



# Meta-analysis demonstrates lack of association between the ACE gene I/D polymorphism and obstructive sleep apnea-hypopnea syndrome occurrence and severity

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**ABSTRACT.** Published data on a possible association between the angiotensin-converting enzyme (ACE) gene I/D polymorphism and obstructive sleep apnea-hypopnea syndrome (OSAHS) occurrence and its severity risk are inconclusive. We performed a meta-analysis of case-control studies published in English or Chinese. Thirteen studies, totaling 1361 cases and 1373 controls, were investigated for association of the ACE I/D polymorphism with OSAHS. We also made a study of ACE I/D with OSAHS severity risk, including 879 mild/moderate OSAHS patients and 357 severe OSAHS patients. A random-effects model was used, irrespective of between-study heterogeneity. Study quality was assessed in duplicate. Overall, the ACE I/D polymorphism was not significantly associated with an increase in OSAHS risk [odds ratio (OR) = 1.21; 95% confidence interval (95%CI) = 0.88-1.65; P = 0.24]. In subgroup analysis by ethnicity, comparison of alleles I with D demonstrated a 58% (nonsignificantly) increased risk for OSAHS

in Chinese (OR = 1.58; 95%CI = 0.92-2.70; P = 0.09). We also found that there was no significant association between ACE I/D and OSAHS severity risk. No publication biases were observed. This meta-analysis suggests that there is no significantly increased risk for OSAHS occurrence or severity associated with the ACE I/D polymorphism.

**Key words:** Meta-analysis; OSAHS; ACE I/D polymorphism; Severity