Journal of Human Hypertension (2018) 32:387–389
https://doi.org/10.1038/s41371-018-0049-y

EDITORIAL

New guidelines with few takers: will the new American guidelines ever be accepted?

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Received: 24 January 2018 / Revised: 29 January 2018 / Accepted: 9 February 2018 / Published online: 1 March 2018

The American College of Cardiology (ACC) and the American heart association (AHA) task force on clinical practice guidelines along with other related associations published their latest Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in adults [1]. This comes after the guidelines of the Seventh Joint National Committee (JNC-7) [2] that were published in 2003 and the JNC-8 [3] published in 2014 with the latter mainly dealing with the management of hypertension. The headline grabbing feature of this new guideline is the lower blood pressure (BP) threshold. Here, the ACC/AHA call a BP above 120/80 mm Hg as elevated (previously referred to pre-hypertension) and define those below 120/80 mm Hg as being normal. The JNC-7 and the European society of cardiology guidelines in 2013 [4] defined normal BP as those below 130/80 mm Hg.

This stricter classification of BP has many ramifications. The first is the epidemiological fall out. As mentioned in the guideline document itself, this lower classification is now going to increase the number of people diagnosed as having hypertension in each age group. With the new definition, nearly 42% of the adult population in the US would be classed as hypertensive. The epidemiological effects in turn would have a substantial impact on health planning and health budgets. Already stretched health-care systems will now have to cope with this added extra millions of new "patients". The psychosocial effects (including health insurance implications) of previously healthy people now being labelled "hypertensive patients" are also considerable [5]. However not all these people, who would now be described as "hypertensive" would need to be on antihypertensive medications, as strict lifestyle modifications/interventions are recommended for them [1] and thereby the economic fall out may not be as much as first imagined [6].

As expected there has been a considerable amount of press related to these new cutoff values, with, not surprisingly, most of the comments being critical of the new targets and some organisations such as the American Association of family physicians failing to endorse it [7]. The revised targets in these guidelines were driven mainly by the result of the SPRINT trial [8], where intensive BP lowering was associated with lower cardiovascular end points but at the cost of higher side effects (including acute kidney injury). It must be noted that previous data have demonstrated that patients with systolic BP (SBP) <120 mm Hg had the lowest rates of cardiovascular disease [9, 10]. However, it was only after the SPRINT trial that there were data to show that lowering the BP to this level also improved cardiovascular end points as previous antihypertensive trials did not lower pressures to this degree.

Therefore, most of the criticisms of the new guidelines are related to the SPRINT trial, which itself generated a lot of debate when first published [11]. There were many calls for the SPRINT trial data not to be included in any subsequent guidelines [12–14]. In this trial, BP was monitored by unobserved automated measurements by the patients themselves and, therefore, lower pressures could be achieved and it has, therefore, been suggested that these readings would corelate with higher observed office BP readings. Kjeldsen et al. [12] suggest that the SBP obtained in the SPRINT trial treatment arm of <120 mm Hg compares with a higher SBP value in the other hypertension trials and for generalisation, a range from 5 to 10 mm Hg up to 10–20 mm Hg should be added to the SPRINT pressures for comparison. They suggest that overall it means that the lower treatment arm in SPRINT translates into SBP <136 mm Hg, which was not very different from the existing guidelines target at that time of a SBP <140 mm Hg and,

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therefore, suggesting that future guidelines should not include this trial.

Another criticism of the guidelines is that all subgroups of patients are assigned the same BP targets irrespective of age or comorbidities such as diabetes [15]. Previously diabetic patients were given lower targets and elderly patients higher ones. The current guidelines suggest a target BP of below 130/80 mm Hg for everyone. This may be extremely difficult for the elderly patient who has a high cardiovascular risk, but a SBP <140 mm Hg, for whom antihypertensive medications are now recommended, as they are very likely to suffer from significant side effects including symptomatic postural hypotension..

Interestingly, around the time of the publication of the new guidelines, Brunstrom et al. [16] published a meta-analysis of the benefits of BP lowering. They found that primary preventative lowering of BP has mortality and cardiovascular benefits if the baseline SBP is above 140 mm Hg. They also suggest that if the BP is lower at baseline, there is no benefit in primary prevention, but patients with coronary heart disease may benefit. The same authors [17] also found that the SPRINT trial results were not representative of other trials with baseline normotension and low cardiovascular disease rates, and that treatment in this population does not protect against cardiovascular disease or death. It should be remembered that in the SPRINT trial, >90% of the patients were on antihypertension medications as per the old guidelines and, therefore, would have had SBP >140 mm Hg before medications were started. This would, therefore, be in keeping with the new guidelines, which recommend lifestyle changes in patients with a baseline SBP between 130–138 mm Hg to begin with rather than pharmacological interventions.

Supporters of the new guidelines (which are vastly outnumbered by the critics) say that the actual number of patients who would need medications would not necessarily go up significantly as they still recommend lifestyle changes first in most patients whose SBP is <140 mm Hg unless the overall cardiovascular risk is high [6, 18]. They also state that these lower numbers would make the general public and physicians more aware of the BP. Greenland [19] points out that the problem lies not with the guidelines but the fact that the lifestyle and cardiovascular risk pattern of the general American public are quite poor and suggests that rather than quibbling over numbers we ought to consider the overall risk factor management of a particular individual.

Guidelines that are developed in developed countries (be it American or West European) may not necessarily be applicable in the rest of the world due to genetic, racial, geographical and socio-economic factors [8, 20]. Similarly, the results of the SPRINT trial and thereby the new American guidelines that emphasise the use of home monitoring, may not be applicable for practical reasons as well because in developing countries, automated home monitoring systems may not be affordable to the vast majority of patients and in many places manual sphygmomanometers are still being used [21].

To conclude it is fair to say that the main criticisms of the new guidelines are mainly directed at the practical issues regarding the new BP thresholds rather than the new thresholds themselves. Health systems would have to come up with ways and means to tackle the increased burden. At the end, these are only guidelines and serve the purpose they are meant to do, which is to guide our treatment. Having generated so much publicity they will bring hypertension to the forefront of the discussion of any community health planning and make people more aware that lower is better. For now, however, we suspect there will not be a major worldwide rush, or indeed not even an American rush to try to bring BPs down to the new recommended levels.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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