XPC Lys939Gln polymorphism, smoking and risk of sporadic colorectal cancer among Malaysians

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Abstract

AIM: To investigate the risk association of xeroderma pigmentosum group C (XPC) Lys939Gln polymorphism alone and in combination with cigarette smoking on colorectal cancer (CRC) predisposition.

METHODS: Peripheral blood samples of 510 study subjects (255 CRC patients, 255 controls) were collected. DNA was extracted and genotyping was performed using polymerase chain reaction-restriction fragment length polymorphism. The association between polymorphic genotype and CRC predisposition was determined using the OR and 95% CI.

RESULTS: The frequency of the homozygous variant (Gln/Gln) genotype was significantly higher in cases compared with controls (16.0% vs 10.2%, P = 0.049). The Gln/Gln genotype of XPC showed a significantly higher association with the risk of CRC (OR = 1.884; 95% CI: 1.082-3.277; P = 0.025). In the case of allele frequencies, variant allele C was associated with a significantly increased risk of CRC (OR = 1.375; 95% CI: 1.050-1.802; P = 0.020). Moreover, the risk was markedly higher for those who were carriers of the Gln/Gln variant genotype and were also cigarette smokers (OR = 3.409; 95% CI: 1.061-10.949; P = 0.032).

CONCLUSION: The XPC Gln/Gln genotype alone and in combination with smoking increases the risk of CRC among Malaysians.