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Pro-Inflammatory Cytokine IL-1B/TNFα Promoter Polymorphisms and Gastric Cancer/Duodenal Ulcer Risk

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IL-1β and TNFα are pro-inflammatory cytokines with multiple biological effects and a potent inhibitor of gastric acid secretion, and IL-1RN has been shown to be associated with enhanced IL-1β production in vitro. Recently, it was reported that the pro-inflammatory genotypes, IL-1B -31 C/+ and IL-1RN *2/*2, were associated with an increased risk of gastric cancer in a Caucasian population. TNFα promoter polymorphisms are also associated with inflammatory disease and gastric cancer. We tested the association between the pro-inflammatory cytokines polymorphisms and gastric cancer, duodenal ulcer, and healthy subjects as controls in the Korean population. The allele frequency of IL-1B-31 C was more prevalent in Korean (51 %) than in Caucasian (30 %), while the frequency of IL-1RN *2 allele was less in Korean (6 %) than in Caucasian (27 %). Using the IL-1B TT genotype as a reference group, the CC genotype was not associated with an increased risk of gastric cancer or duodenal ulcer in the Korean population (OR = 0.90, 95% CI = 0.50-1.64; OR = 0.72, 95% CI = 0.36-1.46, respectively). Similarly, IL-1RN*2 was not a risk genotype for either gastric cancer or duodenal ulcer. No association was recognized on the haplotype analysis of the two genes, either. Our results did not support the previous report that IL-1B-31 C/ IL-1RN*2 polymorphisms were associated with an increased risk of gastric cancer. Five TNFα promoter polymorphisms (-1031, -863, -857, -308, -238) were also tested the association with gastric cancer and duodenal ulcer. From the haplotype analysis of TNFa polymorphisms, haplotype C and D were inversely associated with gastric cancer (19.2 % and 12.3 %) and duodenal ulcer (12.1 % and 18.2%). We will discuss the association between genetic polymorphisms of IL1B, IL1RN, and TNFα and risk of gastric cancer/duodenal ulcer.