease management.¹⁸

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