

## Childhood Hypertension: A Problem of Epidemic Proportion

Farahnak Assadi

Department of Pediatrics, Section of Nephrology,  
Rush University Medical College, Chicago,  
Illinois, USA, and Child Growth Development  
Center, Isfahan University of Medical Sciences,  
Isfahan, Iran

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### Correspondence to:

Prof. Farahnak Assadi,  
Departments of Pediatrics, Rush  
University Medical Center, Chicago,  
Illinois, USA, and Child Growth  
Development Center, Isfahan University of  
Medical Sciences, Isfahan, Iran.  
E-mail: fassadi@rush.edu

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Currently, we are experiencing an epidemic of essential hypertension characterized by increasing rates of obesity, the metabolic syndrome, and type 2 diabetes.<sup>[1,2]</sup> Essential hypertension affects nearly 20% of the population across the global.<sup>[3,4]</sup> The consequences of hypertension include coronary artery disease, stroke, heart failure and chronic kidney disease.<sup>[5-8]</sup>

Recently, the assessment and management of hypertension has focused on accurate blood pressure (BP) measurement, appropriate non-pharmacological (life-style) strategies for prevention and control, how to attain target BPs that will reduce the risk of complications and minimize adverse effects and how to assess and manage resistant hypertension. Each of these topics are dealt with in this theme issue.<sup>[9-14]</sup>

Managing hypertension control requires a concerted effort by primary care physicians and specialists to optimize non-pharmacological and pharmacological therapy and to identify and manage patients with resistant hypertension in the context of an overall strategy for cardiovascular risk reduction.<sup>[9,10,12,13]</sup> Should we go searching for evidence of target organ involvement that would prompt more aggressive management strategies?<sup>[15]</sup>

This special issue marks a new feature of the International Journal of Preventive Medicine,

a pediatric hypertension focus issue. The major theme of this special issue deals with hypertension and obesity in adolescents and provides highly valuable information with such an authoritative and readable review on the subject.

The authors provide a concise background to the broad problem of increasing rates of hypertension that appear to parallel the occurrence of obesity in adolescents.

Dr. Badeli and associate reports on the common errors in the BP measurement and provide helpful guidelines to obtaining accurate office BP readings in children and adolescents.

Dr. Malakan Rad *et al.* discuss the management of hypertension in patients with cardiovascular disease and heart failure and reviews recent therapeutic approaches directed to reduce cardiovascular risk factors in these patients with hypertension.

Focusing on cardiovascular risk factors in hypertension is of utmost importance, as these patients have mortality 10-20 times higher than the general population. After correcting for age, gender, race and diabetes and myocardial infarction, sudden cardiac death and congestive heart failure are the causes of death in half of all patients with sustained hypertension. Furthermore, the increased incidence of cardiovascular risk factors starts at early stages of hypertension.

Dr. Hooman and her associates provide compelling evidence of early cardiovascular changes in young people with prehypertension. They have studied a group of young people, some with hypertension or prehypertension or with type 2 diabetes, and report evidence for early target organ damage. Type 1 diabetes is associated with an increased risk of cardiovascular events, certainly at an earlier age than in people without diabetes.

Dr. Hajizadeh and associate have discussed the management of resistant hypertension in children and adolescents and possible benefit of renal denervation. In the article by Dr. Nickavar *et al.* the authors review the diagnosis and current management of neonatal hypertension.

Dr. Muruga *et al.* describe an interesting set of relationship between body mass index and prehypertension and hypertension in healthy children. Similarly Dr. Shrivastava *et al.* and Dr. Anand *et al.* present their single center cohort studies on the prevalence of obesity and hypertension among the school age children in India.

The article by Dr. John and her associated is an excellent review on hypertension and obesity in children after kidney transplantation. These authors discuss the causes and risk factors for developing obesity and hypertension in patients following kidney transplantation including factors such as immunosuppressive agents, donors/recipient underlying pre-medical conditions and risk of metabolic syndromes.

Dr. Gerda-Maria Hass and co-investigators, in a prospective study, signify the metabolic syndrome, including overweight, obesity and dyslipidemia, as major cardiovascular risk factor in pre-hypertensive children and adolescents.

Professor Kelishadi and co-investigators report in a prospective study, a broader extension of CASPIAN-IV group study, on the prevalence rate of pre-hypertension and hypertension in a national sample group of Iranian school age children.

They report a 6.88% prevalence rate of hypertension (systolic and diastolic combined), a significantly higher prevalence rate of both pre-hypertension and hypertension in boys than girls and a significantly more prevalent in subjects living in urban than in rural areas.

These data, together with my own review article on prehypertension suggest measures must be taken

to perform a number of clinical trials that could address a number of different aspects concerning the prevention, early diagnosis and management of primary cause of hypertension in pediatric patients.

Last but not least, I want to express our gratitude to the Editor-in-Chief of the journal, Professor Roya Kelishadi, for giving me a home on this subject in the form of a special issue. I also acknowledge the invaluable help of the editorial staff in helping to make this publication possible.

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