



Elevated serum homocysteine level in the development of diabetic peripheral neuropathy

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ABSTRACT. The development of diabetic peripheral neuropathy (DPN) is always followed by changes in vascular endothelial cells that are related to the reactivity of the homocysteine (Hcy) sulfhydryl group. In this meta-analysis, we investigated the association of Hcy with the pathogenesis and progression of DPN. We screened the Embase, Ovid, PubMed, Web of Science, Wangfang, and China National Knowledge Infrastructure databases. All analyses were performed by using the STATA software, version 12.0 (StataCorp, College Station, TX, USA) and the Comprehensive Meta-analysis 2.0 software (Biostatic Inc., Englewood, NJ, USA). The standardized mean difference (SMD) and 95% confidence interval (95%CI) were further calculated. The electronic literature search identified six articles that included 603 patients with DPN and 687 healthy controls. The pooled SMD of those six studies revealed that increased serum levels of Hcy may be correlated with DPN (SMD = 1.23, 95%CI: 1.09-1.36, $P < 0.001$). Subgroup analysis

according to ethnicity indicated that high serum Hcy levels might be an important risk factor for DPN in both Asian and Caucasian populations (Asians: SMD = 0.62, 95%CI: 0.45-0.79, P < 0.001; Caucasians: SMD = 2.32, 95%CI: 2.10-2.55, P < 0.001; respectively). Elevated serum levels of Hcy indicate the risk of development of DPN in patients, suggesting that Hcy levels could be used as a marker for new therapeutic approaches to DPN.

Key words: Homocysteine; Diabetic peripheral neuropathy; Vascular endothelial cell; Sulfhydryl amino acid; Pathogenesis; Meta-analysis