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Lifestyle interventions for hypertension treatment in international guidelines:
A systematic review

Editorial Title:
Lifestyle recommendations as treatment for arterial hypertension: a time to review

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Undoubtedly, arterial hypertension and high blood pressure-related cardiovascular (CV) disease remain global health hazards posing a major socio-economic and health care challenge. As a reminder, the global prevalence of hypertension is still estimated to be in the range of 30-45%.¹ In Europe, about 25% of heart attacks have been linked with hypertension and about 40% of deaths per annum are caused by hypertension-related CV disease.² Thus, optimal treatment of arterial hypertension is a main strategy in CV prevention to achieve substantial reduction of CV morbidity and mortality. Lifestyle interventions are an essential and established part of hypertension management and, in combination with anti-hypertensive drug treatment, provide a most effective means to achieve recommended blood pressure targets and reduce CV mortality. For example, patients with hypertension engaged in regular physical activity have been shown to have a reduced risk for CV mortality (16-67%), as opposed to sedentary patients with a twofold increased CV mortality risk.³

In the 2018 ESC/ESH Guidelines for the management of arterial hypertension, lifestyle advice remained one of the main pillars of anti-hypertensive treatment, from high-normal blood pressure to grade 3 hypertension.⁴ Independent of the severity of hypertension, lifestyle advice is a first line treatment modality for lowering blood pressure. The 2017 ACC/AHA Guidelines recommended lower thresholds for the diagnosis of hypertension (130-139/80-89 mmHg for grade 1 hypertension), resulting in a larger population of low risk patients needing lifestyle advice and interventions.⁵ These two guidelines for the management of hypertension have a certain degree of agreement, but also considerable disagreement, and they are not the only available guidelines. Thus, it appears to be time to review and compare the available guidelines with respect to recommendations on lifestyle interventions in the treatment of arterial hypertension.

The work presented by Khanji and colleagues represents a systematic review of available guidelines for the treatment of primary arterial hypertension released between 2010 and 2020. The search string was designed to identify recommendations for single lifestyle interventions as treatment strategies. In the standardized review (PRISMA standard), the current Appraisal for Guidelines and Research Evaluation (AGREE) tool was applied to identify rigorously developed guidelines. Of the identified 22 guidelines, 10 showed good rigor and were included in the comparison. The main aim of this “first of its kind” systematic review of guideline recommendation for lifestyle interventions in the management of hypertension was to identify areas of agreement, areas of disagreement and remaining research gaps. As a main result, the guidelines were in good agreement with respect to increasing physical activity (150-300 min moderate intensity aerobic exercise), lowering salt intake (<3.8 to 5 grams of salt/d), dietary patterns (equivalent to Mediterranean or DASH diet) and smoking cessation (counselling, pharmacotherapy and avoidance of second-hand smoke) as essential components for the management of hypertension. Equally important and, from a scientific point of view, perhaps more importantly there are considerable areas of disagreement and gaps in evidence. No consensus has been found with respect to alcohol intake
(discrepancy on threshold), coffee/tea consumption (lack of evidence for long-term effects) as well as refined sugars and sweetened beverages (mentioned only be few guidelines). With respect to alcohol consumption and blood pressure control, the ESH recommends a threshold of 14 units/week for men and 8 units/week for women, while the North American and Australian guidelines recommend 2 standard drinks/day for men and 1.5 for women. Areas with gaps of evidence warranting further research include environmental factors such as air pollution (only mentioned in the ISH guidelines), cold temperature (only mentioned in the Japanese and Chinese guidelines) as well as psychological factors such as stress management (lack of evidence for long-term benefits on hypertension) and quality of sleep (only mentioned in the Chinese guidelines). The study resembles a much-needed review on the most rigorous guidelines on applying lifestyle treatment in arterial hypertension. Above and beyond a review on the agreements and disagreements of current guidelines, it offers an overview on the remaining research gaps that have not yet been sufficiently addressed due to lack of evidence or disagreement in interpretation. As a limitation to their work, the authors point out that the search strategy was focused on single lifestyle interventions. A more holistic approach including a set of lifestyle interventions will likely prove to be more effective than single interventions, which will have to be investigated in the future.

The work by Khanji et al. included data published between the years 2010 to 2020. In the last 2 years, more evidence for lifestyle-based anti-hypertensive treatments has accumulated that may need to be considered in future guidelines. In 2021, the EAPC and ESC Council of Hypertension Consensus Document found consistent evidence from a meta-review that exercise prescription can be refined by recommending type of exercise treatment according to initial blood pressure levels as a more personalized lifestyle intervention. Recent data also suggest that preserving or increasing cardiorespiratory fitness may be a long-term strategy to decrease the risk of incident hypertension. Other “guideline topics” that may evolve with more evidence being available are gender differences in the prevention and treatment of hypertension, blood pressure management in the old and frail patient as well as use of mobile health (mHealth) approaches to facilitate effective lifestyle interventions. Last but not least, the focus on recommendations for the treatment of hypertension may need to shift towards focusing on reduction of overall CV risk. Whereas anti-hypertensive drug treatment primarily lowers blood pressure, exercise treatment, for example, has the potential to beneficially affect most of the associated CV risk factors and thus very effectively reduce overall CV risk as well as, ultimately and in conjunction with medication, CV mortality (Figure 1). The current most valuable work by Khanji et al. is the prerequisite for the analysis of remaining research gaps in the field in order to pave the way for the future generation of guideline recommendations on lifestyle treatment in patients with hypertension.
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Figure 1.