Cutoffs for the metabolic syndrome risk factors in Danish children and adolescents

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INTRODUCTION

The International Diabetes Federation (IDF) developed a new definition to diagnose metabolic syndrome (MS) in children and adolescents aged 10-16 years old using modified adult criteria (Zimmet et al., 2007). Matching the consistent IDF cutoffs for adults (Alberti, Zimmet, & Shaw, 2006) with the need for adjustment to youth, we aimed to develop age and gender-specific cutoffs for the MS risk factors in 10-15 years old Danish boys and girls, linking the youth to the adult criteria.

METHODS

Data included 1812 youth between 9.0-15.99 years old results from the Danish European Youth Heart Study (EYHS) frameworks I and II (Riddoch et al., 2005). Percentile curves were constructed, nationally weighted, and smoothed using the Cole's Lambda Mu Sigma method (Cole & Green, 1992) and linked to the IDF cutoffs for adults at 16 years of age. Percentile curves included age and gender-specific cutoffs linked to the adult abnormal cutoff values for waist circumference (WC), triglycerides (TG), high-density lipoprotein cholesterol (HDL-C), systolic blood pressure (SBP), diastolic blood pressure (DBP), and fasting plasma glucose (GLU).

RESULTS

Growth curves for the MS risk factors were provided. The cutoffs for abnormal MS risk factors were equivalent to the 98th (boys) and the 89th (girls) percentile for WC, to the 92nd percentile for SBP in boys, to the 96th (boys) and the 94th (girls) percentile for TG, to the 16th (boys) and the 6th (girls) percentile for HDL-C and to the 84th (boys) and the 95th (girls) percentile for GLU. The DBP was suppressed in both genders because there were no subjects reaching the adult's cutoff (83 mmHg).

CONCLUSIONS

The curves represent waist and lipid percentiles and specific cutoffs for Danish children and adolescents, allowing both epidemiological and possibly clinical applications.

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