Associations between TNF-α polymorphisms and susceptibility to rheumatoid arthritis and vitiligo: a meta-analysis

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ABSTRACT. We investigated whether the tumor necrosis factor-α (TNF-α) promoter -238 A/G and -308 A/G polymorphisms are associated with rheumatoid arthritis (RA) and vitiligo susceptibility. MEDLINE and EMBASE databases and a manual search were used to identify articles in which TNF-α polymorphisms were determined in RA or vitiligo patients and controls. Meta-analysis was used to examine the associations between the TNF-α -238 A/G polymorphism and RA and vitiligo using the allelic contrast and dominant models. Fifteen studies (10 RA and 5 vitiligo) involving 3678 cases and 4400 controls were considered. We observed an association between the TNF-α -238 A allele and RA when all subjects were considered [odds ratio (OR) = 0.686, 95% confidence interval (CI) = 0.476-0.968, P = 0.043]. After stratification by ethnicity, we found no association between the TNF-α -238 A allele and RA in European or Asian populations. We observed no association between the TNF-α -308 A allele and vitiligo (OR = 1.787, 95%CI = 0.894-3.573, P = 0.101). However, the adjusted OR by the
trim-and-fill technique was significant (OR = 2.064, 95%CI = 1.138-3.743). After stratification by geographic continent, the TNF-α -308 A allele was significantly associated with vitiligo in Middle Eastern populations (OR = 1.569, 95%CI = 1.224-2.013, P = 3.8 x 10^-5). The TNF-α -238 A/G polymorphism was associated with RA susceptibility, and the TNF-α -308 A/G polymorphism may be a significant risk factor for vitiligo in Middle Eastern populations.

**Key words:** Meta-analysis; Polymorphism; Rheumatoid arthritis; Tumor necrosis factor; Vitiligo