**Introduction**

Objective: To investigate the alteration of regional pulse wave velocity (PWV) in Beijing general residents with metabolic syndrome (MS) and analyse its related factors.

Methods: All the adult participants in this cross-sectional investigation were recruited from 3 big communities during their annual physical examination. Regional arterial stiffness was assessed simultaneously by measuring PWV in three arterial segments, the carotid-femoral (cPWV), carotid-radial (rPWV) and carotid-ankle PWV (caPWV). Demographic characteristics and basal biochemical parameters including height, weight, waist and hip circumference, blood pressure, and serum levels of glucose, lipid, uric acid and creatinine were collected. MS was identified according to the criteria from the International Diabetes Federation definition.

Results: A total of 2459 citizens (age ranging from 18 to 92 years) were enrolled into this study, which included 752 participants with MS (prevalence, 30.01%). The subjects with MS were older (53.25±13.75 vs 50.03±15.73, p<0.001), had higher cPWV, caPWV, and rPWV (m/s), 11.68±2.92 vs 10.24±2.48, 9.46±1.75 vs 8.76±2.23, 9.76±1.52 vs 9.42±1.45, p<0.001 for all), and increased occurrence of cardiovascular diseases (18.3% vs 9.1%, p<0.001). Partial correlation analysis after adjustment for age and sex showed that pulse pressure, LDL-C, uric acid and all component of MS were significantly related to the values of cPWV and caPWV (p<0.05 for all). In multivariate stepwise linear regression models, MS as a whole was an independent determinant for all the three regional PWV. The components of MS showed different effects on the regional PWV elevation. In detail, increased systolic blood pressure and hyperglycemia correlated with enhanced cPWV and caPWV, while central obesity affected cPWV only. Further, the diastolic blood pressure among the MS components independently affected cPWV, and serum triglyceride and high density lipoprotein level had little effect on PWV.

Conclusion: MS contributes to the occurrence of increased arterial stiffness independently of other known cardiovascular risk factors. Among its related components, central obesity, hypertension and hyperglycemia are the critical factors determining arteriosclerosis.

**References**


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**Title:** ALTERATION OF REGIONAL PULSE WAVE VELOCITY IN BEIJING GENERAL RESIDENTS AND ITS RELATIONSHIP WITH METABOLIC SYNDROME COMPONENTS

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