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Carotid intima-media thickness in patients with type 2 diabetes and the metabolic syndrome related factors

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Objective: To evaluate the relationship between carotid intima-media thickness (IMT) and metabolic syndrome (MS) with its components in type 2 diabetes mellitus (T2DM) patients.

Methods: A random cluster sampling was conducted in 1884 employees of T2DM. All the subjects were divided into 2 groups according to the IMT levels, control group: $IMT < 0.90$ mm ($n=1083$) and IMT increased group: $IMT \geq 0.90$ mm ($n=801$). The risk factors of metabolic syndrome (MS) in T2DM subjects with IMT were investigated.

Results: Compared with the control group, age, BMI, duration of diabetes mellitus, waist circumference (WC), hip circumference (Hip), SBP (systolic blood pressure), LDL and lnCRP (log C-reactive protein, lnCRP) were significantly higher in the IMT increased group ($p < 0.05$). Multifactor logistic regression analysis demonstrated that $age \geq 40$ years, $Duration \geq 10$ years, $BMI \geq 24$ kg/m², $WC \geq 95$ cm, $Hip \geq 101$ cm, $LDL \geq 3.31$ mmol/L, $lnCRP \geq 2.34$ mg/L and hypertension (HTN) were independent risk factors of the IMT thickening in T2DM patients. Clustering analysis revealed that several metabolic syndrome (MS) components have a significant correlation with different levels of IMT and there is a dose-response relationship between them ($\chi^2=6.0\sim 30.66$, $P < 0.001$).

Conclusion: MS related components are IMT thickening independent risk factors in T2DM patients. HDL is a protective factor which can postpone the thickening of IMT. All of these indicating that it could be an effective method to prevent the carotid artery atherosclerosis and delay diabetic macrovasculopathy by controlling obesity, blood pressure, blood lipid and carotid ultrasound detection examination.

Biography

Wei Li is a Chief Physician, and Doctor Tutor of Shanghai Jiaotong University School of Medicine. She is a Member of the Endocrine and Metabolic branch of Shanghai Medical Association. In 1985, he graduated from Xi'an Jiao Tong University School of Medicine. She published 70 papers in core journals, including 15 SCI journals. She is an Editorial Board Member of *Chinese Journal of Clinicians* and *Chinese Medical Science journal*.

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