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Acute Coronary Syndromes

INTERLEUKIN-33 POLYMORPHISMS ARE ASSOCIATED WITH PREMATURE CORONARY ARTERY DISEASE AND CENTRAL OBESITY: RESULTS FROM THE GENETICS OF ATHEROSCLEROTIC DISEASE MEXICAN STUDY

Poster Contributions

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Background: The effect of interleukin 33 (IL-33) in the inflammatory process generates significant interest in the potential significance of IL-33 as a biomarker for coronary artery disease (CAD). The aim of the present study was to evaluate the role of IL-33 gene polymorphisms as susceptibility markers for CAD in the Mexican population.

Methods: Three IL-33 gene polymorphisms located in the promoter region (rs7848215, rs16924144 and rs16924159) and one in the intron 5 (rs7044343), were genotyped by 5' exonuclease TaqMan assays in a group of 776 patients with premature CAD and 599 healthy controls (with negative calcium score by computed tomography). Anthropometric and biochemical measurements were performed on all individuals, and hepatic steatosis was diagnosed by computed tomography.

Results: Under dominant and over-dominant models adjusted by age, gender, BMI, hypertension, diabetes mellitus, smoking history, total cholesterol, C-HDL, C-LDL and triglycerides, the rs7848215 T allele was significantly associated with decreased risk of premature CAD when compared to controls (OR = 0.72, P_{dom} = 0.023 and OR = 0.71, P_{ovd} = 0.026). Also, under dominant, recessive and additive model adjusted by the same variables, the rs7044343 T allele was significantly associated with decreased risk of premature CAD when compared to control (OR = 0.65, P_{dom} = 0.0018, OR = 0.61, P_{res} = 0.0140 and OR = 0.71, P_{add} = 0.0005). The rs7044343 T allele was significantly associated with decreased risk of central obesity under dominant model adjusted for same variables (OR = 0.61, P_{dom} = 0.0048). Three (rs7848215, rs16924144 and rs16924159) IL-33 polymorphisms were in strong linkage disequilibrium ($D' > 0.85$). The minor allele frequencies of the tag polymorphisms in controls were 0.115 (rs7848215) and 0.394 (rs7044343). The two tag polymorphisms distinguish the four common IL-33 haplotypes (CC, CT, TT and TC). The CT and TT haplotypes were significantly associated with decreased risk of premature CAD (OR = 0.76, P = 0.019 and OR = 0.63, P = 0.0022, respectively).

Conclusion: The results suggest that IL-33 gene polymorphisms are involved in the risk of developing premature CAD and central obesity in Mexican population.