Genetic Polymorphisms in Candidate Genes and Risk Phenotypes Associated to Obesity in Children and Adolescents from a Brazilian Mixed Population

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Genetic studies of common obesity are based in the analysis of single nucleotide polymorphisms (SNPs) that are able to alter the susceptibility for obesity development or complications associated such as altered blood lipids, insulin resistance and high blood pressure. We selected 403 individuals (7 – 14 years old) from a Brazilian mixed population to evaluate the frequency and the association with risk factors of 12 SNPs previously associated to risk phenotypes related to obesity in other populations. Genotyping was performed using a modified version of a minisequencing method in a MegaBACE™ automated DNA sequencer. The alleles and genotypes frequencies observed were similar to the observed in other populations (except for rs28932472) and were in Hardy-Weinberg equilibrium. Individuals were categorized according to genotype using the dominant genetic model. Continuous variables were compared by ANOVA and categorical variables were compared by Pearson’s chi-squared test between genotypes groups. It were observed significant differences in skin color (p=0.032) for rs1042713, glucose (p=0.037) for rs1042714, weight at birth (p=0.044) for rs266729, LDL-C (p=0.022) for rs680 and percentage body fat (p=0.001) for rs5219. It were also observed differences in HDL-C (P=0.006) and LDL-C (p=0.012) levels for rs1137101, height (p=0.014), LDL-C (p=0.016) and glucose (p=0.004) for rs28932472, in total cholesterol (p=0.037) for rs8192678 and in body mass index (p=0.042) for rs2011162. Our results indicate that some SNPs are associated to obesity phenotypes in children and adolescent in this mixed population.

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