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The effect of the *FTO rs9939609* on anthropometrical measurements in female adolescents with overweight and obesity

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Statement of the Problem: Among the causes of obesity an important role is played by the heredity. The *FTO* is one of the genes associated with obesity and body mass fat. And polymorphism *rs9939609* of this gene located in the first intron (the code is W=A/T) appears the most significant.

Methodology & Theoretical Orientation: The study included total of 128 Caucasian female adolescents (average age 15.86±1.02) living in Eastern Siberia (Irkutsk region, Russia). SDS BMI, % of body mass fat was measured. 59 girls were included in group with normal weight (SDS BMI 0.84±0.55) and 69 girls were included in group with overweight and obesity (SDS BMI 2.52±0.72). Genomic DNA was extracted from EDTA-treated whole blood by commercial kits (DNA-Sorb-B, AmpliSens, Russia). Genotyping of the *FTO rs9939609* was performed using polymerase chain reaction in real time with DT-Prime cycler (DNA-technology, Russia). Statistical analysis was performed by soft "STATISTICA8.0".

Findings: A-allele frequency was 40% in control group and 49% was in group with overweight and obesity (p=0.223). Comparisons of SDS BMI and percent of body mass fat stratified by *FTO rs9939609* genotypes are shown in table 1. We found the significant increase of SDS BMI in carriers of A-allele in group with overweight and obesity. There is no association in group with normal weight.

Conclusion & Significance: Thus, carrier of the A-allele of *FTO rs9939609* are associated with higher meaning of SDS BMI in female adolescents with overweight and obesity, living in Eastern Siberia.

Measurements	Genotypes			p-value
	AA (1)	AT (2)	TT (3)	
Control group (n=60)				
SDS BMI	0.78±0.58	0.85±0.55	0.93±0.52	0.681 ¹⁻² ; 0.499 ¹⁻³ ; 0.603 ²⁻³
% of body mass fat	35.96±3.66	33.22±14.5	31.06±8.10	0.633 ¹⁻² ; 0.195 ¹⁻³ ; 0.460 ²⁻³
Group with overweight and obesity (n=69)				
SDS BMI	2.82±0.60	2.45±0.66	2.36±0.84	0.023 ¹⁻² ; 0.047 ¹⁻³ ; 0.559 ²⁻³
% of body mass fat	44.43±12.86	44.90±5.06	42.43±6.10	0.483 ¹⁻² ; 0.085 ¹⁻³ ; 0.232 ²⁻³

Table 1. Comparisons of SDS BMI and percent of body mass fat stratified by *FTO rs9939609* genotypes

Biography

Tatyana Bairova completed her graduation at Tomsk Medical University as a pediatrician and; post-graduation at Scientific Centre for Family Health and Human Reproduction Problems (SC FHHRP, Irkutsk, Russian Federation) where she is a specialist and a researcher.

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