



Association of vitamin D-binding protein variants with chronic obstructive pulmonary disease: a meta-analysis

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ABSTRACT. Gene polymorphism of vitamin D-binding protein (VDBP) correlates with chronic obstructive pulmonary disease (COPD), but the results remain inconclusive. We aimed to explore the association between VDBP gene polymorphism and COPD. We searched MEDLINE, Embase, Web of Science, and China National Knowledge Infrastructure for publications addressing the association between VDBP gene polymorphism and COPD. After qualitative evaluation, randomized controlled trials were pooled using either a fixed- or a random-effect model depending upon the degree of heterogeneity. Eleven studies with 3144 subjects were included. The genotype group-specific component (GC)*1F-1F was significantly associated with COPD in Asians [odds ratio (OR) = 1.73, 95% confidence interval (CI) = 1.07-2.81, P = 0.03], but not in Caucasians (OR = 1.44, 95%CI = 0.57-3.66, P = 0.45). A protective effect of GC*1F-1S was observed in Asians (OR = 0.70, 95%CI = 0.55-0.89, P = 0.003) but not in Caucasians (OR = 0.93, 95%CI = 0.69-1.24, P = 0.61). There was no association of GC*1S-1S, GC*2-1S and GC*1F-2 with COPD. As for alleles, GC*1F was a risk factor, whereas GC*1S was protective against

COPD in Asians; GC*2 was not protective. The genotype GC*1F-1F or allele GC*1F was associated with increased susceptibility to COPD in Asians. No protective effect of genotype GC*2-2 against COPD was found. The protective effects of GC*1F-1S and GC*1S were observed in Asians but not in Caucasians. The VDBP gene polymorphism could be a potential marker for screening of COPD.

Key words: Vitamin D-binding protein; Gene polymorphism; Chronic obstructive pulmonary disease; Meta-analysis