Meta analysis of angiotensin-converting enzyme I/D polymorphism as a risk factor for preeclampsia in Chinese women

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ABSTRACT. Preeclampsia affects 3-8% of pregnancies and is a major cause of maternal and perinatal morbidity and mortality worldwide. Inappropriate activation of the renin-angiotensin system may play a role in the development of preeclampsia. An insertion/ deletion polymorphism in the angiotensin-converting enzyme gene (ACE-I/D) has been associated with differences in ACE activity. However, there are controversies in reports on the association of ACE-I/D with preeclampsia. Data were analyzed using Review Manager Version 5.0 and a random effects model was applied irrespective of between studies heterogeneity, which was evaluated via sensitivity and subgroup analyses. Publication bias was evaluated using the fail-safe number. A systematic search was performed based on published case control studies up to October 1, 2011, and 11 studies were included, involving 800 patients and 949 controls. Significant association of the *ACE* D allele with increase risk of preeclampsia was found (odds ratio = 1.93, 95% confidence interval = 1.19-3.12; P = 0.008). Sensitivity analysis showed that no individual study had an undue influence on the

summary odds ratios for all contrasts. An analysis stratified by study size showed an attenuated odds ratio towards a null effect as study size increased. Based on our meta-analysis, we suggest that the D allele of the *ACE* gene is related with increased risk for preeclampsia in the Chinese population. Considering the potential existence of small study bias, further research should be performed with a larger dataset.

Key words: ACE; Insertion/deletion polymorphism; Preeclampsia