Association of Interleukin-10–1082 Promoter Polymorphism with Gastric Cancer: Appraisal of a Recent Meta-Analysis

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Dear Editor:

I read with a great interest the recent article by Ni *et al.* (2012). They performed a meta-analysis of 20 case-control studies to explore the role of allele A/G single-nucleotide polymorphism of the gene interleukin-10 (*IL-10*) promoter-1082 in the susceptibility to gastric cancer. Their meta-analysis suggests that IL-10-1082 GG-plus-GA genotypes are associated with the overall risk of developing gastric cancer and seem to be more susceptible to overall gastric cancer in Asian populations. IL-10-1082 GG-plus-GA genotypes are more associated with the pathologically intestinal-type gastric cancer or anatomically cardia-type gastric cancer. It is an interesting study. Nevertheless, I would like to raise several concerns related to this article.

First, in the introduction, they stated that “Interestingly, the IL-10-1082 AA genotype was also reported to be significantly increased in prostate cancer patients. ...” Recently, we performed a meta-analysis of 13 studies (5503 cases and 6078 controls) to examine the association between *IL-10* gene polymorphisms and prostate cancer (PCa), and the results suggest that there is no association between the IL-10-1082 G/A promoter polymorphism and PCa (Zou *et al.*, 2011). Therefore, evidence from previous studies does not support the authors’ statement.

Second, it seems unreasonable for authors to select an eligible study. In the meta-analysis, there were two studies by Wu *et al.* (2002, 2003) from the same population. In the two studies, a part of subjects were recruited from the National Taiwan University Hospital (Taipei). Thus, the two studies may contain overlapping data, and only the larger study (Wu *et al.*, 2003) should be selected for the analysis. Additionally, in the meta-analysis, two studies (Bai *et al.*, 2008; Zhou *et al.*, 2008) were eliminated because they both described only the number of combined group GG-plus-GA rather than the number of genotype GG and the number of genotype GA, respectively. Although the number of genotype GG and the number of genotype GA were not described in the two studies, it was sufficient for authors to calculate the odds ratio with 95% confidence intervals in the dominant model (GG-plus-GA vs. AA). Thus, the two studies should be included for the analysis.

Third, the scale for quality appraisal used in the meta-analysis contains incomplete information, and should be further improved. A common objection to the meta-analysis is that it combines results from studies of disparate quality. To identify high-quality studies, authors adopted predefined criteria for quality appraisal in the meta-analysis. The criteria cover credibility of controls, representativeness of cases, consolidation of gastric cancer, genotyping examination, and association assessment. Criteria for quality appraisal should include those traits or items presumed to predict the accuracy of study results. Unfortunately, the criteria used in the meta-analysis did not include the important information whether cases and controls were matched by age and gender. Lack of matching by age and gender can result in bias in case-control studies.

Finally, authors did not solve the problem of multiple comparisons. Numerous comparisons (at least 19) were performed in the meta-analysis, and authors should adjust the significance alpha level to correct for the problem of multiple comparisons. Moreover, authors did many subgroup analyses in the article; however, it seems unnecessary to do some subgroup analyses, such as large sample, small-and-moderate sample, publication before or in 2005, and publication after 2005.

Collectively, IL-10-1082 GG-plus-GA genotypes are associated with gastric cancer. We believe that our remarks will contribute to more accurate elaboration of the results presented by Ni *et al.* (2012).

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Disclosure Statement

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