

A systematic review and meta-analysis of tumor necrosis factor α -308 polymorphism and Kawasaki disease

Sakda Arj-Ong, Ammarin Thakkinstian, Mark McEvoy and John Attia

Abstract

Background: There have been genetic studies assessing the association between tumor necrosis factor (TNF)- α -308 and Kawasaki disease (KD) but the results have been conflicting due to lack of power. Therefore, a systematic review and meta-analysis was conducted to increase the power for identifying the association between the TNF- α -308 polymorphism and KD.

Method: Studies were identified from MEDLINE and EMBASE databases and were included if the subjects were children and the frequencies between TNF- α -308 and KD were reported. Data were pooled using a random effect model if heterogeneity between studies was present.

Results: Thirteen studies were identified however only six studies were included. The pooled prevalence of minor A allele was 5.2% (95% confidence interval [CI]: 0.1%–9.5%). Gene effect was assessed using per-allele and per-genotype approaches. The pooled odds ratio of G versus A with the random effect model was 1.13 (95% CI: 0.34–3.27). The genotype effects for GG versus GA+AA was estimated and the pooled odds ratio was 1.08 (95%CI: 0.42–2.92).

Conclusion: This review suggests a trend of association between the TNF- α -308 G-allele and KD. However, the gene effects are heterogeneous and assessing sources of heterogeneity are limited. An updated meta-analysis is needed if more studies are published.

Keywords: genetic association studies, Kawasaki disease, meta-analysis, tumor necrosis factor-alpha-308.

Pediatrics International (2010) 52, 527–532

doi: 10.1111/j.1442-200X.2010.03105.x