

DIFFERENCES OF INSULIN GENE GENOTYPES AND INSULIN LEVELS IN OBESE CHILDREN

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Aim: to compare gender and pubertal insulinemia levels and frequencies of Insulin gene (INSG) genotype rates in lean (control - C) and obese (O) children.

Methods: 578 O and 204 C children were investigated (divided into groups: prepubertal O (1st-o) m/f n=178/117 and C (1st-c) n=51/46, early pubertal (2nd-o) n=67/41 and (2nd-c) n=16/17, late pubertal (3rd-o) n=88/87 and (3rd-c) n=14/60). 129 O girls and 144 O boys and 104 C girls and 55 C boys were genotyped in INSG (A-23HphIT polymorphism). Serum insulin was detected by radioimmunoassay technique. Statistical analysis was performed using SPSS 16.0 (p=0,05).

Results: There were no sex differences between insulin levels in 1st and 2nd groups in O and 1st, 2nd and 3rd groups in C children (p=0,7) (p=0,1) in contrast to 3rd-o group (p=0,0001). Insulin ranges were higher in O children than in C regardless of pubertal stage and sex (p= 0,001 - 0,0001).

There were gender differences (hi-square 6,56; p<0,05) between genotypes rates occurrence in O: 51,9% girls and 61,8% boys had AA-genotype, 13,2% girls and 4,9% boys – TT, versus to C children: AA-genotype was found in 61,5% girls and 56,4% boys, TT-genotype - in 3,8% girls and 5,5% boys (p>0,05). Insulin level was significantly higher in O with AA homozygote genotype in compared with TT-genotype (p=0,003). There were no changes of insulin values in C irrespective of the genotype polymorphisms.

Conclusion: A-23HphIT INS genotypes in O girls were significant differ from C irrespective of gender. Insulin level in O depends on A-23HphIT polymorphisms.