Association Analysis of rs2567206 Polymorphism in Promoter Region of CYP1B1 with the Risk for Development of Prostate Cancer in Bulgarian Patients

Introduction and Objective: Prostate cancer (PC) is the most diagnosed non-skin cancer and it is the second leading cause of cancer death in men but the genetic basis of this disease is not well understood. One of the genes associated with PC is *CYP1B1* which encodes cytochrome P450 1B1. This enzyme activates many carcinogens and catalyzes hydroxylation of estrogens and this is postulated to be a key factor in prostate carcinogenesis. CYP1B1 is over expressed in tumors and some polymorphic variants may increase the activity of the enzyme and have direct role in human prostate carcinogenesis. Following suggestive results from a previous study with polymorphisms in the CYP1B1 (rs1056836, rs1056837, rs1800440), we continue the analysis with a promoter polymorphism in the gene.
Materials and Methods*:* We have investigated the association of promoter polymorphism rs2567206 in *CYP1B1* with PC in a case control study of 181 PC patients and 168 controls. For genotyping we used TaqMan® method. We performed Fisher exact test for statistical analysis of the results.
Results*:* The genotype and allele frequencies of the studied polymorphism in CYP1B1 did not show any statistically significant difference between PC patients and controls. The SNP also did not show any correlation with metastasis or high Gleason score. Haplotype analysis including all studied polymorphisms in the gene showed some interesting tendencies, but did not withstand after correction for multiple testing.
Conclusions*: CYP1B1* polymorphism rs2567206 did not show association with PC in the Bulgarian population, but further study with larger sample size is needed to elucidate the role of this gene in carcinogenesis.