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ASSOCIATION BETWEEN G276T POLYMORPHISM OF ADIPONECTIN GENE, ATHEROGENIC INDICES AND INTIMA MEDIA THICKNESS IN OBESE CHILDREN

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INTRODUCTION: Atherosclerosis is an inflammatory process occurring in arterial tissue, and can start in early childhood. Obesity in children is an important risk factor of atherosclerosis and is closely associated with lipid abnormalities. Helpful investigation is carotid artery intima-media thickness measurement (IMTc). Hipoadiponectnemia have been negatively associated with enothelial dysfunction, genetic investigation has revealed that polymorphism G276T is related to adiponectin concentration.THE AIM: of study was to investigate the association between the G276T polymorphism of the adiponectin gene, atherosclerosis indices and IMTc in obese children. **MATERIAL AND METHODS:** The examined group included 114 obese children (BMI > 2 SDS), and control group 34 non-obese children (BMI<1.0 SDS). Height, weight, waist and hip circumference were measured and WHR, WHtR was calculated. Fasting plasma total cholesterol (TC), HDL-cholesterol (HDL-Ch), LDL-cholesterol (LDL-Ch), triglicerydes (TG) C-reactive protein (CRP), and adiponectin were measured and atherogenic indices was calculated: TC/HDL-Ch, TG/HDL-Ch, non-HDL. IMTc of the common carotid artery was determined using duplex ultrasonography. We approved as an increased value of IMTc > 0,5 mm. Polymorphism G276T of adiponectin gene identification was performed in total genomic DNA using PCR-RFLP method. **RESULTS:** In the control group higher concentrations of HDL-Ch (58,3+/-9,1 mg/dl vs. 44,5+/-12,8 mg/dl) and lower level of TC, LDL-Ch and TG ($p<0,05$) than in study group was found. Obese patients has higher values of atherogenic indices (TC/HDL-Ch: 4,6; TG/HDL: 3,65; non-HDL: 135,1 mg/dl) than lean patients (TC/HDL-Ch: 2,6; TG/HDL: 1,5; non-HDL: 88,7 mg/dl) ($p<0,05$). These indices positively correlated with CRP ($p<0,05$) and lipids. The most sensitive was non-HDL ratio. 91% of obese children has elevated IMTc (0,57+/-0,12 mm). We didn't shown statistical differences between IMTc and between CRP in both groups. IMTc positively correlated with CRP ($p>0,05$). Children with SDS of BMI>6 than other patients has higher: WHtR (0,64 vs. 0,58), IMTc (0,65+/-0,08 mm vs. 0,56+/-0,08 mm) and CRP (0,6+/-0,35 mg/l vs. 0,41+/-0,2 mg/l). The mean level of adiponectin was statistically decreased in homozygous TT (F 6,25, $p<0,01$) than in carriers G (GG+GT) alleles and the anthropometric parameters, lipid concentrations, atherogenic indices did not differ between obese children with gene polymorphism and wild homozygous. **CONCLUSIONS:**In patients with obesity higher concentrations of atherogenic indices was found. The most sensitivity was non-HDL ratio. Correlation between CRP and atherogenic indices and its

higher concentrations in children with BMI>6, can suggested subclinical process of atherogenesis. IMTc was dependent of degree of obesity, lipids changes and CRP concentrations. Polymorphism G276T of the adiponectin gene is more common in children with obesity. Polymorphism G276T of the adiponectin gene does not seem to be associated with a atherogenic indices and IMTc in obese children