Waist-To-Height Ratio: A New Pediatric Parameter For Predicting Cardiovascular Risk In Preschool Age

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Waist-to-Height Ratio (WtHR) has been studied as innovative parameter for assessment of cardiovascular risk in obesity, with excellent results especially in adolescents. When >0.5, WtHR is a visceral adipose tissue’s index correlating with high risk of metabolic disease. Considering growing pediatric obesity-related complications, and the importance of a prevention since early years of life, WtHR could be also useful in preschoolers with increased waist circumference but still normal BMI.

The objective of our study is to establish a correlation in pre-school age between WtHR > 0.5 and development of hypertension in adulthood.

We calculated WtHR in preschool children (2-6 years) of two Salerno’s kindergartens enrolled in “3P Project” study. Subsequently we formed two small homogeneous cohorts of 18 normal-weight, overweight and obese children, characterized by WtHR >0.5 and <0.5, respectively. Then we proceeded to determinate blood pressure in these 36 children (17F, 19M) and evaluate systolic and diastolic percentiles.

We have found a significantly higher prevalence of diastolic prehypertension in the cohort with WtHR >0.5 (38.8%) compared with the cohort with a WtHR <0.5 (22.2%). Differently from adolescents, preschool children have more significant prevalence of diastolic prehypertension (11 children, 30.5%), compared with systolic prehypertension (found only in 3 obese children, 8.3%).

An altered WtHR in preschool children appears a candidate parameter predicting hypertension. Even in normal-weight children, if greater than 0.5, it may be associated with a state of concomitant diastolic prehypertension.

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