



The metabolic syndrome and obesity in children

Authors:Dr.Bahareh Imani, Zahra sayyar Address: Assisstant professor of pediatrics-Mashhad University of Medical Sciences family health consultant-Mashhad University of Medical Sciences imanibh@mums.ac.ir

BACKGROUND

The metabolic syndrome was recently defined by the Adult Treatment Panel III. Despite a lack of uniform definition of the syndrome in pediatrics, recent studies have shown that the syndrome develops during childhood and is highly prevalent among overweight children and adolescents .The prevalence and magnitude of childhood obesity are increasing dramatically. We examined the effect of varying degrees of obesity on the prevalence of the metabolic syndrome and its relation C-reactive protein levels in school age children in Shiraz.

METHODS

We studied 150 obese children beginning in 2010. Subjects were entitled if they were healthy, were between 6 and 10 years of age, and had a body-mass index (BMI), that exceeded the 97th percentile for their age and sex. Exclusion criteria were the known presence of diabetes and the use of medication that alters blood pressure or glucose or lipid metabolism. Twenty nonobese siblings of obese subjects (BMI, <85th percentile) and 31 overweight siblings (BMI, 85th to 97th percentile) were recruited as comparison groups.

We administered a standard glucose-tolerance test, blood pressure, plasma lipid and C-reactive protein levels. Levels of triglycerides, high-density lipoprotein cholesterol, and blood pressure were adjusted for age and sex. Because the body-mass index varies according to age, we standardized the value for age and sex with the use of conversion to a z score.

RESULTS

The overall prevalence of the metabolic syndrome was 34.6percent in moderately obese subjects

and 45.8 percent in severely obese subjects; no overweight or nonobese subject met the criteria

for the metabolic syndrome. The prevalence of the metabolic syndrome increased with the severity of obesity and reached 50 percent in severely obese children. For each half-unit increase in the body-mass index, changed to a z score, was related with an increase in the risk of the metabolic syndrome among overweight and obese subjects (odds ratio, 1.55; 95 percent confidence interval, 1.16 to 2.08). C-reactive protein levels increased with increasing obesity.

CONCLUSIONS





The prevalence of the metabolic syndrome is high among obese children and adolescents, and it increases with worsening obesity. Biomarkers of an increased risk of adverse cardiovascular outcomes are already present in these children. Our results show a significant adverse effect of worsening obesity on each component of the metabolic syndrome, underscoring the deleterious effect of increasing BMI in this age group.