Risk modification of colorectal cancer susceptibility by interleukin-8 -251T>A polymorphism in Malaysians

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Abstract

AIM: To investigate the allele and genotype frequencies and associated risk of interleukin (IL)-8 -251T>A polymorphism on colorectal cancer (CRC) susceptibility risk.

METHODS: Peripheral blood samples of 255 normal controls and 255 clinically and histopathologically confirmed CRC patients were genotyped for IL-8 -251T>A polymorphism employing allele-specific polymerase chain reaction. The relative association of variant allele and genotypes with CRC susceptibility risk was determined by calculating the odds ratios (ORs). Corresponding $\chi^2$ tests on the CRC patients and controls were carried out and 95% confidence intervals (CIs) were determined using Fisher’s exact test. The allele frequencies and its risk association were calculated using FAMHAP, haplotype association analysis software.

RESULTS: On comparing the frequencies of genotypes of patients and controls, the homozygous variant AA was significantly higher in CRC patients ($P = 0.002$) compared to controls. Investigation on the association of the polymorphic genotypes with CRC susceptibility risk, showed that the homozygous variant IL-8 -251AA had a significantly increased risk with OR 3.600 (95% CI: 1.550-8.481, $P = 0.001$). In the case of allele frequencies, variant allele A of IL-8 -251 showed a significantly increased risk of CRC predisposition with OR 1.32 (95% CI: 1.03-1.69, $P = 0.003$).

CONCLUSION: Variant allele and genotype of IL-8 (-251 T>A) was significantly associated with CRC susceptibility risk and could be considered as a high-risk variant for CRC predisposition.

Key words: Interleukin-8 -251T>A; Polymorphism; Colorectal cancer; Malaysians

INTRODUCTION

Colorectal cancer (CRC), the incidence of which has been increasing worldwide for the past few years, represents a significant cause of morbidity and mortality. CRC develops as a result of progressive accumulation of genetic and epigenetic alterations that lead to a series of histo-