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REVIEW ARTICLE

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Overdiagnosis or not? 2017 ACC/AHA high blood pressure clinical practice guideline: Consequences of intellectual conflict of interest

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Abstract

American Heart Association/the American College of Cardiology and nine other professional organizations have issued a new hypertension clinical practice guideline (CPG) on November 2017, which has lowered the hypertension threshold to 130/80 mmHg. American Academy of Family Medicine has decided to not endorse this new CPG for various reasons including flaws in CPG development process and a limited additional benefit for lower treatment targets. The major concern was intellectual conflict of interest (COI). Substantial weight was given to SPRINT trial, which provided the basis for the recommended change in blood pressure targets. It is a serious intellectual COI that the Chair of the SPRINT trial steering committee was commissioned as chair of the guideline panel. The new threshold would lead to 46 percent of the U.S. adult population being categorized as having hypertension, while using the previous threshold that figure would be 32 percent. Should we call this change as overdiagnosis?

KEYWORDS

clinical practice guidelines we can trust, conflict of interest, hypertension, medical overuse, practice guideline

1 | THE NEW AHA/ACC HYPERTENSION GUIDELINE DEFINES HYPERTENSION AS BLOOD PRESSURE OVER 130/80 mm hg

On November 13, 2017, AHA/ACC (American Heart Association/American College of Cardiology) and nine other health professional organizations have launched a new hypertension guideline (AHA/ACC 2017).[1] The biggest change in AHA/ACC 2017 was it calls for high blood pressure to be treated with lifestyle change and medication as needed beginning at 130/80 mm Hg rather than the previous commonly accepted threshold of 140/90 mm Hg.

2 | AAFP (AMERICAN ACADEMY OF FAMILY PRACTICE) DOES NOT ENDORSE THE NEW GUIDELINE

On December 12, 2017, AAFP has announced that AAFP does not endorse the AHA/ACC 2017, and continues to endorse the 2014

TABLE 1 Reasons why AAFP does not endorse AHA/ACC 2017[4]

The majority of the guideline recommendations were not based on a systematic review (SR) of the evidence: SRs were performed for only 4 key questions, while over 100 recommendations were provided. Harms of treating to a lower blood pressure were not assessed in the SR
Small benefit for lower treatment targets: SR in AHA/ACC 2017 had similar results to the SR in ACP/AAFP 2017, suggesting that may be a small benefit for lower treatment targets in cardiovascular events, there was no benefit observed in all-cause mortality, cardiovascular disease mortality, myocardial infarction, and renal events. ACP/AAFP 2017 recommend considering treatment to lower targets for some patients in the context of shared decision making
Inadequacy of recommendation: While recommendation statements included a grade for the strength of evidence, assessment of the quality of individual studies or SR was not provided
Integration biased toward single study: Substantial weight was given to SPRINT trial while results from other trials were minimized.[5] The SPRINT trial stopped early due to benefit leading to the potential for exaggerated benefits and an underreporting of harms
Recommendation to use a tool in an unvalidated way: The guideline recommends the use of the ASCVD Risk Assessment Tool to determine whether medications should be initiated for blood pressure control, which is not based on evidence that using the tool in this way improves outcomes
Significant intellectual COI: The Chair of the SPRINT trial steering committee was commissioned as chair of the guideline panel, even though that trial provides the basis for the recommended change in blood pressure targets. Several other members of the panel also have intellectual conflict of interest

TABLE 2 Standards for Developing Trustworthy Clinical Practice Guidelines (quoted and reorganized from IOM 2011)[8]

1. *Establishing transparency*: The processes by which a CPG is developed and funded should be detailed explicitly and publicly accessible
2. *Management of conflict of interest (COI)*: Disclosure of COIs (commercial, noncommercial, intellectual, institutional, and patient-public activities pertinent to the potential scope of the CPG) within Guideline Development Group (GDG),and appropriate exclusion measures should be taken
3. *Guideline development group composition*: The GDG should be multidisciplinary and balanced, comprising a variety of methodological experts and clinicians, and populations expected to be affected by the CPG
4. *Clinical practice guideline-systematic review intersection*: Systematic Reviews that meet certain standards should be used. GDG and systematic review team should interact regarding the scope, approach, and output of both processes
5. *Establishing evidence foundations for and rating strength of recommendations*: For each recommendation, benefit and harm, a summary of relevant available evidence, should be provided. A rating of the level of confidence in the evidence underpinning the recommendation and a rating of the strength of the recommendation also should be provided
6. *Articulation of recommendations*: Recommendations should be articulated in a standardized form detailing precisely what the recommended action is, and under what circumstances it should be performed
7. *External reviews*: External review should be performed by a full spectrum of relevant stakeholders. A draft of the CPG should be made available to the general public for comment
8. *Updating*: Literature should be monitored regularly to update CPGs when appropriate

Evidence-Base Guideline for the Management of High Blood Pressure in Adults (JNC8) and Hypertension guideline by American College of Physicians and the American Academy of Family Physicians (ACP/AAFP 2017).[2–4]

3 | WHY DOES AAFP NOT ENDORSE AHA/ACC 2017?

While admitting that AHA/ACC 2017 has several positives including highlighting the importance of accurate assessment of blood pressure, discussing the importance of healthy lifestyle choices to minimize hypertension risk, AAFP pointed out six reasons (Table 1) to not endorse the AHA/ACC 2017.[4]

4 | OVERDIAGNOSIS IN CLINICAL PRACTICE GUIDELINES

Narrowly defined overdiagnosis, for example, in cancer screening, refers to diagnosing cancer that would otherwise not go on to cause symptoms or death.[6] Broadly defined overdiagnosis includes expanding the diagnostic criteria of the disease to increase the number of people diagnosed as having the disease, with subsequent treatment offered to newly diagnosed group ending up with extremely small additional benefit. In this case, even if the benefit from the treatment exceeds the harm, if the difference is extremely small, this is at most called as low-value care.

