Tumor Necrosis Factor alpha and beta Gene Polymorphism in Women with Migraine Headache

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Tumor necrosis factor (TNF) levels have been associated with migraine headache disorders as risks of immunological abnormalities. The production of TNF alpha and beta is influenced by TNF alpha gene polymorphism at position - 308 (G->A) in the promotor region and TNF beta gene polymorphism at +252(G->A) in the first intron. The TNF alpha A allele has been associated with susceptibility to various autoimmune diseases and TNF beta A allele leads to a higher TNF alpha secretory capacity. The current study was designed to evaluate whether TNF gene polymorphism is assocaited with mygrane headache in Korean women. Fifty four women with migrane headache and fifty one controls were enrolled and studied. The diagnosis of migrane was based on the HIS criteria. All subjects were genotyped for TNF alpha and beta gene polymorphism by PCR. The associations were evaluated as odds ratio (OR) using logistic regression. Both recessive and dominant gene models were evaluated and combined effect of TNF alpha and beta on migrane was also assessed. Significant difference in TNF alpha between cases and controls was observed in crude analysis (P=0.037), but not in TNF beta (P=0.116). Age was a significant independent risk of migrane in all models (P<0.001). In recessive model of TNF alpha, A allele was significantly associated with migrane (OR=3.28, 95% CI=1.37-7.87). After adjusting for confounders, the association became greater (adjusted OR=5.39, 95% CI=1.49-19.19). However, TNF beta was not related to migrane in both recessive and dominant models. The interaction between TNF alpha and beta was not observed. There was a borderline significant multiplicative interaction between TNF alpha and sex (P for interaction=0.10). Our data supported that TNF alpha may play an important role in susceptibility to migrane headache in women, but not in men possibly, however, TNF beta is not directly associated with migrane headache in both sex.

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