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ARTERIAL STIFFNESS EVALUATION BY CARDIO-ANKLE VASCULAR INDEX AND ITS RELATED FACTORS ANALYSIS IN ETHIC SHE POPULATION OF CHINA

Jinbo Liu, Xiaolan Yu, Min Wang, Yungai Ma, Meiyi Wang, Hongwei Zhao, Hongyan Shi, Hongyu Wang, Hongyu Wang. *Department of Vascular Medicine; Peking University Shougang Hospital*

Objectives Arterial stiffness is an independent predictor for vascular diseases. Cardio-ankle vascular index (CAVI) is a new index of the overall stiffness of the artery from the origin of the aorta to the ankle. In the present study, we investigated the possible risk factors involving CAVI in Ethic She Population, one of ethnic groups of China.

Methods 408 (age: 47.3 ± 12.8 years, male: 167) natural persons from Ethic She group were enrolled into our study. Pulse wave velocity (PWV) and CAVI were measured by Complior apparatus. Multivariate analysis was performed to detect independent predictors of PWV among age, sex, body mass index (BMI), systolic blood pressure (SBP), diastolic blood pressure (DBP), low-density lipoprotein cholesterol (LDL-C), uric acid (UA), total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), hypersensitivity C-reactive protein (hs-CRP) and so on.

Results The incidences of coronary artery disease, hypertension, diabetes, hyperlipidaemia, stroke were 1.7%, 10.3%, 3.2%, 3.4%, 2.2% in the entire group. The value of CAVI was higher in male group than in female group (7.48 ± 1.33 vs 7.10 ± 1.22, $p=0.003$). CAVI was positively correlated with age, SBP, DBP, glucose, triglyceride, LDL-C, UA, TC in entire group ($r=0.570$, 0.514, 0.375, 0.184, 0.150, 0.123, 0.101, 0.142, respectively, all $p<0.05$). There was negative trend between CAVI and BMI, HDL-C respectively, but without significant difference. We found that CAVI was significantly positive correlated with hs-CRP ($r=0.191$, $p=0.004$), a marker of inflammation, which indicated there was relationship between arterial stiffness and inflammation. Our result showed that CAVI was positively correlated with PWV ($r=0.556$, $p<0.001$), a standard index for arterial stiffness. Multivariate analysis showed that age, SBP, glucose were significant independent predictors of CAVI in all subjects. However, the independent predictors of CAVI were different between male and female groups (age, SBP in male; age, DBP, UA, glucose in female, respectively).

Conclusions CAVI was a reliable evaluation index of arterial stiffness. The related factors of CAVI were different in different gender. CAVI was correlated with hs-CRP, which provided new theory basis for the mechanism of arterial stiffness. Our research might provide new recommendation for precaution of vascular disease and standard value of CAVI in different ethnic population groups.