APA-I POLYMORPHISM IN VDR GENE IS RELATED TO METABOLIC SYNDROME IN POLYCYSTIC OVARY SYNDROME

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Background: Women with polycystic ovary syndrome (PCOS) frequently present insulin resistance and metabolic comorbidities, such as dyslipidemia, diabetes and hypertension. Variants on vitamin D receptor (VDR) gene have been associated with insulin resistance (IR) and diabetes in general population. **Aims**: To investigate whether Apa-I polymorphism (rs7974232) in the VDR gene is associated with metabolic syndrome (MS) in PCOS and control women. **Methods:** A cross-sectional study including 190 PCOS (Rotterdam criteria) and 100 non-hirsute and ovulatory controls was performed. Endocrine and clinical measurements were assessed. Body mass index (BMI) was calculated. Genotypic analyses were evaluated by Real Time PCR. **Results:** Women with PCOS were younger (22.9±6.7 vs. 25.2±7.7 years; p=0.013) and had significantly higher BMI (29.7±6.4 vs. 27.03±6.1 Kg/m^2; p=0.001), total testosterone (0.90±0.40 vs. 0.54±0.17 ng/mL; p<0.001) and fasting insulin (16.87 (9.81-26.97) vs. 11.09 (7.34-15.44); p<001). The prevalence of metabolic syndrome in PCOS and controls were 26.5% and 4.8%, respectively. The genotypic distribution for Apa-I SNP did not differ significantly between PCOS (AA: 32,1%%, AC: 46,3%, CC: 21,6%) and controls (AA: 36,0%%, AC: 48,0%, CC: 16,0%). The genotype analyses among PCOS participants showed that individuals with CC genotype (CC vs. CA+AA) of Apa-I had higher risk for metabolic syndrome (OR: 2.133; 95% CI 1.020-4.464, p=0.042). The analyses among control participants showed that metabolic syndrome is more frequent in CC that CA+AA genotype (13.3% vs. 2.9%), but not significant, perhaps because of the low prevalence of metabolic syndrome in the control group. The CC genotype was also associated with higher systolic blood pressure (p=0.009), total cholesterol (p=0.040) and LDL (p=0.038) in both PCOS and control groups (two-way ANOVA. **Conclusion:** The present results suggest that variant Apa-I in VDR gene

may be associated with metabolic syndrome in PCOS women from Southern Brazil. Supported by grants from CNPq INCT 573747/2008-3 and FIPE-HCPA 340/2004, Brazil).