GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Association of PS1 1/2, ACE I/D, and LRP C/T polymorphisms with Alzheimer's disease in the Chinese population: a meta-analysis of case-control studies

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Genet. Mol. Res. 14 (1): 1017-1024 (2015)
Received January 9, 2014
Accepted October 29, 2014
Published February 6, 2015
DOI http://dx.doi.org/10.4238/2015.February.6.5

ABSTRACT. The objective of this study was to assess the associations of presenilin 1 (PS1) 1/2, angiotensin I-converting enzyme (ACE) insertion/deletion (I/D), and low-density lipoprotein receptor-related protein (LRP) C/T polymorphisms with the risk of Alzheimer's disease (AD) in the Chinese population. PS1 1/2, ACE I/D, and LRP C/T, which are commonly investigated polymorphisms, were evaluated to obtain summary estimates regarding their associations with AD. In total, the data from 24 studies (2611 patients with AD and 2822 control subjects from 23 provinces and special districts in China) that were obtained from the Chinese Biomedicine Database, China National Knowledge Infrastructure, PubMed, and Medline were included. Different models (i.e., dominant, recessive, etc.) of these polymorphisms were analyzed using the Cochrane

Review Manager. Statistically significant associations among patients with AD for the 1/1 genotype of the PS1 1/2 polymorphism [odds ratio (OR) = 1.77, 95% confidence interval (CI) = 1.03-3.04; P = 0.04] and the I/I genotype of the ACE I/D polymorphism (OR = 2.44, 95%CI = 1.78-3.35; P < 0.01) were identified. Statistically significant associations were also found for the PS1 1/2 polymorphism in both the dominant and recessive genetic models, whereas no association was found for the LRP C/T polymorphism. All studies exhibited heterogeneity (P < 0.05). This meta-analysis suggests that the 1/1 genotype of the PS1 1/2 polymorphism and the I/I genotype of the ACE I/D polymorphism are significantly associated with an increased risk of AD in the Chinese population.

Key words: Angiotensin-converting enzyme gene; Alzheimer's disease; Low-density lipoprotein receptor-related protein gene; Meta-analysis; Presenilin 1 gene; Polymorphism

