Association of tumor necrosis factor-α gene polymorphism with osteoarticular tuberculosis prognosis in a Hebei population


1Orthopaedic Department, The First Hospital of Hebei Medical University, Shijiazhuang, Hebei, China
2Radiology Department, The First Hospital of Hebei Medical University, Shijiazhuang, Hebei, China

Corresponding author: Z.K. Zhang
E-mail: zhangzhikun_l@163.com

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ABSTRACT. This study investigated the association of tumor necrosis factor-α (TNF-α)-308, -238, and -863 polymorphisms with osteoarticular tuberculosis (OA-TB) prognosis in a Hebei population. Genomic DNA was extracted from venous blood samples of 120 OA-TB patients and 100 healthy volunteers. TNF-α-308, -238, and -863 were analyzed by PCR-restriction fragment length polymorphism; genotype and allele frequencies were calculated. Serum TNF-α level was significantly higher in OA-TB patients (283.16 ± 51.68 ng/L) than in control (122.54 ± 54.65 ng/L; P < 0.05). Higher frequency of TNF-α-308 GG genotype in healthy volunteers (91.0%) than in OA-TB patients (79.2%) indicated that it was a protective factor against OA-TB (OR = 0.405, 95%CI = 0.147-0.657, P = 0.007). Higher frequencies of TNF-α-308 GA genotype and TNF-α-308 allele (A) in OA-TB patients (20.8 and 10.4%, respectively) than in healthy volunteers (8.0 and 5.0%,)
respectively) indicated an association with increased risk of OA-TB (OR = 3.112, 95%CI = 1.520-6.343, P = 0.003; OR = 3.109, 95%CI = 1.676-6.538, P = 0.006; respectively). Haplotype association analysis of TNF-α polymorphisms (-308/-238/-863) showed a higher frequency of TNF-α AGA in OA-TB patients (12.1%) than in healthy volunteers (3.5%), indicating that it was a risk factor for OA-TB (OR = 4.201, 95%CI = 1.80-9.91, P = 0.010). TNF-α-308 G/A and TNF-α AGA (-308/-238/-863) were associated with a predisposition to OA-TB, which could aid clinical detection, prevention, and prognosis of OA-TB.

**Key words:** Tumor necrosis factor-α; Gene polymorphism; Prognosis; Osteoarticular tuberculosis