

little about large arterial properties associated with prehypertension in Chinese. **Design and methods:** In a military factory located in the Zhejiang Province, South-east China, we recruited 966 Chinese (mean age, 42.6 ± 14.2 years; 66% men) and performed various arterial measurements, including carotid ultrasonography with the ARTLAB system, radial pulse wave analysis and carotid-femoral pulse wave velocity (PWV) with the SphygmoCor system, and brachial-ankle PWV with the OmRon VP1000 device. Prehypertension was defined according to the conventional blood pressures measured at the sitting and at supine positions. **Results:** Of 966 subjects, 189 (19.6%) had prehypertension, 264 (27.3%) were hypertensives, and 92 (34.8%) were on antihypertensive treatment. After adjustments for age, sex, body mass index, current smoking and drinking habit, total/HDL cholesterol ratio and serum blood glucose, subjects with prehypertension, compared to the normotensives, had significantly higher carotid intima-media thickness (593 vs 577 μm, $P = 0.04$), Young's elastic modulus (238 vs 213 kPa; $P = 0.03$), central augmentation index (17.4% vs 14.4%; $P = 0.01$), carotid-femoral PWV (7.6 vs 6.9 m/s; $P < 0.001$), and brachial-ankle PWV (13.6 vs 12.2 m/s; $P < 0.001$), and significant lower carotid distensibility (47.3 vs 54.5 kPa-110-3; $P = 0.005$). The large artery abnormalities were more evident ($P < 0.05$) in prehypertensive subjects carrying 2 or more risk factors compared to those without. **Conclusion:** Prehypertension was independently associated with large artery damage in Chinese, especially in subjects with multiple risk factors.

doi:10.1016/j.jccard.2009.09.326

LA000467

An association between aortic pulse pressure and estimated glomerular filtration rate in hypertensive patients

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Objective: To investigate the relationship between aortic pulse pressure (PP) and estimated glomerular filtration rate (eGFR) in patients with essential hypertension. **Methods:** A total of 300 untreated hypertensive patients were consecutively recruited for a first diagnostic coronary angiogram. The following data were collected: invasive intra-aortic systolic and diastolic blood pressures, aortic PP, clinical and laboratory characteristics. **Results:** With the decline of eGFR, patients' age, history of hypertension, A/E ratio and aortic PP were increased progressively ($P < 0.05-0.01$). Multivariable linear correlation and regression showed that: eGFR was significantly and negatively correlated with age, history of hypertension, aortic PP, left ventricular mass index, A/E ratio, fasting blood glucose, serum uric acid, total cholesterol and low-density lipoprotein cholesterol ($r = -0.496, -0.236, -0.219, -0.218, -0.184, -0.163, -0.207, -0.177, -0.153, P < 0.05-0.01$); eGFR was significantly and positively correlated with body surface area and aortic diastolic pressure ($r = 0.256, 0.133, P < 0.05-0.01$). **Conclusion:** Aortic PP is significantly and negatively correlated with eGFR, it is an independent effect factor to eGFR.

doi:10.1016/j.jccard.2009.09.327

LA000487

Effects of combination of amlodipine and aminoacridine or telmisartan anti-hypertension and in improving arterial stiffness in elderly patients with essential hypertension

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Objective: Hypertension frequently requires combination therapy to attain efficient control and to prevent cardiovascular diseases effectively.

This study was conducted to determine which combination treatment is better in improving vascular damage and BP controlling. **Methods:** 256 elderly patients with essential hypertension were randomly assigned to receive combination of amlodipine and aminoacridine (A group) or combination of amlodipine and telmisartan (B group) for 12 months. Pulse-wave velocity [PWV] and ankle-brachial pressure index [ABI], intima-media thickness (IMT) of carotid arteries were determined before and 12 months after the start of treatments. **Results:** PWV values after 12 months of treatment in two groups were significantly decreased compared to previous values (1,840 ± 332 cm/s to 1,652 ± 315 cm/s, $P < .001$ A group; 1,851 ± 353 cm/s to 1,492 ± 349 cm/s, $P < .001$, B group), whereas ABI values and IMT were unchanged. After 12 months, mean (SD) SBP and DBP were significantly decreased from baseline in both groups ($P < .001$). The changes in blood pressure at month 12 did not differ significantly between the two groups. In addition, there were significantly different changes in PWV between the two groups ($P < .05$). Reduction in PWV by B group correlated significantly only with reduction in DBP ($P < .05$) and remained significant even after controlling for reduction in DBP. Reduction in PWV by A group was not independent of reduction in BP. **Conclusions:** These results showed that treatment with combination of amlodipine and aminoacridine or combination of amlodipine and telmisartan functionally improves the stiffened arteries of elderly patients with essential hypertension, whereas treatment with combination of amlodipine and telmisartan is to be independent of its effects on BPs.

doi:10.1016/j.jccard.2009.09.328

LA000488

Activation of TRPV1 inhibits angiotensin II induced vasoconstriction in mice

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Objective: We investigated the long-term effect of capsaicin, a transient receptor potential vanilloid 1 (TRPV1) agonist, on vascular reactivity in C57BL/6J mice. **Design and methods:** Two-month-old male C57BL/6J mice were fed with regular diet (control group, $n = 12$) and capsaicin-containing diet (capsaicin group, $n = 12$). Tail-cuff systolic blood pressure (SBP) was examined at the baseline and at the end of the intervention. After 6-month treatment with capsaicin, invasive carotid artery blood pressure and heart rate were measured, and the aortic contraction was examined using isometric myograph (Danish Myotech Technology, Denmark). Plasma levels of renin, angiotensinII (AngII) and aldosterone were determined. Vascular smooth muscle cells (VSMCs) were obtained from thoracic aorta of mice and cultured by tissue explant method. AngiotensinII type 1 receptor (AT1R) protein expression was detected by western blotting. Cytosolic calcium level was detected in VSMCs using the fluorescent dye technique. **Results:** SBP, invasive carotid artery blood pressure and heart rate had no difference between two groups. Norepinephrine-induced contraction response in thoracic aorta was not different; while AngII-induced contraction of aortic ring was lower in the capsaicin group than control group ($P < 0.05$). Plasma levels of renin, AngII and aldosterone were not different between the two groups. Treatment with capsaicin significantly decreased AT1R protein expression and AngII-induced calcium entry in cultured VSMCs ($P < 0.05$). **Conclusion:** Long term activation of TRPV1 with dietary capsaicin significantly blunted AngII-induced contraction response in aortic segments, which was related to the down-regulation of AT1R expression and reduction of AngII-induced calcium entry in VSMCs.

doi:10.1016/j.jccard.2009.09.329