



# Association of tumor necrosis factor- $\alpha$ 308G/A polymorphism with urogenital cancer risk: a systematic review and meta-analysis

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**ABSTRACT.** We integrated all the eligible studies and investigated whether the TNF- $\alpha$  308G/A polymorphism correlates with urogenital cancer risk. Tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) is a risk factor for some urogenital cancers; however, in prostate and bladder cancers the results are controversial. PubMed, EMBASE, Web of Science, the Cochrane Library, the Chinese Biomedical Literature Database, and the Wanfang Database were searched for all case-control studies on the relationship between the TNF- $\alpha$  308G/A polymorphism and susceptibility to urogenital cancer between January 1994 and January 2015. The pooled odds ratio with 95% confidence interval was calculated to assess the associations. A total of

504 articles were found, 39 of which involved 11,613 cases and 12,542 controls that fulfilled the inclusion criteria. Overall, the TNF- $\alpha$  308G/A polymorphism was significantly associated with the risk of urogenital cancer. In the subgroup analysis for different cancer types, significant associations were found in cervical cancer and urothelial carcinoma, while our meta-analysis indicated that there were no significant associations between the TNF- $\alpha$  308G/A polymorphism and prostate, bladder, or renal cancers. When stratified by ethnicity, significant associations were observed in Caucasian populations, whereas no significant associations were found in African-Americans, Asians, or mixed populations. Furthermore, carriers of the -308A allele among the hospital-based case-control group were at a high risk of urogenital cancer. Our meta-analysis showed that the TNF- $\alpha$  308G/A polymorphism was significantly associated with urogenital cancer risk, particularly in the Caucasian and hospital-based populations.

**Key words:** Urogenital cancer; TNF- $\alpha$ ; Polymorphism; Meta-analysis