Hypertriglyceremic Waist Phenotype: Effect of Birthweight and Weight Gain in Childhood at 23 years old.

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INTRODUCTION: It has been reported that intrauterine malnutrition increases the risk of cardiovascular disease in adulthood. Other studies have suggested that chronic diseases are programmed by postnatal growth. The hypertriglyceremic waist phenotype (HWP) has been associated with the presence of cardiometabolic risk profile and an increased risk of coronary artery disease. The aim of the study is to assess the effect of birthweight and weight gain during different periods in childhood on the prevalence of hypertriglyceremic waist phenotype (HWP) in a birth cohort.

METHODS: In 1982, all hospital births in Pelotas, Brazil were identified, and the 5914 liveborn whose family lived in the urban area of the city were examined and their mothers interviewed. This population has been followed for several times. In 1984 and 1986 all households in the city were visited in search of cohort children; from October 2004 to August 2005 (mean age 23 years), we visited all households located in urban area of the city. The subjects answered a questionnaire and gave a blood sample. Hypertriglyceremic waist phenotype was defined as a triglycerides ≥2 mmol/L and a waist circumference ≥90 cm for men whereas for women triglycerides ≥1.5 mmol/L and waist circumference ≥85 cm were used as cut-off. Conditional regression was used to take into account the correlation between subsequent weight measures and regression to the mean.

RESULTS: Subjects whose weight-for-age z-score at mean age of 42 months was one or more standard deviation above the mean, according to gender and age, were 7.83 (95% confidence interval: 3.55; 17.2) times more likely of presenting the HWP than those subjects whose weight-for-age z-score at 42 months was more than one standard deviation below the mean. Among those subjects whose birthweight was adequate-for-gestational age (AGA), conditional weight at 20 months was positively associated to the risk of having the HWP [relative risk: 1.59 (95% confidence interval: 1.32; 1.92)], whereas for small for gestational age (SGA) subjects conditional weight was not associated with the HWP [relative risk: 1.06 (95% confidence interval: 0.74; 1.5)]; the test for interaction was significant (P-value = 0.08).

CONCLUSIONS: Early weight gain among SGA infants, did not increase the risk of presenting the HWP in early adulthood, whereas among those whose birthweight was AGA, early weight gain increased the risk of the having the phenotype.