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SPECIAL ARTICLE

Examining hypertension in children and adolescents: Clinical implications of the differences between the European and American Guidelines☆

Empar Lurbe i Ferrer[a,b,c]

[a] *Servicio de Pediatría, Consorcio Hospital General Universitario de Valencia, Valencia, Spain*
[b] *CIBER Fisiopatología Obesidad y Nutrición (CB06/03), Instituto de Salud Carlos III, Madrid, Spain*
[c] *INCLIVA, Instituto de Investigación, Valencia, Spain*

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Abstract Over the past 2 years, new guidelines for hypertension in children and adolescents have been published. The first, developed by the 2009 European Hypertension Society Working Group on Hypertension in Children and Adolescents, recognised the need for an update of the European Guidelines in order to incorporate the new information acquired over the last few years. Subsequently, an update of the American guidelines (the most recent of which was in 2004) has been published. In both guidelines, there are aspects which are agreed on, and in others, there are marked differences in the basic elements that have an influence on daily clinical practice. The main differences are centred on the criteria for the diagnosis and classification of hypertension, with the subsequent impact on its prevalence. Future studies should offer responses to all the questions that still remain unresolved.

PALABRAS CLAVE
Guía clínica;
Hipertensión arterial;
Niños;
Adolescentes

La hipertensión arterial en niños y adolescentes a examen: implicaciones clínicas de las diferencias entre la Guía Europea y la Americana

Resumen En los 2 últimos años se han publicado nuevas guías de hipertensión arterial en niños y adolescentes. La primera de ellas, desarrollada por el Grupo de Trabajo de hipertensión arterial en niños y adolescentes de la Sociedad Europea de Hipertensión, recogía la necesidad de una actualización de la Guía Europea de 2009 para incorporar la información adquirida durante los últimos años. Con posterioridad, se ha publicado la actualización de la Guía Americana, cuyo

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E-mail address: empar.lurbe@uv.es

antecedente más reciente se encuentra en 2004. En ambas guías se encuentran aspectos en los que existe acuerdo y otros en los que hay marcadas diferencias en elementos fundamentales que influyen en la práctica clínica diaria. Las principales diferencias se centran en los criterios para el diagnóstico y clasificación de la hipertensión arterial, con el consiguiente impacto en su prevalencia. Ambas guías reconocen y lamentan la falta de evidencia sólida, basada en ensayos para las recomendaciones sobre el diagnóstico y el manejo de la hipertensión arterial pediátrica. Estudios futuros deben ofrecer respuestas a todos los interrogantes que a día de hoy permanecen por resolver.

Advances in the field of high blood pressure, or hypertension (HTN), in children and adolescents have highlighted the need for documents summarising the evidence on the aetiology, assessment, treatment and outcomes of HTN in this age group.[1] Our knowledge of blood pressure (BP) in children and adolescents has increased considerably in the past two decades. The first guidelines on the control of BP in this age group were published in 1997,[2] as there had previously been no consistent definition of HTN in the paediatric population, and measurement of BP was not performed in asymptomatic children and adolescents.[3,4] Although the association between BP and cardiovascular disease is well established in adults, this association in children and adolescents is not well defined, as the development of cardiovascular complications results from the interaction of various risk factors and age. Consequently, the definition of reference values in the paediatric population is based on the percentile distribution of BP values.

Advances in the knowledge of high BP in children and adolescents

The awareness that HTN may be present in seemingly healthy children and that HTN in adults may have its roots in childhood has spurred interest and demonstrated the need to include measurement of BP in the medical care of children and adolescents. Furthermore, we have gained a deeper understanding of the impact of BP values on the development of subclinical damage in target organs through the use of recently developed methods with a much higher specificity and sensitivity. We are also aware that the prevalence of HTN is increasing as a consequence of the obesity epidemic, which has become a significant public health problem. Early detection of the roots of HTN is crucial for the early implementation of interventions aimed at reducing the elevation of BP and its subsequent impact on cardiovascular morbidity and mortality in adulthood.

Evolution of guidelines for the diagnosis and management of HTN

The current widespread interest in clinical practice guidelines for HTN stems from the desire of health-care professionals to offer, and of patients to receive, the best possible care, that is, care that is consistent, effective and narrows the gap between clinical practice and evidence-based recommendations. The guidelines published throughout the years have significantly expanded the knowledge in this field and stimulated a growing interest not only in epidemiologists, but also in paediatricians and basic researchers.[5,6]

New guidelines have been published in the past 2 years.[7,8] The first ones were developed by the Working Group on Hypertension in Children and Adolescents of the European Society of Hypertension, recognising the need to update the 2009 European guidelines to integrate the evidence gathered over the past few years.[6,7] This was followed by the publication of the updated version of the United States guidelines on HTN in the paediatric population,[8] which had last been updated in 2004.[5]

The European and United States guidelines, published 1 year apart, agree on some aspects, but also have marked disagreements on other essential aspects that influence everyday clinical practice.

Agreement between European and United States Guidelines

The European and the United States guidelines[7,8] agree on several aspects, including:

- *BP screening*. BP should be measured starting at age 3 years, and in younger children if they are at risk of developing HTN.
- *Methods for measurement of BP*. The auscultatory method is recommended, using Korotkoff sounds K1 and K5 to assess systolic blood pressure (SBP) and diastolic blood pressure (DBP), respectively. The guidelines also find the use of oscillometric devices validated in the paediatric population acceptable to measure BP.[9] However, whenever high BP readings are found by the oscillometric method, the auscultatory method must be used for confirmation.
- *24-h ambulatory BP monitoring (ABPM)*. It is considered useful both for diagnosis of HTN and to monitor pharmacological treatment.