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High-normal blood pressure state: an evolving concept

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Few years ago the American Joint National Committee on Hypertension (JNC VII) has provided a new category in the definition and classification of the hypertensive states¹. The Committee indeed unified the blood pressure categories previously defined as "normal" and "high-normal" into a single clinical entity defined as "pre-hypertension"¹. This was based on the evidence from the Framingham study that in such subjects the risk of developing throughout the incoming months and/or years a "true" hypertensive state is higher than that characterizing individuals in whom the blood pressure values are less than 120/80 mmHg at all decades of age². Along with the use of the term of "pre-hypertension", JNC VII Guidelines added for this clinical condition the recommendation of a close follow-up, frequent laboratory and instrumental examinations as well as immediate adoption of non-pharmacological interventions aimed at lowering blood pressure¹.

The JNC VII definition and the related recommendations were criticized by the 2003 European Society of Hypertension/European Society of Cardiology Guidelines³, which decided not to follow the American view point. This decision has been reconfirmed in the 2007 Guidelines⁴. The arguments proposed by the European Society of Hypertension/European Society of Cardiology Guidelines Committee for not adapting the approach proposed by the JNC VII are multifold⁴. For example, the new definition implies that a high-normal blood pressure state is by no means a "pre-disease" state. This may create anxiety in the patients and may request for unnecessary medical visits, laboratory and instrumental examinations in a large number of subjects. The JNC VII position also implies that non-pharmacological interventions should be mandatory in all "pre-hypertensive" patients, without considering that the high-normal blood pressure state is a highly differentiated category characterized by marked interindividual differences in blood pressure, in patients' age as well as in the total cardiovascular risk profile.

Despite the divergent opinion of American and European Guidelines on the definition, there is no question that both of them agree in considering a high-normal blood pressure state characterized by an increased cardiovascular risk. The present issue of the Brazilian Journal of Hypertension is devoted to the problem of high-normal blood pressure state. This editorial endeavour will allow the reader to achieve up-to-date practical information on a debated issue, i.e. how to handle a high-normal blood pressure state in a clinical practice. Sound reasons support the concept to take in serious account this clinically condition. First, a high-normal blood pressure state is not rarely associated with structural alterations of the cardiovascular system, such as an increased thickness of the cardiac walls as well as of the carotid artery intima-media⁵. Both these two markers of organ damage are well known to contribute to total cardiovascular risk and are likely to participate at the increased incidence of fatal and non-fatal cardiovascular events described in this condition^{6,7}. Second, a high-normal blood pressure state displays a prevalence of metabolic abnormalities, such as elevated blood pressure levels, increased blood triglycerides and total cholesterol and impaired glucose tolerance. These findings have been documented by a consistent number of epidemiological surveys^{8,9}. A recent sub-study of the research project Pressioni Arteriose Monitorate E Loro Associazioni (PAMELA)⁶ has provided a further demonstration of the metabolic risk in the general population, living in Italy, in the geographic area at the northeast of Milan. The cohort was subdivided in quartiles according to the optimal, normal, high-normal hypertensive blood pressure values. The results confirm that also in a Mediterranean population the presence of a high-normal blood pressure state is characterized by an increased prevalence of impaired fasting glucose, pre-diabetes, diabetes and hypercholesterolemia. Finally, several aspects of the pathophysiological profile of a high-normal blood pressure state need to be elucidated. These include the participation of neurogenic

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mechanisms at the blood pressure elevation, taking into account that previous studies have shown that a close parallelism exists between the magnitude of the blood pressure elevation and the degree of the adrenergic overdrive¹⁰.

This special issue of the Brazilian Journal of Hypertension will cover some of these aspects. It will address, however, the most "hot topic" related to the high-normal blood pressure state, such as the pros and cons of the therapeutic intervention. Other topics of interest will be 1) pathophysiology of high-normal blood pressure, 2) global cardiovascular risk and high-normal blood pressure, and 3) the role of high-normal blood pressure in childhood and adolescence. These questions will be addressed in the present monographic issue of the Journal that will thus represent an important contribution to our understanding of the clinical pattern and of the mode of the therapeutic intervention.

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