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THE EVALUATION OF ARTERIAL EARLY DAMAGE IN HIGH-NORMAL BLOOD PRESSURE POPULATIONYanyan Hu, Yan Lu, Ying Zhang *The First Hospital of Dalian Medical University, Dalian, China*

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Background and objective Hypertension is a major risk factor of cardiovascular and cerebrovascular diseases, but range of subjects whose blood pressure are just lower than the cut point of hypertension has been an area of widespread concern. The concept of prehypertension which was proposed by JNC 7 in 2003 was changed into high-normal blood pressure by ESH/ESC. Previous studies have showed that in high normal blood pressure subjects, there is already the decrease of endothelial dysfunction which play a crucial role in the occurrence and development of hypertension, and even in the occurrence and development of cardiovascular diseases. Furthermore, optimal, normal and high-normal blood pressure may progress to hypertension over time, but the risk is quite different. Therefore it is significant to detect arteriosclerosis and vascular dysfunction at an early stage. However, there are few data about the evaluation of arteriosclerosis in high-normal blood pressure population. As a newly-developed technology, AI has been applied in a many large-scale clinical studies. At present, there is no report about detection of arterial elasticity with AI among high-normal blood pressure population. In this study, radial AI was measured to evaluate the damage of the high-normal blood pressure population and provide evidence of early intervention.

Methods Thousand four hundred and fourteen subjects were recruited. Individuals with serious arrhythmia, heart failure, diabetes and other serious disease were excluded. The subjects were divided into normal blood pressure, high-normal blood pressure and hypertension group. Radial AI was measured by HEM 9000AI. Venous blood took to evaluate biochemical indicator. Statistical process and analysis were performed using SPSS 11.5 and EXCEL 2003.

Results (1) rAI_{75} of female is higher than male for any decade of age. Regardless of male or female, rAI_{75} increases with age, but it tends to plateau after 65 years old in males. (2) After

adjusting for other factors, there are still significant differences of rAI_{75} in three groups. rAI_{75} were 73.97 ± 11.89 , 76.21 ± 12.18 , 81.41 ± 11.27 in normal group, high-normal blood pressure and hypertension group respectively. By comparing between the two groups, rAI_{75} in high-normal blood pressure group is significantly higher than that in normal blood pressure. (3) rAI_{75} is related to age, height, gender, DBP and heart beat rate. (4) Age, gender, height, DBP and heart beat rate are major influence factor of rAI_{75} .

Conclusion (1) rAI_{75} is increased among normal blood pressure, high-normal blood pressure and hypertension subjects. People with high-normal blood pressure already have early damage of artery. (2) AI can be used as a mean of screening the early damage of artery. It can be used to evaluate the risk factor in subjects with high-risk of cardiovascular events, and even in subjects with high-normal blood pressure with comparatively low-risk. (3) People with high-normal blood pressure will need early intervention to prevent cardiovascular events.