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Synergistic effects of cyclooxygenase-2 genotypes and smoking habit on gastric cancer in Taiwan

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Aim: The relationship between COX-2 gene and gastric cancer risk is still ambiguous. In this study, the association and interaction of genotypic polymorphisms in cyclooxygenase 2 (Cox-2) gene and smoking habits with gastric cancer susceptibility are investigated.

Materials & Methods: Up to 136 patients with gastric cancer and 560 healthy controls recruited from the China Medical Hospital in central Taiwan were genotyped by PCR-RFLP method. We investigated six polymorphic variants of Cox-2, including G-1195A, G-765C, T+8473C, intron 1, intron 5, and intron 6, and analyzed the association of specific genotype with susceptibility to gastric cancer.

Results: The data showed that although for each genotype of Cox-2 G-1195A, G-765C, T+8473C, intron 1, intron 5, and intron 6, there is no difference in the distribution between the gastric cancer and control groups (P>0.05), the analysis of joint effect for Cox-2 G-765C and intron 6 showed that individuals with GC at G-765C and GG or AG+AA at intron 6 present a slightly higher potential for developing gastric cancer than other groups. Also, the GC genotype at G-765C plus smoking habit performed synergistic effects on gastric cancer susceptibility.

Conclusion: Our findings suggest that the C allele of Cox-2 G-765C may be responsible for gastric cancer etiology and may be useful in early detection and prediction of gastric cancer.

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