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Study of the frequency of occurrence of polymorphisms in patients with prostate cancer in the Kazakh population

V. Benberin, N. Seidalin, N. Shanazarov, T. Voshchenkova, D. Babenko, and A. Sibgatova

Medical Centre Hospital of President's Affairs Administration of the Republic of Kazakhstan, Kazakhstan

Introduction: The incidence of prostate cancer (PCa) due to increased life expectancy is steadily increasing. Currently, a list of polymorphisms associated with the risk of tumors, their course and treatment response has been determined, but there is no convincing evidence for their clinical use. Objective is to study the frequency of occurrence of polymorphisms in healthy men and patients with prostate cancer in the Kazakh population.

Materials and methods: Two groups of Kazakh- patients with prostate cancer (n = 480) and control (n = 479) were recruited during 2017-2019. DNA from blood samples were genotyped with 120 SNPs chip using qPCR (QuantStudio 12K, ThermoFisher). Genotype annotation was performed with ThermoFisher cloud.

Findings: The main and control groups are comparable in age. The average time from the diagnosis of prostate cancer to the time of inclusion in the study was 3.1 years, with a median of 2.7 years. The stage of the disease at the time of diagnosis in the main group of men with prostate cancer was: stage I- 12.6%; stage II- 40.9%; stage III- 30.8%; stage IV- 15.7%. The minimum allele frequency (MAF) of rs10187424 SNP for the control group was 39.5% (C-allele), while in the group with PCa, the C-allele was major (64.3%). Distribution by genotypes in the control group C / C- 6.2%, C / T- 66.7% and T / T- 27.1%. In the group with prostate cancer, C / S- 55%, C / T- 18.6% and T / T- 26.4%. After Bonferroni correction, *p* values were obtained using the log-additive inheritance model: LO *p* value <0.001 (4.761574e-23).

Conclusion: Minor allele (C- allele) of rs10187424 polymorphism located on 2 chromosome in VAMP8 gene has strong association with prostate cancer in Kazakh populaton. It should be noted that MAF in Kazakhs is very close to East Asians (38.6%) and South Asians (35.5%).

Biography

Seidalin Nazar is an oncologist. He has extensive clinical experience. Also, he conducts research, in particular the study of a genetic predisposition to the development of cancer, since it provides an understanding of the potential mechanisms of tumor development.

nkseidalin@mail.ru