

Childhood Obesity: A Determinant of Adolescent and Adult Hypertension

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DEAR EDITOR,

Although hypertension was once considered to be rare in pediatric age group, there has been a persistent increase in hypertension in childhood, which has been simultaneously accompanied by the epidemic of childhood overweight and obesity.^[1] Childhood obesity has now been acknowledged as a major public health concern reaching epidemic proportions.^[2] In 2011, more than 40 million children under the age of 5 years were overweight.^[3] Initially thought to be a disease of the developed nations, this disease is now expanding in the developing nations as well.^[4] More than 30 million overweight children are living in developing countries and 10 million in developed countries.^[3]

Childhood obesity has acquired a status of public health significance because of its association with other comorbidities such as hypertension, insulin resistance, type 2 diabetes mellitus, hyperlipidemia, and liver and kidney disease.^[3,5] The prevalence of hypertension in children and adolescents has shown an increase mainly because of increase in prevalence of childhood obesity as well as rising awareness about the condition. The increase in childhood hypertension not only increases the prevalence of adult hypertension,

but also cardiovascular disease and early death.^[3,5] Hypertension has been demonstrated in several populations to have a positive correlation with obesity and overweight, with obese children having a three-fold increased risk of developing hypertension compared with their non-obese counterparts.^[6]

The pathophysiology of the development of obesity-related hypertension is complicated, and usually multiple potential mechanisms (viz. hyperinsulinemia, stimulation of the renin-angiotensin-aldosterone system, sympathetic nervous system stimulation, abnormalities in leptin, etc.) act simultaneously towards the development of higher blood pressure in obese children and adolescents.^[7]

A multidisciplinary approach should be in place for identifying children at high risk by tracking of their blood pressure for development of adult hypertension. Thus, the prevention of cardiovascular disease in adulthood should begin right from early childhood through identification of preventable risk factors (viz. obesity/passive smoking).^[8] The Endocrine Society of United States has recommended measures towards prevention of childhood obesity (viz. exclusive breastfeeding for 6 months; avoiding consumption

of calorie dense, nutrient poor foods; increased intake of dietary fiber, fruits, and vegetables; smoking cessation; abstinence from alcohol use; timely meals; and daily moderate to vigorous physical activity).^[9] Even pediatricians and general physicians can assume a vital role in tackling the issue of childhood obesity hypertension if they are motivated enough to participate in government initiatives in imparting education to children, parents, school teachers, and community in general about adoption of healthy lifestyle. Simultaneously, health education courses can be made a part of school curriculum along with ensuring that only nutritionally sound food and drinks are available in the school environment.

To conclude, childhood obesity significantly increases the risk of development of hypertension especially in older adolescents. Thus, intensified measures should be implemented for screening of childhood obesity and its comorbidities, of which hypertension is prominent, at all levels of healthcare, and at risk children should be referred for appropriate interventions. The role of health education and mass public enlightenment pertaining to dangers of adoption of harmful lifestyle cannot be underestimated. It is hoped that improved understanding of the issue will lead to better recognition and treatment, which may play a key role in averting the epidemic of cardiovascular disease in adulthood.

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