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CARDI•OH
Ohio Cardiovascular and Diabetes Health Collaborative

2017 ACC/AHA Hypertension Guideline:

Highlights & Common Questions

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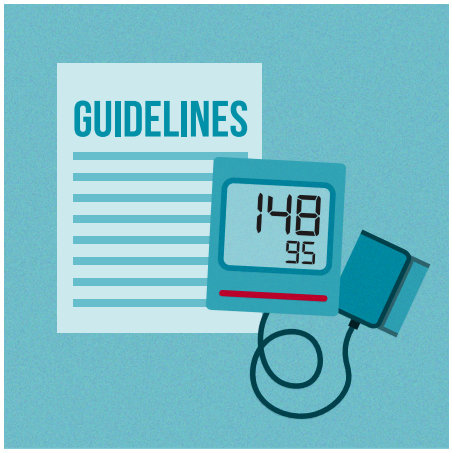

Since the ACC/AHA guideline was recently published with lower blood pressure targets (BP) than previously used, we summarize their findings below, and then present some common questions and responses to these guidelines.

Basic Changes to HTN Management Recommended by the 2017 ACC/AHA Hypertension Guideline[1]

1. **The most prominent update is the reduction in recommended BP levels that prompt the initiation of drug treatment for elevated BP and the BP goal in those requiring treatment.**
   - From 140/90 to 130/80 in those less than 60 years-old and
   - From 150/90 to 130/80 in those over age 60.
2. **Less than 130/80 is the BP level used to define the level in nearly all clinical settings for initiating drug therapy* and defines the recommended BP target.**
3. **A 10 year risk of cardiovascular disease threshold of 10%, as well as BP level, is used to determine patients who need to be treated with BP medications (in addition to lifestyle management).**
   - If atherosclerotic cardiovascular disease (ASCVD) risk > 10%, initiate drug treatment when single blood pressure (SBP) ≥ 130 mmHg or diastolic blood pressure (DBP) ≥ 80 mmHg.
   - If ASCVD risk < 10%, initiate drug treatment at SBP ≥ 140 mmHg or DBP ≥ 90 mmHg.
4. **Greater reliance on out of office BPs for both the diagnosis of hypertension and management. (It has become increasingly recognized that we can no longer depend only on the measurement of BP in the office to manage hypertension.)**
   - Either ambulatory blood pressure monitoring (ABPM) or home blood pressure monitoring (HBPM) needed to confirm diagnosis of hypertension (HTN) requiring antihypertensive drug treatment and to confirm control in those on treatment to detect white coat and masked hypertension.

5. **Implications of the new guideline on hypertension treatment.**
   - » Compared to the 140/90 mmHg or above threshold, the number of patients with hypertension diagnosis using the 130/80 mmHg or greater level is expected to increase by 13.7% to 45.6% or an additional 31.1 million nationally.[1-2]
   - » Providers will need to arrange for patient instruction on the use of home BP monitoring.
   - » Because of the requirement to risk stratify:
     - Number of newly identified hypertensive patients requiring treatment will only increase by 1.9% or 4.2 million.
     - However medications will need to be intensified in an additional 14.4% or 7.9 million in those currently on antihypertensive medications.
     - Unlike the 2014 hypertension guideline published in JAMA and the AAFP/ACP guideline, patients recommended for drug treatment will more likely be those at greatest risk and therefore most likely to benefit from treatment.
   - » Greater use of additional and more potent antihypertensive medications (e.g., chlorthalidone to replace hydrochlorothiazide and spironolactone) will be needed to achieve the lower BP target (< 130/80 mmHg) as more patients will be classified as resistant.
   - » Need for greater emphasis on lifestyle modification.
   - » Compared to achieving the 2014 JAMA (JNC-8) treatment goals, estimates for achieving the 2017 ACC/AHA Guideline treatment goals are a decrease in 340,000 CVD events and 157,000 deaths in the United States annually.[3]

* In patients with 10 year ASCVD risk < 10% or to prevent recurrent strokes in patients after an ischemic stroke, drug treatment initiated at ≥ 140/90 mmHg.

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Response to Questions and Common Criticisms

1. **Will labeling patients as hypertensive have adverse health effects and increase drug use?**
   - » This concern has been around for some time. It was discussed more than 14 years ago when missed days at work as a result of hypertension labeling was raised by Haynes et al[1] during the development of JNC-7 in 2003.
   - » This created significant initial concern about the term "prehypertension" introduced by that guideline to identify patients with BP 120-139/80-89 and was intended to be used as an incentive to increase the use of lifestyle change to reduce the estimated 90% incidence of patients in that range who convert from prehypertension to sustained hypertension over 10-20 years.[2,3]
   - » The success of the prehypertension label in stimulating lifestyle change has been disappointing.
   - » One hope for the stronger labeling (Stage 1 hypertension) in low risk patients (ASCVD 10-year risk < 10% with SBP 130-140) is to encourage greater attention to the need for lifestyle change to reduce the need for antihypertensive drug treatment.

