

New Guidelines, Increasing Hypertension Numbers, Resistance and Resistance to Change?



It takes but one person, one moment, one conviction, to start a ripple of change.

Donna Brazile

The 2017 American College of Cardiology/American Heart Association blood pressure (BP) guidelines¹ are having a ripple effect across many areas of general medicine, medical subspecialties, and cardiovascular disease (CVD) management, and understanding their ramifications helps us see the wide-reaching effects of hypertension (HTN). While on the surface the new guidelines appear to be a simple lowering of the threshold for HTN, these guidelines, in fact, have far-ranging consequences for the diagnosis, management, and treatment of varying subgroups. Patients with treatment-resistant HTN are an important subset of the HTN population for which the effect of the 2017 guidelines has not yet been evaluated. In this issue of *Mayo Clinic Proceedings*, Patel et al² report their examination of data from the National Health and Nutrition Examination Survey between 2007 and 2014 to determine the effect of the 2017 BP guidelines as they relate to treatment-resistant HTN.

The authors found that as the overall population of those who met the criteria for HTN increased, so too did the population with treatment-resistant HTN, which rose from 12.0% to 15.95% of those with treated HTN, a relative increase of 33.0%.² In comparison, other studies of the new guidelines have reported a relative increase of 42% for the overall diagnosis of HTN, increasing from 31.9% to 45.6% of the entire US population.³ At the same time, these studies found only a 5% relative increase in the number of people recommended for medical treatment, rising from 34.3% to 36.2% of the

US population, or a 5% relative increase.³ Thus, placing the current study by Patel et al in context, they demonstrate that the increase in treatment-resistant HTN is not as large as the increase in HTN overall but greater than the increase of those for whom medical therapy is now recommended.^{2,3}

These new, more aggressive goals will likely have salutary consequences, as a recent analysis found that achieving the 2017 systolic BP guidelines would reduce the incidence of CVD by 610,000 events annually and reduce death among US adults older than 40 years by 310,000 people every year.⁴ Given the linear relationship between BP and CVD, quantifying the impact on those with the most severe forms of HTN and treatment resistance is important, and the current study provides a useful start.⁵

Noteworthy in this study are several assumptions made about the population studied. The study included 5512 individuals from 2007-2014 who were self-identified as having HTN and were already prescribed at least one anti-HTN medication, thereby indicating that they had already met the threshold for HTN and treatment under the seventh Joint National Committee guidelines. Retroactive application of the 2017 guidelines to this patient population fails to include patients who previously would not have met the seventh Joint National Committee treatment guidelines but now would be offered therapy and potentially have controlled HTN. By not having these newly defined and treated HTN patients in the sample population, the percentage of those with treatment-resistant HTN is somewhat artificially increased.

One of the reasons for an analysis of this subgroup, which the authors cite, is the worse CVD outcomes associated with

See also page 776

treatment-resistant HTN.^{6,7} It is important to point out that in changing the threshold of treatment-resistant HTN to include patients with less severe disease, the population characteristics have the potential to change as well. The authors self-report that patients with newly identified treatment-resistant HTN by the 2017 guidelines were on average younger, had better renal function, and were taking fewer anti-HTN agents, which may all lower their anticipated major CVD outcomes.²

Another consideration in the retroactive application of new thresholds is that the threshold itself often has an impact on patient and physician behavior. For example, the further away a particular patient becomes from a target BP goal, the more likely a physician will titrate medications in order to achieve BP control. The patient may also respond differently to the knowledge that they are now further away from their goal and make changes in adherence or follow-up.⁸

As noted, the largest change in the 2017 guidelines will come in the percentage of people simply defined as having HTN, up to 45.6% from 31.9% of the US population. The majority of these new additions will not have medical therapy recommended as an initial strategy but still remain at increased risk of CVD. This group shares important treatment potentials with those on the opposite end of the spectrum, that is, the cohort with treatment-resistant HTN from the current study by Patel et al.² Both groups represent growing segments of the HTN population, and both could benefit from non-pharmacological approaches, either because they do not meet the threshold for medical therapy or because they continue to have uncontrolled BP despite multiple medical therapies. For these patients, treatment approaches such as weight reduction and increased physical activity remain underutilized and can be remarkably effective anti-hypertensive strategies.^{9,10} For example, weight loss of more than 5% results in a sustained BP reduction in overweight individuals.¹¹ Regular aerobic exercise has also been reported to decrease systolic and

diastolic BP by as much as 15 and 9 mm Hg, respectively.¹²

As the number of patients diagnosed as having HTN grows, it will undoubtedly seem like a larger percentage of the current workload in cardiovascular and other internal medicine and family practices. Understanding the size of the patient population with true resistant HTN by the new guidelines will help clinicians understand the updated prevalence and modify their index of diagnostic suspicion accordingly. To this end, the current study by Patel et al.² provides perspectives beyond anecdotal experience to delineate the actual prevalence of resistant HTN with changing BP targets and management.¹⁰ Now that the goals have been set and the population identified, we should perhaps consider the words of Donna Brazile quoted at the beginning of this editorial and those of Walt Disney, who said, “The way to get started is to quit talking and begin doing.”

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Potential Competing Interests: The authors report no competing interests.

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