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Association of a genetic variant in the ATP-binding cassette sub-family B member 1 with risk of cervical cancer

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Abstract

Background

Cervical cancer is one of the most prevalent cancers among women and is associated with high morbidity and mortality. Several factors are involved in the pathogenesis of cervical cancer including viral infections and/or genetic modifications that include single nucleotide polymorphisms (SNPs).

Methods

We aimed to investigate the association of genetic variants in ATP Binding Cassette Subfamily B Member 1 (ABCB1) (rs1128503) and Fc Gamma Receptor IIIa (FCGR3A) (rs396991) genes and susceptibility to cervical cancer in 263 individuals with or without this form of cancer. DNA samples were isolated and genotyped using a TaqMan based real-time (RT-) PCR method.

Results

The rs1128503 was found to be associated with an increased risk of cervical cancer (recessive model: OR=2.6, CI: 1.1–5.8, p=0.02). whilst there was no association between the rs396991 and susceptibility to cervical cancer.

Conclusion

Our results showed that there is an association between the ABCB1 polymorphism and susceptibility for cervical cancer suggesting its potential as a risk stratification marker for cervical neoplasia.

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Keywords

Cervical cancer; ABCB1; rs1128503; rs396991; FCGR3A

Abbreviations

Cervical cancer, CC; Single nucleotide polymorphisms, SNPs; ATP- binding cassette sub-family B member1, ABCB1; Fc gamma receptors, FCGR; Antibody-dependent cellular cytotoxicity, ADCC; Natural killer, NK; Immunoglobulin G, IgG; High grade squamous intraepithelial lesion, HSIL; Hardy–Weinberg equilibrium, HWE; Chronic myeloid leukemia, CML; Colorectal cancer, CRC; Glutathione S-transferase, GST; Minor allele frequency, MAF; Odds ratio, OR

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