TNF-α G-308A polymorphism is associated with insulin resistance: a meta-analysis

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ABSTRACT. Tumor necrosis factor-α (TNF-α) promoter polymorphisms has been reported to be associated with obesity and insulin resistance and gained widespread attention. However, results obtained so far are quite conflicting. We therefore performed a meta-analysis to address this issue, basing on 17 studies from electronic databases (MEDLINE and EMBASE). No evidence of significant effect of TNF-α G-308A polymorphism on body mass index (BMI) or obesity risk was detected (BMI: WMDFE = 0.05, 95%CI: -0.62 to 0.73; risk of obesity: ORFE = 1.09, 95%CI: 0.87 to 1.35). G-308A variant was significantly associated with increased insulin levels in the overall (SMDFE = 0.12, 95%CI: 0.03 to 0.20) and obese subgroup analysis (SMDFE = 0.16, 95%CI: 0.03 to 0.29). In total, no significant result was observed for the association between TNF-α G-308A variant and HOMA-IR index. Nevertheless, subgroup analysis showed G-308A polymorphism was significantly associated with increased HOMA-IR in Caucasians (WMDFE = 0.49, 95%CI: 0.03 to 0.94). Our results
indicate that TNF-α G-308A polymorphism has a significant effect on insulin resistance. However, it is unlikely that G-308A variant contributes to obesity.

**Key words:** TNF-α; Insulin resistance; Obesity; Polymorphism; Meta-analysis