**Polymorphism of Glutathione S transferase P1 and prostate cancer risk in an Algerian population**

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**Abstract**

Prostate cancer (PCa) is a major public health problem concern worldwide, with high morbidity and mortality levels. It is the most frequently diagnosed solid tumor. Individual susceptibility to prostate cancer may be partly due to genetic differences in detoxification and/or activation of xenobiotics. Glutathione S transferases (GST) represent a large family of conjugating enzymes containing at least seven isozymes. Inter-individual variability in the expression of these enzymes has prompted an investigation of their importance in PCa prevention and susceptibility.

The GSTP1 gene (OMIM 134660) is widely expressed in most tissues. Three polymorphic alleles of the GSTP1 gene, GSTP1\*A, \*B and \*C determine the enzyme’s activity. Both genotypes (GSTP1\*B and GSTP1\*C) are responsible for the enzyme’s decreased activity because of the location of the mutation (substitution) in the active site of the GSTP1-1 protein.

The aim of our study is to evaluate whether GSTP1 contribute to prostate cancer etiology.

This study included 49 incident PCa cases and 41 age-matched controls. Blood was collected on EDTA containers and DNA was extracted with FlexiGene DNA Kits. Polymorphism of exon 5 of GSTP1 (GSTP1b) was determined by PCR-RFLP (Restriction Fragment Length Polymorphisms). The amplified PCR product was digested with BsmAI restriction enzyme and, then, subjected to electrophoresis on 5% polyacrylamide gel.

The distribution of GSTP1 alleles and genotype frequency among the PCa patients was: 53.061% for the heterozygote GSTP1\*A/\*B (wild type); 28.571% for the homozygote GSTP1\*A and 18.367% for the homozygote GSTP1\*B.

In the controls 78.048% were wild type; 19.512% were homozygote GSTP1\*A and 2.439% presented the homozygote GSTP1\*B genotype.

Thus, a significant effect between GSTP1b genotypes and the PCa risk were observed (OR=3.145, CI: 1.244 – 7.947). Then, the GSTP1b polymorphism is associated with decreased risk of prostate cancer. Exon 5 GSTP1 polymorphisms contribute to the risk and increase the individual susceptibility of prostate cancer in the Algerian population.

**Keywords:** genetic polymorphism, glutathione-s-transferase, prostate cancer, PCR-RFLP.

1. **Declaration of conflicts**

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1. **Authors’ biography**

No Biography

1. **References**

No reference