



Association of interleukin-1 β -511C/T promoter polymorphism with COPD risk: a meta-analysis

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ABSTRACT. Studies examining the role of interleukin (IL)-1 β -511C/T promoter polymorphism in the pathogenesis of chronic obstructive pulmonary disease (COPD) have shown inconsistent results. This meta-analysis was performed to assess the association between the *IL-1 β* -511C/T promoter polymorphism and COPD susceptibility. Published case-control, cross-sectional, and cohort studies from Pubmed, Embase, and China National Knowledge Infrastructure databases were retrieved. Data were extracted and pooled odds ratios (ORs) with 95% confidence intervals (CIs) were calculated. Twelve studies with 1692 cases and 2009 controls were included in this meta-analysis. Pooled effect size showed an overall but not significantly decreased risk of *IL-1 β* -511 C/T with COPD susceptibility (OR = 0.89, 95%CI = 0.78-1.01) in a complete overdominant genetic model (TT+CC vs CT), indicating that homozygous individuals (CC and TT) have a decreased risk for COPD compared with heterozygotes

(CT). In subgroup analysis by ethnicity, *IL-1 β* -511C/T was significantly correlated with a decreased risk of COPD in Asians (OR = 0.73, 95%CI = 0.60-0.88, P = 0.001), but not in Caucasians (OR = 1.02, 95%CI = 0.83-1.24, P = 0.46), confirming a protective role of *IL-1 β* -511C/T in COPD in Asians. Moreover, after excluding studies that included populations not in Hardy-Weinberg equilibrium, the pooled results were robust and no publication bias was observed. This meta-analysis suggests that the *IL-1 β* -511C/T promoter polymorphism decreases the risk of COPD in Asians.

Key words: Chronic obstructive pulmonary disease; Interleukin-1 β ; Polymorphism