Association between a functional genetic polymorphism (rs2230199) and age-related macular degeneration risk: a meta-analysis

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ABSTRACT. The association between the rs2230199 C>G single nucleotide polymorphism (SNP) in complement component 3 and age-related macular degeneration (AMD) risk has been examined extensively but the results are not consistent among studies. The aim of this study was to perform a meta-analysis of all available studies on this SNP in relation to AMD. The comprehensive databases of PubMed, Medline, Web of Knowledge, CNKI, and Google Scholar were searched for case-control studies investigating the association between the rs2230199 polymorphism and AMD susceptibility. ORs with 95%CIs were estimated to assess the

association. Sensitivity analysis, test of heterogeneity, cumulative meta-analysis, and assessment of bias were also performed. A total of 15 published studies including 5593 cases and 5181 controls were used in this meta-analysis. Overall, the rs2230299 SNP was significantly associated with the risk of AMD in the overall population under the additive model (OR = 1.571, 95%CI = 1.414-1.745, P = 0.000), dominant model (OR = 1.681, 95%CI = 1.521-1.858, P = 0.000), and allelic model (OR = 1.597, 95%CI = 1.470-1.734, P = 0.000). In the subgroup analysis by ethnicity, the same results were found in Caucasian populations, while no significant correlations were found in Asian populations for all comparison models. In conclusion, our meta-analysis provides evidence that the rs2230199 polymorphism contributes to the development of AMD. Further large-scale multicenter epidemiological studies are warranted to confirm this finding.

Key words: Polymorphism; Age-related macular degeneration; Rs2230199; Meta-analysis