Harm and cost of the treatment are often neglected, while in some cases, harm may exceed the small benefit. Moynihan 2013 reported that in most cases of widening disease definitions in clinical practice guidelines (CPGs), rigorous assessment of potential harms of that widening was not reported, and majority of guideline panel members disclosed financial ties to pharmaceutical companies.[7] The new threshold in AHA/ACC 2017 would lead to 46 percent of the U.S. adult population being categorized as having hypertension, while using the previous threshold, that figure would be 32 percent. Should we call this change as overdiagnosis?

5 | CAN WE TRUST AHA/ACC 2017 ?

In 2011, National Academy of Medicine (previous Institute of Medicine, IOM) had launched a Consensus report called "Clinical Practice Guidelines we can trust" (IOM 2011) and proposed Standards for Developing Trustworthy CPGs (Table 2).[8] GRADE

(The Grading of Recommendations Assessment, Development and Evaluation) system has been developed and widely used to create CPGs which meet IOM 2011 standards. In light of the IOM 2011, AHA/ACC 2017 seems to have the following flaws.[9]

5.1 | Management of conflict of interest

Disclosure of COIs (commercial, noncommercial, intellectual, institutional, and patient-public activities pertinent to the potential scope of the CPG) within Guideline Development Group (GDG) and appropriate exclusion measures should be taken.

Disclosure of COIs only reflects financial COIs. Intellectual COIs were not considered, which is a major concern of this CPG and will be discussed in detail in the next section.

5.2 | Guideline development group composition

The GDG should be multidisciplinary and balanced, comprising a variety of methodological experts and clinicians, and populations expected to be affected by the CPG.

Guideline development group is certainly made up of multidisciplinary group; however, specialists such as cardiologists form the majority of the group and general physicians including family practitioners did not participate in the group. AAFP chose not to participate in this guideline development given significant concerns about the guideline methodology, including the management of intellectual COIs of GDG.[10]

5.3 | CPG—Systematic review (SR) intersection

Systematic reviews that meet certain standards should be used. GDG and SR team should interact regarding the scope, approach, and output of both processes.

Usually, when we develop CPGs following GRADE system, SRs are considered to be essential in developing the CPGs. In AHA/ACC 2017, which does not adopt GRADE system, the majority of the recommendations were not based on SRs. Noteworthy is the fact that harms of treating to a lower blood pressure were not assessed in the SR.

5.4 | Establishing evidence foundations for and rating strength of recommendations

For each recommendations, benefits and harms, a summary of relevant available evidence, should be provided. A rating of the level of confidence in the evidence underpinning the recommendation and a rating of the strength of the recommendation also should be provided.

5.5 | Articulation of recommendations

Recommendations should be articulated in a standardized form detailing precisely what the recommended action is, and under what circumstances it should be performed.

As mentioned previously, harms of treating to a lower blood pressure were not assessed properly. As AAFP has pointed out, while grade for the strength of evidence was included in recommendation statements, assessment of the quality of individual studies or SRs was not provided.

6 | INTELLECTUAL COI, THE MAJOR CONCERN

Conflict of interest is defined as "a set of circumstances that creates a risk that professional judgment or actions regarding a primary interest will be unduly influenced by a secondary interest."[11] According to IOM 2011, GDG members should declare all potential COIs including commercial, noncommercial, intellectual, institutional, and patient-public activities pertinent to the potential scope of the CPG. Previous reports have proven that financial COIs of GDG members are strongly related to overdiagnosis[7] and questions about the validity of the recommendations in CPGs.[12]

Intellectual COIs in CPGs are defined as "academic activities that create the potential for an attachment to a specific point of view that could unduly affect an individual's judgment about a specific recommendation."[13] Example of primary intellectual COI includes "authorship of original studies, directly bearing on a recommendation" and "peer-reviewed grant funding, directly bearing on a recommendation."[14]

The influence of intellectual COI on CPG is difficult to recognize, but there are several reports that intellectual COI actually adversely affect the quality of recommendations in CPGs.[15,16]

For example, authors of primary studies are more likely than methodologist to interpret the results of a meta-analysis as indicating a strong association.[17] Another study found that the specialty and intellectual COIs of the guideline authors may affect the recommendations they give for mammography screening.[18] Therefore, IOM 2011 Standards states that GDG members should not have COI, or at least members with COIs should represent not more than a minority of the GDG. And furthermore, the chair or cochairs should not be persons with COI.[8]

Looking back into AHA/ACC 2017, the Chair of the SPRINT trial steering committee was commissioned as chair of the GDG, and several other members of the panel also have intellectual COIs. Given that SPRINT trial provides the basis for the recommended change in blood pressure targets, and most of the recommendations were not based on SRs, or even in the SRs, substantial weight was given to the SPRINT trial while results from other trials were minimized, the fact that SPRINT trial main author being GDG chair is a fatal problem.

7 | IMPLICATION FOR JAPANESE PRIMARY CARE PHYSICIANS

It is recommended for Japanese primary care physicians to continue endorsing the Japanese Society of Hypertension Guidelines for

the Management of Hypertension 2014 (JSH2014), which adopts a similar hypertension threshold as JNC8. As development of clinical practice guidelines in Japan is strongly influenced by the trends in USA and Europe, I would like to sound a warning to future revision of JSH2014 as well.

CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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