2. **The emphasis of the new guideline on a risk-based treatment strategy increases complexity and is without an evidence base.**
   - » Patients with SBP 130-139 but CVD risk less than 10% are now recommended for lifestyle (as in those with previous prehypertensive designation but with a stronger label).
   - » Those at higher risk (with BP level only one factor) would be recommended for drug treatment (this is the population that in addition to elevated CVD risk has been the focus of recruitment into clinical outcome trials and demonstrated the most consistent benefit from drug treatment).
   - » **Of note, in contrast to the 2014 guideline, younger patients are more likely to be recommended for lifestyle change. Whereas older patients (who are much more likely to be at risk of hypertension complications) are more likely to be recommended for drug treatment.**

3. **Blood pressure in SPRINT was measured under idealized research conditions in the participating clinical sites, with the patient resting quietly and not doing anything for five minutes.**
   - » Measurement procedure in SPRINT was the same as recommended by guidelines going back decades.
   - » Use of oscillometric monitors to measure BP has been the standard practice in hypertension drug treatment trials for more than 20 years.[4]
   - » Recent data on BP measurement from SPRINT and confirmed by a study from German investigators demonstrate little difference are whether staff are present in the room or not as long as other recommended procedures for BP measurement in place.[5,6]
   - » Thus, inadequate rest period, improper cuff size, use of a non-validated BP monitor, and poor patient and arm positioning (seated in a chair versus on an exam table) introduce more error than staff presence or absence.
   - » It is distressing to admit that the goal of < 130 mmHg rather than < 120 mmHg was recommended in part to compensate for the poor quality of BP measurements currently in practice in clinical settings.
4. **Lack of evidence as to the benefit of the < 130/80 mmHg target.**
   - » This was one of four pre-specified questions posed for systematic review prior to drafting the guideline "What is the optimal target for BP lowering during antihypertensive therapy in adults?" The evidence for this recommendation was based upon this systematic review which was published separately.[7]
   - » It is supported by multiple meta-analyses published before and after inclusion of results from SPRINT.[8-11]
   - » While no level of evidence is immune from criticism, the evidence supporting 130/80 mmHg was unanimously agreed upon by the multidisciplinary panel of authors and the organizations represented. (Note: ACP and AAFP were invited but refused participation in drafting the 2017 ACC/AHA guideline.)
   - » It is worth noting that the < 150/90 treatment recommendation for patients over age 60 in the JAMA 2014 guideline was decided by only a single vote margin.[12]

5. **Harms: The risk associated with the lower BP target is excessive compared to the benefit, especially in older patients (age 60 and over).**
   - » Critics like to suggest that the modest risk (<1-2%) of hypotension, syncope, even AKI (95% of which either totally or partially resolves [90% show complete resolution])[13] should be considered equivalent to MI, stroke, acute decompensated HF, and CV death.[14,15]
   - » Importantly, no difference in rates of serious adverse events overall or in the above selected adverse events (except for AKI) were seen in older patients (even in frail though ambulatory patients over age 75) compared to overall population.[16-19]
   - » Patients > age 75 saw the greatest overall benefit in terms of CVD, cardiovascular mortality and all-cause mortality reduction compared to younger patients (though age X treatment interaction was not significant). Of note, the number of patients needed to treat to prevent a CVD event was 61 overall in SPRINT; it was only 28 in patients age ≥ 75 needed. For all-cause mortality, the numbers were 90 and 41, respectively.[16, 17]
6. **Evidence for < 130/80 mmHg target in diabetics based on the results in the ACCORD trial is unconvincing.**
   - » ACCORD was half the size of SPRINT, with a 3-way factorial design, thus markedly underpowered.
   - » Recommendation for the < 130/80 target in diabetics is based on a pre-specified, systematic review of trials, that included ACCORD, prior to drafting the guideline.[7]
   - » Meta-analysis of SPRINT and ACCORD show overlap in findings,[20] and SPRINT results in participants with prediabetes and metabolic syndrome show reduction in CVD and mortality similar to the overall trial results.[21,22]
7. **It is unclear how relevant these results are to the millions of younger adults who have been newly labeled with hypertension based on the new guidelines.**
   - » No clinical outcome trial data has ever been available to select the optimal BP threshold or treatment target in younger patients with hypertension.
   - » Clinical event rate is too low in this population to assess effect of treatment in a clinical outcome trial.
8. **Feasibility of implementing the BP recommendation.**
   - » While feasibility was considered, the major focus of the panel was to base recommendations on the best evidence for benefit of the patient (not the provider).
   - » While the challenges were recognized (and that they would require overdue changes to the way this deadly, disabling, costly disease is managed), none were felt to be unsurmountable.

9. Evidence for DBP targets is less convincing.

- This evidence gap is acknowledged by the lower level of evidence designated for the DBP recommendations.
- However, poor control of DBP is rarely the cause for classifying patients at the highest risk (>age 55, other CV risk factors, clinical/ subclinical CVD) as out of control.
- Recent analysis from SPRINT provides evidence of a J-curve relationship between blood pressure and cardiovascular risk, minimizing risk when SBP is lowered.[23]

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