PPARγ Pro12Ala and His447His polymorphisms and susceptibility to Alzheimer's disease: a meta-analysis

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ABSTRACT. We investigated whether Pro12Ala (C→G) and His447His (C→T) polymorphisms of the peroxisome proliferator-activated receptor gamma (PPARγ) gene are associated with susceptibility to Alzheimer's disease (AD). We conducted a meta-analysis of the associations between the PPARγ Pro12Ala and His447His polymorphisms and AD in subjects. The meta-analysis was performed according to the apolipoprotein E (APOE) ε4 allele status. A total of eight studies were considered in our meta-analysis, comprising 2948 patients with AD and 3753 controls. Meta-analysis showed no association between AD and the PPARγ Pro12Ala G allele in any of the study subjects [odds ratio (OR) = 1.013, 95% confidence interval (95%CI) = 0.906-1.132, P = 0.821] or in the European and Asian populations (OR = 0.997, 95%CI = 0.890-1.118, P = 0.965; OR = 1.409, 95%CI = 0.832-2.387, P = 0.202, respectively). We tested whether the APOE ε4 allele affects the association between the PPARγ Pro12Ala polymorphism and AD. Meta-analysis showed no association between AD and the PPARγ G allele in any of the study subjects with or without the APOE ε4 allele. Meta-analysis showed no association between AD and the PPARγ His447His T allele in the European population (OR for

T allele = 0.912, 95%CI = 0.732-1.136, P = 0.409). This meta-analysis has shown that there is a lack of association between the PPARγ Pro12Ala and His447His polymorphisms and AD risk.

Key words: Alzheimer's disease; Polymorphism; Meta-analysis; PPARγ; Apolipoprotein E