

Single Nucleotide Polymorphisms in IL-1 β and IL-6 genes and their Effects on Susceptibility to Typhoid Fever

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Abstract:Background: Typhoid fever (TF) caused by *Salmonella* bacteria represents a major public health problem in developing countries. Pro-inflammatory cytokines play a critical role in the resistance to this bacterium. Many single nucleotide polymorphisms (SNPs) in the promoter region of these cytokine genes can influence the transcription of the corresponding cytokine and subsequently the susceptibility to TF.

Aims: This case/control study aimed to assess the role of two SNPs (IL-1 β -511C>T and IL-6-174G>C) in the susceptibility to TF.

Subjects and Methods: Blood samples were obtained from 62 patients with TF and 48 apparently healthy controls. DNA was extracted from these samples, and IL-1 β and IL-6 genes were amplified with specific primers using PCR technique. PCR products were directly sequenced and the frequencies of IL-1 β -511C>T and IL-6-174G>C were calculated in patients and controls.

Results: For the SNPIL-1 β -511C>T, there were no significant differences in either genotype or allele frequencies between TF patients and controls. On the other hand, the homozygote mutant genotype (CC) and allele C of the SNPIL-6-174G>C were more frequent in controls compared to TF patients.

Conclusions: These results strongly suggested that the variant IL-6-174C has a protective role against the infection with TF.

Keywords: typhoid fever, single nucleotide polymorphism, IL-1 β -511C>T, IL-6-174G>C.