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MYH9 gene polymorphisms may be associated with cerebrovascular blood flow in patients with type 2 diabetes

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ABSTRACT. Genetic factors play an important role in type 2 diabetes (T2D) complications. Alteration of cerebrovascular blood flow (CBF) is a direct result of cerebrovascular diseases. However, few studies have reported the role of genetics on CBF in patients with T2D. We investigated whether single-nucleotide polymorphisms (SNPs) in metabolic disease genes are associated with CBF in patients with T2D. CBF velocities of CBF were measured in 337 Han Chinese patients with T2D using transcranial Doppler sonography, with 54 cerebrovascular blood flow parameters documented. Fifty-two SNPs from 31 metabolic disease candidate genes were genotyped in patients. Quantitative allelic association and haplotype analyses were performed for candidate gene SNPs and CBF phenotypes. Spearman correlation was used to determine the relationship between CBF parameters and basic clinical characteristics, particularly, body mass index, lipids, fibrinogen, and GHbA1c. *MYH9* gene SNPs (rs875726 and rs735853) may be associated with the peak velocity of the right-middle cerebral

artery. SNPs rs875726, rs2009930, and rs375246 of the *MYH9* gene may be associated with the mean velocity of the right-anterior and posterior cerebral artery. The haplotype G-C-A (rs2239782-rs3752462-rs2269532) of *MYH9* may be associated with CBF. *MYH9* gene polymorphisms may be associated with multiple CBF phenotypes in Chinese patients with T2D. However, whether *MYH9* is a candidate gene for cerebrovascular diseases in Chinese patients with T2D remains unknown.

Key words: Association study; Cerebrovascular blood flow; GHbA1c; *MYH9*

