P052 Genetic variants at 8q24 region are associated with prostate cancer susceptibility in a Southeastern European population

Eur Urol Open Sci 2022;45(Suppl 2):S117

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Introduction & Objectives: The 8q24 chromosomal region has been described as a gene desert; however, it harbors genetic variants associated with common cancers. In this study, we examined the correlation between the presence of Single Nucleotide Polymorphisms (SNPs) rs1447295C>A, rs4242382G>A (8q24) and the risk of prostate cancer (PC) in a Greek population.

Materials & Methods: A case-control study design was used to assess for presence rs1447295C>A and rs4242382G>A gene SNPs in peripheral blood from patients with PC and healthy individuals. Genomic DNA was extracted from peripheral blood and then T-ARMS-PCR and analysis of genotypes by agarose gel electrophoresis were conducted. PSA level at diagnosis and Gleason score at radical prostatectomy were recorded. Patients were risk-stratified according to the International Society of Urological Pathology (ISUP) 2014. Statistical associations (x^2 test, IBM SPSS v22) were explored with statistical significance p-value set at 0.05.

Results: Forty-eight patients diagnosed with PC and 58 healthy individuals (control group) were included in the study, with a mean age of 67,8 ± 5,7 years. With respect to the presence of rs1447295C>A, 11/48 (22.9%) of patients harbored the genotype AA/AC, whereas the presence of the A allele was detected in only 5/58 (8.6%) of healthy individuals (p=0.04). There was a trend towards higher frequency of the A allele (AA/AG) of rs4242382G>A SNP in patients (10/48, 20.8%) compared to healthy subjects (5/58, 8.6%, p=0.07). The presence of A allele in homozygous or heterozygous state for both rs1447295 and rs4242382 SNPs was associated with intermediate risk (ISUP grade 2/3) group disease (p=0.018 and p=0.039 respectively).

Conclusions: The findings of this study support an association between the rs1447295C>A and rs4242382G>A SNPs located in the 8q24 region with the risk of developing PC and particularly intermediate risk disease (ISUP EAU grades 2/3). Here may lay implications for more aggressive surveillance and treatment in carriers of these SNPs.