B005
INCREASED αvβ3 INTEGRINS IN MESENTERIC RESISTANCE ARTERIES FROM SHR: EFFECT OF ANTI-HYPERTENSIVE THERAPY.
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The structure and mechanical properties (stiffness) of mesenteric resistance arteries may be altered in spontaneously hypertensive rats (SHR). We have reported that αvβ3 integrins are upregulated in SHR mesenteric arteries as compared with normotensive WKY and untreated SHR. Proven (10 μg) extracted from whole mesenteric arterial beds, was incubated with [3H]-labeled thrombin (200,000 cpm), an RGD-containing disintegrin isolated from the venom of E. carinatum. Proteins were separated by 6% SDS-PAGE, followed by autoradiography. Two bands were detected with sizes of approximately 220 and 180 KDa, which correspond in size to αvβ1 and αvβ3 integrins, respectively. In SHR, αvβ3 integrins were increased to 135±12% (p<0.05) of WKY levels.

Fosinopril significantly attenuated this increase in αvβ3 levels to 74±13% (p<0.05), and a trend towards a decrease was also seen with irbesartan (25±24%). Thus, integrin receptor upregulation may play a role in the remodeling or mechanical changes of resistance arteries in SHR. The normalization of integrin profile in SHR may be mediated by which vascular abnormalities are reversed by anti-hypertensive therapy.

Key Words: integrins, resistance arteries, irbesartan, fosinopril

B006
EFFECTS OF FLUVASTATIN TREATMENT ON STRUCTURE AND FUNCTION OF RESISTANT VESSELS IN SPONTANEOUSLY HYPERTENSIVE RATS
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This study was to evaluate the effects of fluvastatin on the structure and function of resistant vessels in spontaneously hypertensive rats (SHR). Male SHR were given fluvastatin (SHRn) 20 mg/kg/day by gavage, and decapitated at 16 weeks after SHR and BW measured. Wall-to-lumen area ratio (W/L) of aorta and mesenteric arteries (3rd branch) were assessed. Vascular reactivity to sodium nitroprusside (SNP) and NE was studied in rings of aorta and mesenteric arteries. After 8 weeks treatment, W/L was significantly lower in SHRn than in untreated SHR (30.1±3 vs 23.8±3 mmHg, P<0.05). W/L of mesenteric arteries was significantly lower in SHRn than in SHR (44.4±6 vs 47.9±9 mmHg, P<0.05). The relaxation response to SNP in aortic rings from SHRn was significantly higher than that from SHR. EC50 of relaxation response was much lower in SHRn than in untreated SHR (4.9±6 vs 6.19±6μmol/L, P<0.05), while EC50 of mesenteric artery rings from SHRn was lower, not statistically significant, than that of untreated SHR (0.9±0.3 vs 0.94±0.94μmol/L, P<0.05).

Both aortic and mesenteric rings from SHRn exhibited depressed vasoconstriction response to NE as compared with untreated SHR. EC50 of vasoconstriction response in rings derived from SHRn was higher than that of controls (P<0.02 vs 0.2±0.3μmol/L, P<0.05; mesenteric: 1.46±0.72μmol/L, P<0.05). These results indicated that fluvastatin enhanced the sensitivity to vasodilator, depressed the sensitivity to vasoconstrictor, and attenuated the hypertrophy of resistant artery during the development of hypertension in SHR.

Key Words: fluvastatin; inbred SHR; resistant vessels; hypertension

B007
ENHANCED VASCULAR RESPONSE TO COLD PRESSOR TEST IS ASSOCIATED WITH A POSITIVE FAMILY HISTORY OF HYPERTENSION
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In a previous study we have shown that in normotensive subjects (N) and hypertensive patients (H) the local blood pressure (IBP) of the digital arteries and their compliance under cold pressor test (CPT) is a common reaction in N and H.

Results: IBP and the arterial compliance increased, respectively decreased. It is known that in the pathogenesis of hypertension exists a strong hereditary component. Aim: to determine the influence of the family history of hypertension on the reaction of IBP and the arterial compliance to CPT.

Methods: The reaction to CPT (left hand into ice water for 1 min) was studied in 47 healthy subjects (120±67/71±6 mmHg brachial IBP) and 46 mild hypertensive patients (142±17/85±18 mmHg brachial IBP) by comparing the last 15 s after CPT to pretest. We used impedance plethysmography and a finger BP measuring device (FINAPRESS) to determine beat-by-beat the IBP and the arterial compliance from neighbouring fingers of the right hand. We defined subgroups comprising individuals without parental hypertension (F0) and with both parents affected by hypertension (F2).

Results: test pretest difference
F0 F2
systolic IBP (mm Hg) in N: 9±1 22±14 #
in H: 14±2 27±10 #
compliance in N: -0.8±11 -0.8±10.8 #
(μm/mm Hg/100 ml tissue) H: -1±0.9 -1±0.7 #
(# F2 compared to F0, with p<0.05)

Conclusion: the increase of diastolic IBP under CPT shows no difference between F2 and F0 neither in N or in H. The change of diastolic IBP under CPT is a common reaction in N and H;

Key Words: local blood pressure, arterial compliance, digital artery, family history of hypertension.

B008
EFFECTS OF 17β-ESTRADIOL ON ISOLATED ARTERIES. M. CHU, X. D. LI
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The lower incidence of ischemic heart disease in premenopausal women than in men is supposed to be caused by a protective action of estradiol. The cardiovascular protective action of estrogen is reported to be mediated either by a direct effect on the vessel wall or by an indirect effect on lipoprotein metabolism. The aim of this study was to measure the effects of 17β-estradiol (E2) on pig basilar arteries. The rings were obtained right after slaughter. The rings were suspended in organ baths for isometric tension measurement. E2 (10-10, 10-9, 10-8 M) produced concentration-dependent vasodilatation on the maximum contraction induced by KCl (40 mM) in artery rings (IC50 was 10-10 mol/L as shown in figure 1). After incubation with E2 (10-10, 10-9, 10-8 M), the half-concentration induced by KCl (40 mM) was inhibited in concentration-dependent manner (EC50 was 10-9 mol/L), as shown in figure 2, while the concentration-effect curve generated by 5-HT was also inhibited (P<0.02 vs 4.5±3, as shown in figure 3). In our recent study on isolated human renal arteries, it seems that a concentration-effect curve induced by NE was also inhibited after incubation with E2 (10-10, 10-9 M). Our results suggest that E2 has vasodilatory effect on isolated arteries.

Key Words: 17β-estradiol, isolated arteries

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