



ORIGINAL RESEARCH

Pro12Ala Polymorphism of the PPAR- γ Gene is not Associated with BMI and Energy Metabolism among Healthy Nigerian Males

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ABSTRACT

Background: Peroxisome proliferator-activated receptors (PPARs) are a nuclear hormone receptor superfamily of ligand-activated transcription factors while the PPAR- γ subtype regulates adipocyte differentiation, lipid metabolism and insulin sensitivity. The Pro12Ala (rs1801282) polymorphism of the PPAR- γ has been linked to obesity in some populations.

Objectives: The present study aimed to find the relationship between PPAR- γ Pro12Ala polymorphism, energy metabolism and obesity among Nigerians males.

Methods: One hundred and fifteen male participants were recruited and their physical parameters such as weight and height were measured. Blood samples were taken for the analysis of metabolic parameters (fasting blood sugar, electrolytes and lipid profile) and DNA extraction, while genotyping was done by restriction fragment length polymorphism (RFLP) method. Blood samples were also analysed for metabolic parameters, Deoxyribonucleic Acid extraction and genotyping by restriction fragment length polymorphism (RFLP) method.

Results: Results show that the frequencies of the C (Pro) and G (Ala) alleles were 74.8 % and 58.2 % while the genotype frequencies of Pro/Pro (CC), Pro/Ala (CG) and Ala/Ala (GG) were 54.8 %, 40.0 % and 5.2 % respectively within the population sampled. The genotype distribution was not in Hardy-Weinberg equilibrium ($\chi^2=0.422$, $p<0.001$). The distribution of Pro and Ala alleles was not significantly different ($p>0.05$) between different BMI categories. The physical and metabolic parameters (except plasma sodium and chloride) measured were not also significantly different ($p>0.05$) between genotype groups as analyzed by ANOVA.

Conclusion: No association was found between the Pro12Ala polymorphism of the PPAR- γ gene and BMI in the Nigerian population sampled. Future studies involving females and a larger population are recommended.

Keywords: PPAR- γ , Pro12Ala gene polymorphism, Body mass index, Obesity.