Abstract

The prevalence of obesity and type 2 diabetes in the adolescent population has been steadily rising. According to the previous studies, the rs1801282 (Pro12Ala) polymorphism in the *PPARG* gene is connected to the development of obesity, hypertension, insulin resistance, hyperlipemia, and other markers of type 2 diabetes. Data collection was undertaken as part of the COPAT project *(Childhood Obesity Prevalence and Treatment)*. A sample of 2246 Czech adolescents aged 13-17 was genotyped using RT-PCR. 735 individuals from this sample were subjected to further anthropometric and clinical measurements, and biochemical testing. Data on their nutritional intake and dietary habits were collected as well. Our goal was to 1) determine the effect of the polymorphism on the anthropometric, clinical and biochemical parameters, 2) determine the effect of the genotype-phenotype interaction on the lipid spectra. We measured the frequency of *Ala* allele as 15%. *Ala* allele was associated with lower fasting c-peptide (p=0,006) and fasting insulin levels (p=0,035). In obese *Ala* carriers we detected higher levels of phospholipid and triacylglycerol ω-3 polyunsaturated fatty acid than in lean *Ala* carriers or obese noncarriers.

Keywords: PPARγ2, Pro12Ala, fatty acids, obesity, COPAT project