SERUM TNF\(\alpha\) LEVELS BUT NOT TNF\(\alpha\) GENE PROMOTER POLYMORPHISMS CONFER RISK ASSOCIATION TO ATRIAL FIBRILLATION IN CHINESE HAN POPULATION

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Abstracts

SERUM TNF\(\alpha\) LEVELS BUT NOT TNF\(\alpha\) GENE PROMOTER POLYMORPHISMS CONFER RISK ASSOCIATION TO ATRIAL FIBRILLATION IN CHINESE HAN POPULATION

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Background Recent findings suggest a link between inflammatory processes and the development of atrial fibrillation (AF). Many studies have investigated the role of C-reactive protein (CRP) in AF, but few have concentrated on the role of tumour necrosis factor-\(\alpha\) (TNF\(\alpha\)) in its pathogenesis.

Aims The aim was to study the possible associations of the SNPs in TNF\(\alpha\) gene promoter and serum TNF\(\alpha\) with AF in the Chinese Han population, and thus to help establish the relationship between inflammation and AF.

Methods A pairwise case control study of 301 non-valvular AF patients and 301 health controls was conducted. Five single nucleotide polymorphisms (SNPs), T-1031C (rs1799964), C-863A (rs1800630), C-857T (rs1799724), C-806T (rs4248158) and G-308A (rs1800629) in TNF\(\alpha\) gene promoter were determined by DNA sequencing. Serum TNF\(\alpha\) was quantified by enzyme-linked immunosorbent assays. The associations of these SNPs and serum TNF\(\alpha\) with AF were investigated separately.

Results We did not observe the associations of T-1031C, C-863A, C-857T and C-806T with AF. Patients with AF showed a significantly higher A allele frequency (10.5% vs 6.8%; \(p=0.024\)) and A carrier genotype frequency (19.3% vs 12.6%; \(p=0.026\)) for G-308A SNP. Although the G-308A SNP showed a nominal dominant association with AF (OR for the-308A carriers versus-308GG: 1.65; 95% CI 1.06 to 2.56; \(p=0.026\)), it failed to remain statistically significant after controlling for traditional risk factors. In contrast, serum TNF\(\alpha\) levels were significantly associated with AF after adjustment for the covariates (adjusted OR for TNF\(\alpha\) levels: 1.14; 95% CI: 1.02 to 1.27; \(p=0.023\)).

Conclusions An inflammatory state marked by serum TNF\(\alpha\) elevation is associated with AF itself. TNF\(\alpha\) G-308A polymorphism might act as a weak modifier rather than an independent risk factor in AF development.